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Medical Professionalism: A Time to Act

Medical professionalism received significant attention in medical, scientific and lay press over the past few years. The rapid development of medical and communication technologies, improvements in access to medical information for the educated public thru internet, have all changed the way in which physicians and their patients interact.

These changes have some positive as well as negative impacts. In the positive side, the patients are empowered to make their medical decision on their own behalf or by the parents or surrogates. In the negative side, the physicians feel pressure to prescribe medications or order tests they might not have otherwise chosen.

In some places, medical system forces the physician to assume an entrepreneurial role and encourages them to promote their own medical services. These types of activity may be seen as being incompatible with the traditional role of the physician as an altruistic and selfless healer.

Discussion and debate on medical professionalism has been centered on attempts at arriving at a definition of the concept of professionalism.The particular obligation of individual physician and social contract between the medicine and the societies are on the top of the list. The King's Fund discussion paper in 2004 stretched on redefining the medical professionalism for better patient care and need to demonstrate better duty to serve the patients' interest.[1]

Sir Liam Donaldson's impressive motto "Good doctors, Safer patients" in 2006 was published after a series of high-profile public scandals in 1990s in the U K, in response to mounting public pressure.[2] And we should not forget "Medicine is , in essence , a moral enterprise".

The new American Medical Association has chosen the right road for medicine: the course of professionalism, of patient advocacy, and of personal sacrifice.[3] It is in the way of helping doctors be better doctors, not necessarily richer, not necessarily more authoritative – but better doctors….

Perhaps the visionary statement of Canadian Medical Association best captured preferred approach in two aims: "A healthy population and vibrant medical profession".[4]

In an article in 2002 "Medical Professionalism in the New Millennium: A Physician Charter" written jointly by Canadian, European and American physicians laid out 3 fundamental principles which are primacy of patient welfare, patient autonomy and social justice.[5] The proposed concept has both positive and negative discussions and reactions.

Traditionally, the concept of medical professionalism discusses and debates in medical literature on obligations of individual physicians but we should not forget that we have a moral "social contract" between medicine and society.

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ORIGINAL ARTICLE

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Comparative effectiveness of second-generation antipsychotic quetiapine and haloperidol in acute schizophrenia

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Abstract

In this prospective, open labeled, parallel group and randomized study was done in the department of psychiatry, Sylhet MAG Osmani Medical College, Sylhet. A total of 66 acutely ill patients with schizophrenia, schizoaffective disorder or schizophreniform disorder were diagnosed by DSM-IV criteria and Brief Psychiatric Rating Scale (BPRS) score from out patient department of psychiatry completed the 3-weeks treatment with quetiapine (n=33) and haloperidol (n=31) in two divided groups. Evaluation of the patient's response was measured at 11th & 22nd day by BPRS. Adverse effects were scored with Simpson-Angus Scale for extra pyramidal side-effects and Barnes Akathisia Rating Scale. The most percentage reduction (48.62%) of BPRS score between two drugs was in quetiapine treated-group on 22nd day from baseline. Quetiapine and haloperidol reduced BPRS score at 22nd day and the difference was significant. Significant difference was observed between two groups at 22nd day in terms of incidence of adverse effect in Simpson-Angus Scale (x^2=22.6811, p<0.001) and significant difference (t= 5.4128, p<0.001) was observed between two groups in terms of Simpson-Angus Scale scores. Significant difference was observed between two groups at 22nd day in terms of incidence of adverse effect in Barnes Akathisia Rating Scale (x^2=20.2082, p<0.001) and significant difference (t= 2.6301, p<0.001) was observed between two groups in terms of Barnes Akathesia Rating scores. Quetiapine is a novel atypical antipsychotic for the treatment of schizophrenia. Quetiapine demonstrated efficacy better than haloperidol with associated benefits for safety and tolerability. Quetiapine was associated with significantly lower scores on extrapyramidal side effects assessments than haloperidol (p<0.001).

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Introduction

Schizophrenia is a chronic disease of global importance. It's incidence is low but prevalence and cost[1] is relatively high reflecting the chronicity in many patients. The selection of antipsychotic in early stages of the illness is mainly determined by its clinical effectiveness. Second-generation antipsychotics are the first line drug treatments for individuals suffering from schizophrenia. In preclinical trials, quetiapine showed both the features associated with antipsychotic efficacy and a low rate of motor effects[2]. The FDA has also approved a slow-release formulation of quetiapine for the treatment of schizophrenia[2]. Quetiapine is an established anti-psychotic with efficacy and good tolerability, particularly with respect to EPS[2]. The second-generation antipsychotic quetiapine has a favorable side-effect profile; however, its clinical effectiveness has been called into question when compared with first-generation antipsychotics such as haloperidol. several studies conducted abroad and established that second-generation antipsychotic has a good tolerability and safety profile that demonstrates several benefit over haloperidol in term of psychotic over activity, quieting the patient, extrapyramidal symptoms (EPS), akathesia and other side effects. This study evaluates the efficacy and tolerability of quetiapine versus haloperidol for acutely ill patients with schizophrenia in the outpatient setting.

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Atypical antipsychotic medications are approved for marketing and labeling by the US Food & Drug Administration (FDA) for treating schizophrenia, bipolar disorder, & depression under drug-specific circumstances. The most commonly prescribed atypical antipsychotic medications are quetiapine, risperidone, aripiprazole, and olanzapine[3]. With an increase in new generation of antipsychotic drugs and resulting antipsychotic polypharmacy, treatment of schizophrenic patients has again come into the daily agenda. In spite of the annual increase of these new drugs in recent years no expected benefit in the treatment of patients has been observed. A lack of alternative treatments of schizophrenia and the increase of polypharmaceutical approaches to treatment have led to clinicians feeling helpless; especially as schizophrenia is known to be treatment resistant over time and is often subject to poor prognosis[4].

Prevalence[5] of schizophrenia in Bangladesh is 0.6%. To our knowledge a few comparative study had been done in our country. So, to compare the effect and tolerability of atypical antipsychotic quetiapine with a typical haloperidol in the treatment of acute schizophrenia was the objective of this study.

Materials and Methods

This randomized comparative clinical trial was carried out with study 18 years and older of either gender, who were acutely ill and attended the Out Patient's Department of Sylhet MAG Osmani Medical College Hospital for a period of four months. All patients in the study were diagnosed with schizophrenia, schizoaffective disorder or schizophreniform disorder according to DMS-IV criteria[6].Consenting 66 patients were randomly assigned to treatment with quetiapine and haloperidol. All odd registration number holder 33 patients were given quetiapine (group I) and all even registration number holder 33 patients were given Haloperidol (group II). Both the patients and the treating psychiatrists were aware of the antipsychotic being prescribed. The treating psychiatrists followed standardized dosing guideline based on the manufacturers` recommendations, with the objective of obtaining a maximum recommended dosage within 1-2 weeks. Patients were given 3-weeks trial of the antipsychotic to determine its effectiveness. As needed, doses of diazepam / midazolam / clonazipam for agitation were permitted. The medications were generally administered together and intramuscularly for aggressive and threatening behavior. Procyclidine could also be prescribed for extrapyramidal side-effects; it was the treating psychiatrist's decision whether to prescribe this prophylactically or after side-effects developed. After 10 days of treatment, an antidepressant, mood stabilizer, or anxiolytic could be added at the psychiatrist's discretion for significant mood symptoms or impulsivity. These medications are often considered essential in the acute treatment of schizophrenia [7].

If the treating psychiatrist assessed the patients to be improving on the medication at 11th (1st follow up) day, it was continued or by changing the dose in needed situation and asked the patients to attend at 22nd (2nd follow up) day of the trial. A period of 3-weeks was chosen because treatment guidelines (American Psychiatric Association, 2004) have recommended waiting 2-4 weeks before changing antipsychotic pharmacotherapy[8], although there is evidence that the lack of improvement in the first week or so of treatment predicts non-response[9]. At any time, if the treating psychiatrist believed that continuing treatment with selected antipsychotic would not be in the patient's best interest (e.g., significant side-effects, medical instability and clinical deterioration), the medication might discontinue.

The measure of effectiveness was the total score on the Brief Psychiatric Rating Scale (BPRS) [10]. Ratings were made at baseline, at 11th day and at 22nd day; the end-point. The end-point was when the antipsychotic was determined to be effective or ineffective.

Side-effects were recorded concurrently with BPRS ratings. Side-effects data were elicited by spontaneous report and clinical evaluation. Parkinsonian side-effects were assessed with the Simpson-Angus Scale[11] and Akathisia with the Barnes Akathisia Rating Scale.[12]

All statistical analysis was done by R 3.0.3 version for windows software package. The goal was to have each treatment cell contain approximately 54 patients; but we had only 33 patients in each treatment group. The primary hypothesis was that the two treatments would be differentially effective in treating acutely ill patients with schizophrenia, schizoaffective disorder or schizophreniform disorder. The effect of the antipsychotic on the main continuous outcome variable (BPRS score) was analyzed with Student's t-test. Categorical variables were analyzed using an x^2 test. The result would be expressed as mean ± SD. 95% confidence limit would be taken as level of significance.

Results

62 patients were taken into account as study samples. The study subjects were matched in respect to their sex & age. In quetiapine (group I) treated patients 51.52% were male and in haloperidol treated patients (group II) 60.61% were male; No statistical significant difference was observed between group I and group II in terms of sex distribution (x^2=0.246, p=0.6199). No statistical significant difference was observed between group I and group II in terms of age distribution (t= -0.2231, p=0.8242). The values are shown in the table I

Table I: Baseline characteristics of the patients

Baseline variable	quetiapine	Haloperidol
Male	17 (51.52%)	20 (60.61%)
Female	16 (48.48%)	13 (39.39%)
Age (in year)	33.61 ± 15.62 (mean ± SD)	32.82 ± 12.95 (mean ± SD)
Schizophrenia	24	26
Schizoaffective disorder	05	04
Schizophreniform disorder	04	03

The maximum daily dosage of antipsychotic used in each treatment group was as follows: quetiapine, mean 190.15 mg, s.d. = 51.31, recommended range 50-1200 mg; haloperidol, mean 13.55 mg, s.d. = 6.22, recommended range 4-30 mg; these fell within the recommended dosage range for each medication[6]. The use of additional medication throughout the study is shown in table II. There was significant difference among the two treatment groups in the need for sedatives; midazolam/diazepam/clonazepam (x^2=6.99, p<0.01) for aggressive or agitated behavior. There was a significant difference in the use of procyclidine (x^2=21.98, p<0.001) for extrapyramidal side-effect among the groups.

The values are shown in the table II

Table II : incidence of additional drugs used in group I & group II

group	sedative	anticholinergic	Mood sabilizer
Quetiapine	24	14	07
Haloperidol	30	30	05

In the quetiapine treated-group before administration of quetiapine and at the 11th day the BPRS score was 60.69 ± 8.78 vs. 44.48 ± 7.79 (p<0.001). Again, in the quetiapine treated-group at baseline and at 22nd day the BPRS score was 60.69 ± 8.78 vs. 31.18 ± 8.46 (p<0.001).

Table III: effect of quetiapine on BPRS score

Drug	Baseline	At 11th day	At 22nd day
Quetiapine	60.69 ± 8.78	44.48 ± 7.79	31.18 ± 8.46

In the haloperidol treated-group before administration of haloperidol and at the 11th day the BPRS score was 59.55 ± 8.10 vs. 47.00 ± 8.54 (p<0.001). Again, in he haloperidol treated-group at baseline and at 22nd day the BPRS score was 59.55 ± 8.10 vs. 41.77 ± 10.31 (p<0.001).

Table IV: effect of haloperidol on BPRS score

Drug	Baseline	At 11th day	At 22nd day
haloperidol	59.55 ± 8.10	47.00 ± 8.54	41.77 ± 10.31

Percentage changes of quetiapine were 26.71% on 11th day & 48.62% on 22nd day. Percentage changes of haloperidol were 21.07% on 11th day & 29.86% on 22nd day. Hence, the most percentage reduction (48.62%) of BPRS score between two drugs was in quetiapine treated-group on 22nd day.

Table V: percentage changes (reduction) of BPRS score between two groups

Drug	0-11th day	0-22nd day
Quetiapine	26.71%	48.62%
Haloperidol	21.07%	29.86%

quetiapine and haloperidol reduced BPRS score at 11th day but the difference was not significant. Similarly quetiapine and haloperidol reduced BPRS score at 22nd day but the difference was significant. Mean changes of BPRS score of two drugs are presented in table VI.

Table VI: comparison of effects of quetiapine and haloperidol

Days	quetiapine	Haloperidol	p-value
At 11th day	-16.21 ± 4.85	-12.71 ± 5.64	0.2242
At 22nd day	-29.94 ± 10.00	-17.94 ± 9.37	<0.001

More adverse events were observed in haloperidol (53.83%, 83.87%) and (41.94%, 77.42%) than quetiapine (9.09%, 21.21%) and (6.06%, 18.18%). Statistically significant difference was observed between two groups at 11th day in terms of incidence of adverse effect in Simpson-Angus Scale (x^2=13.5143, p=0.00024). Statistically significant difference was observed between two groups at 22nd day in terms of incidence of adverse effect in Simpson-Angus Scale (x^2=22.6811, p<0.001).

Statistically significant difference was observed between two groups at 11th day in terms of incidence of adverse effect in Barnes Akathisia Rating Scale (x^2=9.5523, p=0.001997).

Statistically significant difference was observed between two groups at 22nd day in terms of incidence of adverse effect in Barnes Akathisia Rating Scale (x^2=20.2082, p<0.001).

Incidence of adverse drug reactions observed in either quetiapine or haloperidol treated-group is presented in table VII.

Table VII: incidence of adverse effects in two groups

Adverse effect	Simpson-Angus Scale				Barnes Akathisia Rating Scale			
	quetiapine		haloperidol		quetiapine		haloperidol	
	at 11th day	at 22nd day	at 11th day	at 22nd day	at 11th day	at 22nd day	at 11th day	at 22nd day
Present	3 (9.09%)	7 (21.21%)	17 (54.83%)	26 (83.87%)	2 (6.06%)	6 (18.18%)	13 (41.94%)	24 (77.42%)
Absent	30 (90.91%)	26 (78.79%)	14 (45.16%)	5 (16.12%)	31 (93.94%)	27 (81.82%)	18 (58.06%)	7 (22.58%)

At base line simpson-Angus Score was 0 in both groups. At 11th day of follow up mean score was 0.09 ± 0.29, 1 ± 1.25 in group I and group II respectively, difference was significant (t= 4.3616, p= 0.000115). At 22nd day mean score for group I was 0.31 ± 0.64, group II was 2.097 ± 1.74 difference was significant (t= 5.4128, p< 0.001).

Rating scores for drug induced akathisia were 0.06 ± 0.24, 0.613 ± 1.15 in group I and group II respectively on 11th day and 0.24 ± 0.61, 1.39 ± 1.09 on 22nd day in group I and group II respectively. Significant differences (t= 2.6301, p<0.001, t= 5.1482, p< 0.001) were observed between two groups in terms of Barnes Akathesia Rating score statistically.

Rating scores of adverse drug reactions observed in either quetiapine or haloperidol treated-group is presented in table VIII.

Table VIII: Simpson-Angus Score & Barnes Akathisia Rating Score in two groups

Score		groups	
		Group I quetiapine	Group II haloperidol
Simpson-Angus score	baseline	0	0
	At 11th day	0.09 ± 0.29	1.00 ± 1.25
	At 22nd day	0.31 ± 0.64	2.097 ± 1.74
Barnes-Akathisia score	Base line	0	0
	At 11th day	0.06 ± 0.24	0.613 ± 1.15
	At 22nd day	0.24 ± 0.61	1.39 ± 1.09

Discussion

From January 2016 to April 2016 a total of 66 acutely ill patients attended in psychiatric out-patient service with the diagnoses of schizophrenia, schizoaffective disorder or schizophreniform disorder were screened for entry into the study. Of the 66 patients randomized, 2 from haloperidol group were withdrawn from the study for reasons unrelated to antipsychotic treatment and non cooperation with absence to attend the 1st (11th day) follow up visit were not included in the data analysis. A total of 64 patients were included in the analysis: these 64 patients had a 3-weeks trial of the either antipsychotic and completed the trial with or without adverse effect.

This study demonstrates differences in effectiveness among two antipsychotics in treating acutely ill patients with schizophrenia, schizoaffective disorder or schizophreniform disorder, quetiapine, was more effective (more reduction in BPRS score) than haloperidol and the result was statistically significant. These results were obtained with minimum bias, using a randomized design, without support from the pharmaceutical industry. The latter point is important as a study's findings must be interpreted in light of the source of funding[13]. The definition of effectiveness was a pragmatic one that mirrored clinical practice: an acutely ill patient is treated, and, when sufficiently improved, is asked to continue the drug. In this study, an effective antipsychotic improved a patient's psychosis enough so that this outcome is meaningful to both clinicians and their patients. Although treatment guidelines for schizophrenia National Institute for Clinical Excellence, 2002; American Psychiatric Association, 2004, recommend starting with a second generation

antipsychotic because of the improved side-effect profile, there is little to guide clinicians in choosing among them.

We chose haloperidol as a comparator because of its proven efficacy in treating schizophrenia. Although there were more withdrawals because of side-effects with the drug, those who were able to tolerate it had a response rate of 98%[8]. Subsequent meta-analyses that have compared efficacy between second-generation antipsychotic and haloperidol have been inconclusive. Geddes et al, (2000) found no advantage of the second-generation antipsychotic over haloperidol for either efficacy or side-effects when an optimal dosage of haloperidol of 6-12 mg per day was used[14]. The mean daily dosage of 13.55 mg in our study was higher than this. Perhaps if lower dosages had been used in conjunction with prophylactic anticholinergic medication, side-effects would have been less of a problem. Quetiapine has greater efficacy for positive and negative symptoms with less extra-pyramidal symptoms than haloperidol when used for first-episode schizophrenia in the out patient setting[15]. Quetiapine may not differ from typical antipsychotic in the treatment of positive symptoms and general psychopathology. There are no clear differences in terms of the treatment of negative symptoms. However, it causes fewer adverse effects in terms of abnormal ECG, extrapyramidal effects, abnormal prolactin levels and weight gain[16].

Quetiapine, second-generation antipsychotic drugs induced more weight gain, in various degrees, than did haloperidol[17]. But Scheduled pharmacologic treatment to prevent weight gain or promote weight loss in schizophrenia patients on second-generation antipsychotic therapy is limited[18]. In our short-term trial weight was not estimated.

Patients in both medication groups reported having side-effects about one-third or more of the time. Patients taking haloperidol had more complaints. Patients given quetiapine required less concomitant anticholinergic medication, whereas almost all patients on haloperidol did need it. An interpretation of this result is that extrapyramidal side-effects were not a problem for the majority of patients in this study and were resolved with anticholinergic medication if present. Our concern psychiatrists used sedatives randomly in almost all the patients in haloperidol group and most of the patients of quetiapine group, so the need of sedation was significantly differentiated.

Owing to the relatively short treatment period of this study, the important side-effects of weight gain, hyperglycaemia, lipid abnormalities and terdive dyskinesia were not evaluated.

Not directly observed therapy, depends on patients or attendants statements. Number of patients was small. The definition of effectiveness used in this study may be a reflection of improvement in only some of the clinical manifestations of schizophrenia. Duration of the treatment may not adequate. By American guideline, a 3-weeks minimum trial would be sufficient to determine an antipsychotic effectiveness; however, this might be considered too short for European psychiatric practice, where a minimum of 6 weeks is needed[19]. Since both the antipsychotic were effective for the majority of the patients by the criteria used in this study, the marginal benefit of a longer trial would probably be minimal.

Quetiapine is a novel atypical antipsychotic for the treatment of schizophrenia. quetiapine demonstrated better efficacy than haloperidol with associated benefits for safety and tolerability. quetiapine was associated with significantly lower scores on all extrapyramidal symptoms assessments than haloperidol ($p<0.001$). In summary, quetiapine represents a promising new option for the long-term treatment of schizophrenia.

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ORIGINAL ARTICLE

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Isolation and identification of pathogenic bacteria from used white-coat and facemask in a tertiary care hospital

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Abstract

Inanimate surfaces have often been described as the source for outbreaks of healthcare associated infections (HAI) or nosocomial infection. Nosocomial pathogen can survive in the hospital clothes including hospital uniforms like white-coat and protective shield like facemask. This observational study was designed to isolate and indentify the common hospital pathogensfrom the used white-coat and face mask of hospital staff in a tertiary level hospital. The study was conducted in the department of microbiology of Sylhet M.A.G. Osmani Medical College Sylhet. A total of two hundred (200) samples that included one hundred (100) white-coats and one hundred (100) facemasks were selected from the hospital staff of different wards under Medicine and Surgery department by random probability proportionate sampling technique for the study. Microbiological specimens from two sites of each sample were collected in two states, used and unused state. Bacteriological analysis was done by applying standard laboratory procedure. In hospital environment, irrespective of its site of contamination, the method of usage and storage, specimens from 84%used white-coat showed bacterial growth, whereas specimens from 6% unused white-coat were proven to have bacterial contamination ($p<0.001$). Growth was not observed from 16% specimens from used white coat whereas 94 % of unused white-coat were found to have no growth. The organism identified from the white-coat specimens were the common nosocomial pathogens, namely *Eshcherichia coli*, *Staphylococcus aureus* and *Klebsiella*. Almost all the used facemask had bacterial contamination including inner surface about 98% and outer surface 82.4% than that of unused facemask (no growth in 98%, $p<0.001$). Identified organisms were *Staphylococcus aureus* in 82% and in 18% cases coagulase negative *Staphylococcus epidermidis*. Insignificant number of unused and used facemask outer surface showed harboring of *Eshcherichia coli*. In conclusion this study revealed that bacterial contamination was more in the used white-coat and facemask and therefore suggestion was made for further study by doing phage typing of pathogens isolated from the different hospital surfaces and patients' specimens. The phage typing can help to identify any possibility of these surfaces for being as a vehicle for nosocomial pathogens. Further research to track back this source of nosocomial infection would be highly beneficial to upgrade infection control measures.

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Introduction

Emergence and re-emergence of communicable diseases are still a huge health and economic concern. Antimicrobial drugs are the mainstay to combat with the infectious disease. The modern era of antimicrobial chemotherapy began in 1929, with Fleming's discovery of the powerful bactericidal substance, penicillin, and Domagk's discovery in 1935 of synthetic chemicals (sulfonamides) with broad antimicrobial activity.[1]

Among infected patients, antibiotic resistance is associated with increases in length of hospital stay, health care costs, and patient morbidity and mortality. Mortality among patients with methicillin-resistant Staphylococcus aureus (MRSA) and vancomycin-resistant enterococci (VRE) bacteremia is significantly higher than mortality among patients with susceptible

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forms of the same bacteria.[2] More than 1.4 million people worldwide, at any one time, are estimated to suffer from infections acquired in hospitals.[3] Healthcare associated infections (HAIs) remain a significant hazard for patients and their families visiting a hospital or healthcare facility. HAIs have been reported to extract a tremendous toll on patients, families and systems of care, resulting in increased morbidity and mortality and increased healthcare costs.[4] The impact of HAIs is more severe in resource-poor settings where the rate of infection is estimated to range from 25% to 40%.[5]Gurley et al., (2008) reported that in Bangladesh, 1.7% of all patient hospital admissions are hospital-acquired respiratory disease; rates by ward ranged from 0.8 to 15.8 cases per 1000 patient-days at risk.[6] Interestingly the same study showed that 27% of the health care service providers experienced a respiratory illness during the study period.

Clinical examination and other clinical maneuver involve hands as the media of contact between all animate and inanimate in the hospital. So hand is a great concern for hygienic hospital environment. Antiseptic hand-washing, surgical hand-forearm-washing are now important practices in hospital to prevent pathogen exchange between patients and hospital staff. Besides, various types of gowns and other protective apparels are worn by the health professionals to provide barrier protection to reduce transmission of pathogens from their body surface in hospitals. However, uniforms of health care workers e.g white-coat are an important aspect of the environment that can easily become contaminated.[7]

In 2005, WHO Patient Safety Initiative launched the First Global Patient Safety Challenge to galvanize international focus and action on the critical issue of HAIs (WHO 2005).[5] In line with the WHO patient-safety initiative, any potential source of HAIs that could threaten the wellbeing of individuals within healthcare facilities merits consideration. Thus, investigating the potential of physicians' white coats to transmit HAIs was justified. To the best of our knowledge, no studies examined the contributory role of white coats and facemask in the transmission of nosocomial infection in healthcare settings in Bangladesh. The aim of this study was to isolate, identify and compare pathogens prevalent on the used apparently clean white-coat and face mask.The research outcome could provide information to the health professionals about the bacterial pathogens that can potentiate healthcare associated infection (HAIs).

Material and Methods

This observational study was performed in the Department of Microbiology and different wards of M.A.G Osmani Medical College Hospital, Sylhet. To see the profile of common bacterial pathogens in the used white-coatand facemasks, microbiological specimens were collected from thewhite-coats and facemasks user in the hospital. By applying simple random probability proportionate sampling a total of two hundred (200) subjects were studied. Out of them there were one hundred (100) white-coats and one hundred (100) facemasks. All the samples were collected from the different wards under Medicine and Surgery departments. Ethical issues were followed accordingly. Consent from the white-coat and mask wearers were taken. Some demographic data about the usage of white-coats and facemask were noted by a set questionnaire answered by the users. For every white-coat sample, specimens were collected from two sites- pocket mouth sleeve-cuff(either right or left, not the both) two times at two conditions; at the freshly laundered unused condition and used condition. Same procedure was applied for facemask. The two sites- inner surface and outer surface at fresh unused condition and used condition were the sources for specimens. Sterile tube with swab stick were brought to the study subjects in the respective ward or operation theater. Normal saline soaked swab stick impressions were taken as microbiological specimens from the targeted sitesof white-coats and facemask. Collected specimens were immediately borne to the Microbiology department. Standard laboratory procedure were strictly followed. Isolation and identification of particular bacteriawere made by microscopic examination, inoculation in culture media (Blood agar, MacConkey's agar, TSI, MIU etc), biochemical examinations (coagulase test, catalase test, oxidase test etc).

Results

The present study was carried out in the Sylhet M. A. G. Osmani Medical College, Hospital (SOMCH) as an effort to explain this hypothesis that two important objects used in hospital, namely the white-coat and facemask could have contamination by common nosocomial bacteria. By applying simple random technique a total of two hundred (200) sample that

included 100 white-coats and 100 facemasks were studied. These are taken from the doctors and nurses of different specialties, under medicine and surgery department and operation theater. Four hundred (400) microbiological specimens from a total of two hundred (200) samples (one hundred white-coats and one hundred facemasks) were collected to meet the objective of this research work. The relevant demographic data and the data about bacterial profile were analyzed by statistical software SPSS version 17.

Table I: Reason for white-coat contamination :

Reason of contamination	Percentage (%)
By spilled over patient's waste	11.0
By direct contact with hospital fomites	8.0
Both reasons	81.0
Total	100.0

Table II: Commonly contaminated site of white-coat

Contaminated site	Percentage (%)
Pocket area	44
Cuff	47
Both cuff and pocket	6
Other site	1
Total	100.0

Table III: Reasons for mask contamination:

Reasons of contamination	Percentage (%)
By wearer's own secretion	90.0
By direct contact with un-sterile OT fomites.	4.0
Both Reasons	6.0
Total	100.0

Table IV: Commonly contaminated surface of a facemask:

Common surface	Percentage (%)
Outer surface	6
Inner surface	87
Both	7
Total	100

Table V: Micro-organism in white-coat sleeve cuffand white-coat pocket mouth at freshly-laundered unused and used state:

Microrganism	White-coat sleeve cuff		White-coat pocket mouth	
	Unused (%)	Used (%)	Unused (%)	Used (%)
Eshcherichia coli	4	44	5	43
Staphylococcus aureus	1	29	1	30
Klebsiella	0	2	0	2
Mixed	1	9	0	9
No growth	94	16	94	16
Total	100	100	100	100

Table VI: Different category of growth inspecimens from white-coat sleeve cuff and pocket mouth

Growth	White-coat sleeve cuff		White-coat pocket mouth	
	Unused (%)	Used (%)	Unused (%)	Used (%)
Profuse	2	44	1	33
Mild	4	40	5	51
No growth	94	16	94	16
Total	100	100	100	100

Table VII: Micro-organism isolated from growth in facemask inner and outer surfaceat freshly-laundered unused and used state::

Growth	Facemask inner surface		Facemask outer surface	
	Unused (%)	Used (%)	Unused (%)	Used (%)
Eshcherichia coli	1	0	1	8
Staphylococcus aureus	0	82	1	57
Staphylococcus epidermidis	0	18	0	0
Mixed	1	0	0	14
No growth	98	0	98	21
Total	100	100	100	100

Table VIII: Different category of growth in specimens from facemask surface

Growth	Facemask inner surface		Facemask outer surface	
	Unused (%)	Used (%)	Unused (%)	Used (%)
Profuse	0	14	1	12
Mild	2	86	1	67
No growth	98	0	98	21
Total	100	100	100	100

Table IX: Bacterial growth in white-coat cuff:

Bacterial growth	White-coat Use Status		P value (Chi-square Test)
	Used (%)	Unused (%)	
Yes	84	6	<0.001
No	16	94	
Total	100	100	

Table X: Bacterial growth in white-coat pocket-mouth:

Bacterial growth	White-coat Use Status		P value (Chi-square Test)
	Used (%)	Unused (%)	
Yes	84	6	<0.001
No	16	94	
Total	100	100	

Table XI: Bacterial growth in facemask inner surface:

Bacterial growth	Facemask use status		P value (Chi-square Test)
	Unused (%)	Used (%)	
Yes	2	79	<0.001
No	98	21	
Total	100	100	

Table XII: Bacterial growth in facemask outer surface:

Bacterial growth	Facemask use status		P value (Chi-square Test)
	Unused (%)	Used (%)	
Yes	2	100	<0.001
No	98	0	
Total	100	100	

Discussion

In a tertiary care hospital like Sylhet M. A. G. Osmani Medical College hospital, doctors, nurses are directly and closely associated with medical or surgical careof large number of patients each day. Such proximity in between the care givers and patients is a bridge of exchanging hospital pathogens. Eventually white-coat or any protective attire like facemask get contaminated.In the hospital environment white-coat and protective attire like facemask were very much prone to become dirty. The white-coat wearer were expected to have the insight regarding dirtiness. Among the study subjects, 11% suspected the spilled over patient's waste caused the dirtiness during care or check-up.Another 8% thought that the direct contact with hospital fomites and equipments caused the dirtiness. But 81% interviewees considered these both causes were responsible for dirtiness of hospital uniforms. In case of face-mask 90% user said that their nasal or oral secretion could contaminate facemask, but 4 % believed that operation theater fomites or equipments supplied dirt for facemask. The rest 10% considered both causes. Common site for bacterial contamination in the white-coat or facemask were another concern. Most used parts of white-coat and facemask were the most contaminated. White-coat worn by 44% thought of pockets as the most used part, so pocket was the most contaminated site and 47% claimed that hand was introduced first for patient caring or clinical examination, so sleeve cuffs got most contamination. The rest subjects pointed about the contamination of both cuffs and pockets. Among the face mask users, 87% were sure about the inner aspect as most commonly contaminated than the outer aspect. Interestingly, outer surface of facemask could bear contamination, was believed by 6 percent, and the rest 7 percent said both surfaces had contamination.

In this study isolation and identification of organism and their growth characteristicswere the mainstayofobserving the bacterial profile. Gram negative bacili *Eshcherichia coli*, was identified from the specimens of 4 and 5% in unused white-coat cuffs and pocket-mouths respectively. For used white-coat *Eshcherichia coli* was present in 44% and 43% percent specimens from cuffs and pocket mouth respectively. *Staphylococcus aureus* was identified in specimens from cuff and pocket mouth of one unused white-coat. For used white-coat, *Staphylococcus aureus* was found in 29 and 30% specimens from cuffs and pocket mouth respectively. In 2 specimens, another common Gram negative organism *Klebsiella* was found in the specimen from cuff and pocket-mouth of these 2 white-coats.

Mixed growth was found in aspecimen which was collected from an unused white coat sleeve cuff and pocket mouth and specimens from 9 used white coat sleeve cuffand pocket mouth. Mixed growth was observed in case of white-coat pocket mouth in only used condition. In 9 cases of used pocket mouth there were mixed growth. So, these 9 white-coats had greater contamination by more than one microorganism. However contamination of used white-coat were 84 percent, leaving 16 percent used white-coats were free from any bacterial contamination.

Treakle et al., (2009), studied 149 white-coats among which 22.8% were contaminated with *S aureus* and 4% were contaminated with MRSA.[2] They did not investigated the presence of the common Gram negative organism nested in hospital environment. Muhadi, et al., (2007) isolated *Staphylococcus aureus* from various sites of short and long-sleeved white coats were 32% and 54% respectively.[8] For the long-sleeved coats, pocket and sleeves were more frequently contaminated than the side and collar ($p<0.05$) while for the short-sleeved coats pockets were found to be more frequently contaminated. *Staphylococcus aureus* was the most common type of microorganism on every site, followed by bacillus species. Uneke et al., (2009) had a study of 103 white-coats in Nigeria, where 94 (91.3%) had contamination and the organisms were *Staphylococcus aureus* in 18 sample, *Pseudomonas aeruginosa*in 9 samples, Diphtheroids in 49 samples with some non-specified Gram negative organism in 18 cases.[9] Their study also observed that white coats of physicians who used them only during

clinical duties had significant lower rate of bacterial contamination compared with those used during both clinical and non-clinical duties ($p<0.05$).[9] Comparing with this research we did not find the presence of *Pseudomonas aeruginosa*, Diphtheroids, rather we detected *Eshcherichia coli* and *Klebsiella* in addition to *Staphylococcus aureus*. Pilonetto et al., (2004) isolated *Staphylococcus aureus, Acinetobacter baumannii, Klebsiela pneumoniae* and *Serratia rubidae* from specimens while studying bacterial contamination of surgical gowns before and after use.[10]

Our study was also aimed to isolate and identify bacteria from the used and unused facemask, which were confined only at operation theater. Facemasks studied in this research work were used by surgical team. Inner surface of used facemask were found to be 100 percent contaminated with bacteria. *Staphylococcus aureus* was exhibited from the culture of 82 percent specimens, and 18 percent specimens appeared to have coagulase negative staphylococci i.e. *Staphylococcus epidermidis*. Inner surface of one case of unused facemask possessed *Eshcherichia coli*. This indicated that the operation theater environment could culture *E. coli*. Specimens which were collected from used facemask has got some important findings. Outer surface of 57% used facemasks had *Staphylococcus aureus*, in 8 cases of used facemask outer surface possessed *Eshcherichia coli*. Mixed growth was observed in 14 used facemask outer surface. No growth of bacteria was seen in 98 cases of unused facemask outer surface.

The culture media, used for the study were blood agar media and MacConkey's agar media. The organisms isolated, were found to grow in both the media. While observing growth in the culture media, inoculation of some specimens showed profuse growth in a single media or both media. Two specimens from unused white coat sleeve cuffs and 44 specimens from used white coat sleeve cuff showed profuse growth. One specimen from unused white-coat pocket mouth and specimens collected from used 33 cases of white-coat pocket mouth showed profuse growth. When observed growth clearly depicted less than that of profuse growth, it was called as mild growth. Unused white coat sleeve cuff specimens of 4% and 40% specimens of used white coat sleeve cuff showed mild growth. Unused white-coat pocket mouth specimens from 5 cases and specimens collected from used 51 white-coat pocket mouth showed mild growth. No significant relation was found in terms of growth features. Profuse or mild growth was found irrelevant with the idea of most common site of contamination of white-coat.

Our study yielded bacterial growth was most commonly occurred (n=84, about 93 %) in used white-coat cuff. Dissimilarly growth in unused white-coat cuff was about 7% ($p <0.001$). In the same occasion the bacterial growth was more (n=84, about 93 percent) occurred in used white-coat pocket and expectedly bacterial growth was observed in 7% unused white-coat pocket ($p <0.001$). Though there was a strong relationship between white-coat used status and the bacterial growth in white-coat pocket mouth, no significant relation was revealed regarding the most contaminated site of a white-coat.

Burden et al., (2011) studied about bacterial contamination of doctors uniform and they found bacterial contamination occurs within hours after donning newly laundered short-sleeved uniforms.[11]After 8 hours of wearing, no difference was observed in the degree of contamination of uniforms versus infrequently laundered white coats. In our study there was bacterial contamination in the used white-coat irrespective of staff position, length of using, working place, the type of organism or most contaminated site. Only a few cases showed contamination in the laundered unused white-coat.

Study of facemasks specimens yielded bacterial growth commonly occurred in all (n=100,about 98 %) the used facemask inner surface. About 2 percent unused facemask inner surface showed a small chance of bacterial growth ($p <0.001$). Specimens from used facemask outer surface bacterial growth was commonly found in 82.4% (n=79) with no bacterial growth 17.6% (n=21) in specimens from used facemask outer surface ($p <0.001$). Expectedly, 98% of unused facemask outer surface specimens provided no growth, while a minimum portion (2%) showed growth of bacteria ($p <0.001$). The facemask wearer informed that they were very much aware about the matter that their own oral or nasal secretion and the operation theater surface can pass nosocomial bacteria in the facemask.

In conclusion, it is clear that inanimate objects and the hospital environment can become contaminated with dangerous pathogens, and that these organisms can persist for long periods of time if not eradicated. The mode of transmission of microbes include both human-to-human and non-human-to-human process. Those

transmitted organisms were easily entrapped in different hospital surfaces. As an inanimate objects white coats and face mask in this study were found contaminated by bacteria. The bacteria, that were identified in this study were most common nosocomial pathogens namely *Escherichia coli, Staphylococcus aureus, Klebsiella, Staphylococcus epidermidis*. The findings of greater contamination of used white-coat and facemask raised this possibilities of these materials acting as vehicle for nosocomial pathogens in hospital environment. Stakeholders in this field should have to explore various measures to reduce the incidence of healthcare associated infections (HAIs) in our hospital settings. Further research to track back this source of nosocomial infection would be highly beneficial to upgrade infection control measures.

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ORIGINAL ARTICLE

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Chest Trauma and Their Outcome

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Abstract

Objective of the study was tofind out the pattern of chest trauma and to assess the adequacy of management with their outcome in a tertiary level hospital.This case series studied with prospective data collection in Surgical Units II & IV of Sylhet M. A. G. Osmani Medical College Hospital from January 2012 to December 2013. One hundred and fifty consecutive patients admitted with chest trauma were evaluated. Patients above 12 years of age who presented with chest trauma either alone or associated with multiple trauma were included.A total of 150 patients were studied for various chest injuries during 24 months period. As a whole, 50.7% patients had blunt injuries compared to 49.3% of penetrating injuries. Most of the injuries were accidental (76). 63 patients (41.3%) had haemothorax while 14 patients (9.3%) had Pneumothorax and 41 patients (21%) presented with haemopneumothorax. 76 patients presented with rib fractures. 124 patients (82.7%) were treated by tube thoracostomy and 22 patients (14.6%) were treated conservatively. 1 patient (0.7%) underwent emergency thoracotomy and 3 patients (2.0%) were referred to higher centers. 8 patients (5.3%) died in spite of adequate measures. Males are commonly affected by chest trauma. Accidents and assaults bring most of its causes. Incidence of penetrating chest injuries is rising with time. Majority of the chest trauma patients can be satisfactorily managed by simple chest tube insertion and only few patients require major operative treatment or require referral to higher centers.

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Introduction

Trauma is the leading cause of morbidity and mortality, especially during the first 4 decades of life[1]. No published national data base of trauma is available. Accidents, violence are a cause of increasing injuries of chest. According to United States National Trauma Data Bank, admissions due to trauma have steadily grown in the last decade[2], which is 12 per million population per day and 20 to 25% of deaths occurring due to trauma in the United States are due to thoracic injuries[3]. Many patients with chest trauma die after reaching the hospital. Many of these deaths can be prevented by prompt diagnosis and management[4]. In spite of the high mortality rates, about 80-90% of the patients with life threatening thoracic injuries can be managed by a simple intervention like drainage of the pleural space by tube thoracostomy[5]. The critical condition of these patients can make their surgical management challenging for the general surgeon[6]. Among the causes of thoracic trauma, road traffic accidents, fire arm injuries and stab wounds take the major share[7]. Pre hospital deaths resulting from thoracic injuries are due to great vessel rupture and exsanguinations, cardiac tamponade, tension Pneumothorax and bilateral flail chest with deep refractory hypoxia. All patients who reach hospital alive should survive by appropriate management[8].

The objective of the study was to determine the predominant pattern of injuries following blunt and penetrating chest trauma and assess the adequacy of the management strategies based on Primary Trauma Care (PTC) guide-lines[9] employed for chest trauma in a generalized surgical unit of a tertiary level hospital.

Materials and Methods

This case series was conducted in surgical Unit-II and IV of SOMCH, from January 2012 to December 2013. 150 consecutive patients with thoracic trauma admitted in surgical units via emergency department were evaluated. Patients above 12 years of age, who presented with chest trauma either alone or associated with multiple trauma

were included. All patients were managed according to PTC guidelines. Life threatening injuries were managed as evident from clinical assessment in ward; for example, immediate tube thoracostomy of a tension Pneumothorax patient was done. Secondary survey was performed after patient was stabilized. Investigations included complete blood count, chest X-ray and abdominal X-ray, ultrasound and blood grouping, were also done where indicated.

Results

In this study the mean age of patients was 35.67±14 years. Most patients were between 30-35 years of age. Male to female ratio was 9.8:1 (136 male and only 14 female). Most of the injuries were accidental - road traffic accidents 50, fall from height 26 or due to assault with blunt trauma 14, stab injury 33, gunshot 20 and others were 7). 76 patients (50.7%) were admitted with blunt injuries and 74 patients (49.3%) were admitted with penetrating injuries.

32 patients (42.1%) of blunt injuries and 26 patients (35.1%) of penetrating injuries presented with subcutaneous emphysema (P>0.05). On X-ray, 62 patients (41.3%) had haemothorax, 34 patients (44.7%) with blunt injuries and 28 patients (37.8%) with penetrating injuries; (P>0.05). 14 patients (9.3%) had Pneumothorax, 10 patients (13.1%) with blunt trauma & 4 patients (5.4%) with penetrating injuries. 41 patients (21%) presented with haemopneumothorax, 18 patients (23.6%) of blunt trauma and 23 (31.0%) of penetrating trauma. 32 patients (21.3%) showed no abnormality on chest X-ray (12 of blunt trauma and 20 of penetrating trauma). 66 patients (86.8%) of blunt trauma presented with rib fracture in comparison with 10 patients (13.5%) of penetrating trauma which is statistically significant (P=0.00). 42 patients (28%) having 3 or more rib fractures, 34 patients (44.7%) of blunt trauma & 8 patients (10.8%) of penetrating trauma.

Most of the patients that are 124 (82.7%) were treated by tube thoracostomy and 22 patients (14.6%) were treated conservatively. 1 patient (0.7%) that came with an implanted sharp object underwent emergency thoracotomy. 3 patients (2.0%) were referred to higher centers.

8 patients (5.3%) died in spite of adequate measures. Of them, 3 were due to cardiac tamponade, 2 due to shock, 4 due to associated head injuries and 1 patient with flail chest that in spite of ventilatory support developed ARDS.

Table I : Mode of injury of Chest Trauma

	Blunt Trauma n=76 (50.7%)	Penetrating Trauma n=74 (49.3%)
Road traffic accidents	40	10
Fall from height	20	6
Assault (blunt)	14	-
Stab	-	33
Gun shot	-	20
Animal related	2	5

Table II: Clinical and Radiological Findings

Finding	Total	Blunt Trauma n=76	Penetrating Trauma n=74	Sig (2 tailed)
Subcutaneous emphysema	58	32 (42.1%)	26 (35.1%)	P>0.05
Haemothorax	62	34 (44.7%)	28 (37.8%)	P>0.05
Pneumothorax	14	10 (13.1%)	4 (5.4%)	P=0.00
Haemopneumothorax	41	18 (23.6%)	23 (31.0%)	P>0.05
Rib fracture	76	66 (86.8%)	10 (13.5%)	P=0.00
≥ 3 Rib fractures	42	34 (44.7%)	8 (10.8%)	P=0.00

Table III: Mode of Treatment required for chest trauma patients

Treatment Modality	Frequency	Percentage (%)
Conservative	22	14.6
Tube thoracotomy	124	82.7
Thoracotomy	01	0.71
Referred to higher centers	03	2.00

Discussion

In a tertiary level hospital the general surgical team is responsible to provide immediate surgical management to chest trauma patients. This descriptive study was carried out with an aim to see the pattern of chest injuries, the associated clinical and radiological findings, modalities of treatment applied and their outcome in Sylhet M.A.G. Osmani Medical College Hospital.

In this study the mean age of patients was 35.67±14 years with the age ranging from 15 to 85 years.RecepDemirhanet al[10] of Turkey studied 4205 patients which had a mean age of 36.2 years. In different studies of Pakistan, the mean age was 36 years

by Khan, [16] 37 years by Farooq[1] and 30 years by Hanif[12] which corresponds with this study.

90.6% patients were male with a male to female ratio of 9.8:1 which also corresponds with other studies. 94% patients were male in study by Khan[16] while M. Mohta[13] showed a male to female ratio of 10.5:1 in their studies.

In this study blunt trauma (50.7%) & penetrating trauma (49.3%) are almost equal. But in Pakistan, Farooq[1] showed the incidence of blunt & penetrating traumas as 44& and 56% while Hanif[12] showed the figure as 35% and 65% respectively. It supports the statement that the incidence of penetrating trauma is rising with time due to increase in violence and gunshot injuries.

62 patients of this series (41.3%) had haemothorax, 14 (9.3%) patients had Pneumothorax & 42 (21.1%) patients had haemopneumothorax. They (124; 82.7%) were treated with tube thoracostomy or thoracotomy (1) and 3 were referred to higher centers. 32 (21.1%) patients showed no abnormality on X-ray. M. Mohta[13] found haemothorax, Pneumothorax and haemopneumothorax being 41.9%, 46.6% and 34.2% in his study respectively. UlkuYaziciet al[14] showed 20.5% of haemothorax, 36.7 % of Pneumothorax & 42.7% of haemopneumothorax in his study. Our study shows less frequent Pneumothorax and more haemopneumothorax compared to other studies.

In these studies 66 patients of blunt trauma presented with rib fractures. Similar incidence was found in 44% cases in the study by Farooq et al'[1]and 76% in Hanif et al'[12] which widely varies in different studies.

22 patients (14.6%) of normal radiological finding were treated conservatively. Khan et al'[11] treated 29% patients conservatively. 124 (82.7%) patients were treated by chest tube drainage. Martins et al'[15] treated 73% by chest tube drainage & A. Adem et al'[16] treated 83% by chest tube drainage in their respective studies which are very close to our study.

Only one patient went thorough emergency thoracotomy and 3 were referred to higher centers due to lack of adequate facilities of thoracic surgery.

In conclusion, high incidences of chest trauma are found in male compared to the female counterpart. Male predominance suggests chest injury occurs mainly in outdoors, road traffic accidents and assaults being most of its cause. Incidence of penetrating chest injuries is rising with time. The study results show that majority of chest trauma patients can be satisfactorily managed by simple chest tube insertion in general surgical units and only few patients require major operative treatment like thoracotomy or require referral to higher centers.

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ORIGINAL ARTICLE

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Endoscopic Removal Of Antrochoanal Polyps - a study of 21 cases

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Abstract

Functional Endoscopic Sinus Surgery (FESS) has now replaced the conventional surgical procedure for the treatment of Antrochoanal polyp. The antrochoanal polyp (ACP) occurs predominantly in children and young adults. In the treatment since simple avulsion polypectomy is followed by a high recurrence rate, it is therefore common practice to remove the polyps antral part as well. In our study 21 patient with unilateral antrochoanal polyp who underwent FESS between January 2005 to January 2008 at BIRDEM Hospital, Dhaka and North East Medical College, Sylhet were carried out. Preoperative symptoms were compared with postoperative symptoms. Factors including age, sex, presenting complaints, radiological findings, associated symptom, surgical procedure, histopathology, follow up and management of recurrence were studied. Age of the patient between 12-49 years, male female ratio 2:1. Follow up of patient were done for six months. Completely removing the base of the ACPs was achieved through Transnasal Endoscope (TE) or Combined Endoscope and Trans Canine (CET) approach. The success rate was 76.2% is the TE approach and 100% in CET approach. The present study conclude that endoscopic approach as compared to previous modalities of treatment is effective and efficient method of treating ACPs. Endoscopic treatment of ACPs in children is safe & effective. Early diagnosis & endoscopic treatment of ACPs is also important because secondary rhinosinusitis can make the disease complicated &the surgeries difficult.

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Introduction

Since 1985, when Functional Endoscopic Sinus Surgery (FESS) was introduced in the United States by Heenz Stammberg of Australia and David Kennedy of John Hopkins, a revolution had occurred.

The word "Polyp" is originally greek, has undergone latinization and means (Polypous) many footed. The Antrochoanal polyp is a benign, solitary polypoidal lesion that arises from the maxillary sinus and grows by extension, more commonly through the antral accessory ostium into the middle meatus and then to the choana and nasopharynx[1]. Choanal polyp are more frequent in children and young adults. They are usually unilateral and can be diagnosed easily with the nasal endoscope. Antrochoanal polyps represents 4-6% of the all nasal polyps in the general population[2]. However it shows a much higher prevalence in paediatric population[3]. Nasal obstruction, postnasal discharge, hyponasal voice are the most common symptoms they usually present with.

Complete removal of the polyp in the antrum is essential to minimize recurrence.[4] For the above reasons Cald-well-Luc operation was regarded as necessary in ACPs, even in children.[5,6,7] However, the sequelae after caldwell-luc operation such as facial paresthesia, the risk to injured tooth buds and / or tooth roots and facial growth encroachment made it less favourable than the endoscopic surgeries.[8,9] Several authors advocated transcanaine insertion of powered instrumentation[4] or an endoscopic approach through the transmetal nasoantral window for ACPs in adults.[10,11]

Removal of the antral parts via an inferior meatal naso antral window has been advocated by Neel. However this approach doesn't always allow sufficient exposure

of the antral wall even after resection of anterior half of inferior turbinate, as has been done by Ophir and Marshak.[12] Kamel claimed that endoscopic transnasal removal of the antral part via the maxillary ostium ensured complete removal of the polyp. However intraantral remnants of the polyp and a second cyst lying in unfavourable position may be easily overlooked and is the cause of recurrence.

Aim of the study was to evaluate the outcome of endoscopic treatment of ACPs in children and adults.

Materials and Methods

This four years comparative observational study showed endoscopic removal of antrochoanal polyps of 21 patient was done in BIRDEM Hospital Dhaka and Northeast Medical College Sylhet from January 2005 to January 2008. All patient after a detailed and elaborate history were subjected to a standard protocol of clinical examination and investigation which included anterior and posterior rhinoscopy. Radiological investigation included X-ray paranasal sinus waters view and a plain computed tomographic scan of paranasal sinus axial and coronal views (some patient)[pic 2]. A preoperative diagnostic endoscopy was performed before subjecting the patient to endonasal endoscopic sinus surgery procedure [pic 2]. All patient of both sex and different age group was operated under general anaesthesia (hypotension) with help of '0⁰' & '30⁰', 4mm rigid telescope with single cheap camera & television monitor. All patient had received topical steroid and oral antibiotics before the surgery which were proved to be ineffective. Follow Up done up to 6 month.

Anaesthesia:

General anaesthesia (Hypotensive)

Surgical Technique:

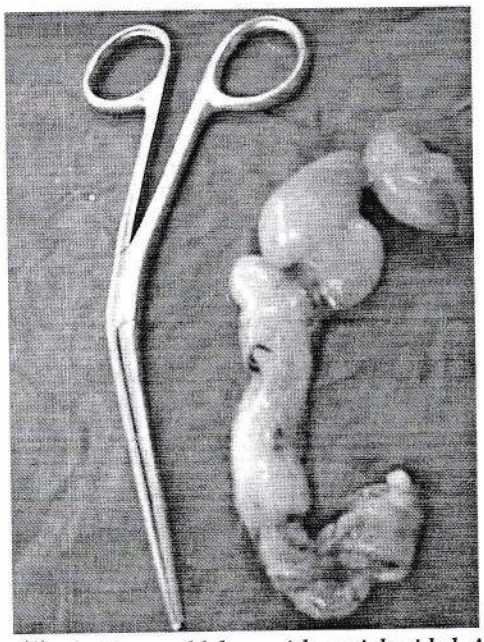
The usual technique of endoscopic surgery was performed. Local infiltration with 1:100000 adrenalin and 2% xylocaine was given in the region of the attachment uncinate process, nasal septum, the anterior end of middle turbinate and some difficult cases sublabial infiltration was given in canine fossa region.

The inferior portion of the uncinate process was uniformly excised to increase the space for the endoscopic manipulation. If the polyp was too large for enblock removal, the intranasal portion of ACP was transected along the insertion line of the uncinate process by scissors.

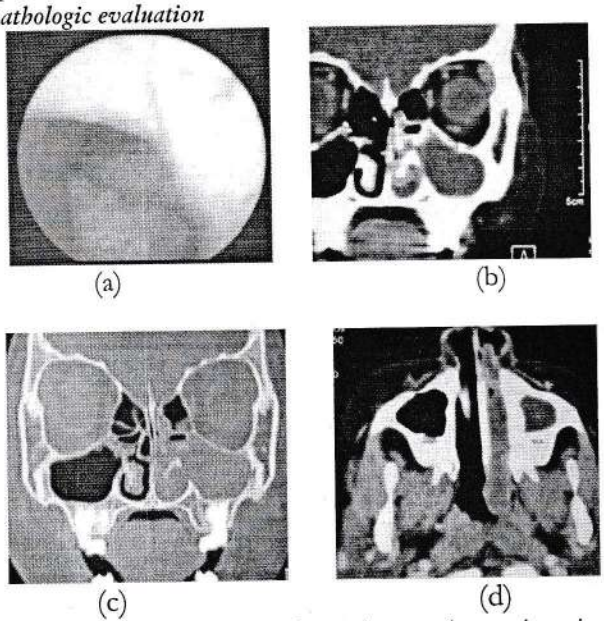
A 0⁰ and 30⁰ degree endoscope was used to inspect the intermaxillary extent of the ACP and to identify its origin and attachment. The anterior wall of the antrum was specially examined. After having removed the choanal and nasal part of polyp the uncinate process was identified and an uncinectomy was performed using cottle's knife and back biting forceps. After widening the ostium adequately, with a back biting forceps, the antral part of the polyp was removed using a right angled polypectomy forceps. While performing the removal of the antral part of the polyp, also the site of origin of the polyp was confirmed.

If any remnant was visualized they were again attempted to be removed via the endonasal endoscopic route and failing which they were removed via the trans canine route. Specimen were sent for histopathological examination. Maxillary sinus was thoroughly irrigated with warm normal saline through maxillary ostium

After ensuring complete haemostasis anterior nasal packing was done on the operated side with medicated ribbon gauge. The sublabial incision site was sutured with absorbable suture. The patient was prescribed analgesic and antibiotics for 5 days. The nasal pack was removed on the 2nd postoperative period. In the postoperative period the patient, after pack removal was put on nasal douching 3 times a day for 2 weeks. The patient underwent diagnostic endoscopy under local anaesthesia after 2 weeks and 6-8 weeks of operation to see for and remove any granulation, crust and debris. The patency of ostium was confirmed. The sinus mucosa was seen for any remnants or recurrence of disease.



Picture (1) *A 14-year-old boy with a right-sided ACP.). Specimen was completely removed and collected for pathologic evaluation*



(a) (b) (c) (d)

Picture(2) (a) Left nasal cavity endoscopic view showing antrochoanal polyp at inferior meatus. (b) CT scans coronal view, soft tissue window showing cystic component in the maxillary antrum. (c) CT scans coronal view, bone window showing defect of medial maxillary wall below the inferior turbinate. (d) CT scans axial view, soft tissue window; polyp extending into the nasopharynx.

Results

Table- I: Age Incidence (n=21)

Age group (In year's)	Number of patient	Percentage
0-15	10	47.6%
16-30	6	28.6%
31-45	4	19%
46-60	1	4.8%

Table- II: Sex distribution of patients (n=21)

Sex of patient	Number of patient	Percentage
Male	14	66.7%
Female	7	33.3%
Total	21	100%

Table-III: Distribution of patient according to the origin of ACP. (n=21)

Site of ACPs	No	%
Left maxillary sinus	15	71.4%
Right maxillary sinus	06	28.6%

Table-IV: Incidence of symptoms before therapy. (n=21)

Symptom	No of patient	%
Nasal obstruction	21	100
Headache	17	80.1
Sore throat	20	95.2
acial pain	14	66.6
Rhinorrhoea	19	90.5
Snoring	20	95.2
Hyposmia	16	76.2
Nasal speech	21	100
Epistaxis	02	9.2
Sneezing	05	23.8

Table-V: Intraoperative complication. (n=21)

Complication	Patient no	%
Minor bleeding	18	85.7%
Moderate bleeding	03	14.3%
Severe bleeding	00	00
Total	21	100%

Table-VI: Number and percentage of patient with Histopathology.(n=21)

Histopathology	Patient no	%
Inflammatory polyp	13	61.9%
Allergic polyp	08	38.1%
Total	21	100%

Table-VII: The outcome of TE method. (n=21)

Outcome	Patient no	%
Clear nasal antral cavity	16	76.2%
Remnants (Intra antral)	05	23.8%
Total	21	100%

Discussion

ACP originates from inflammatory and oedematous mucosa of maxillary sinus antrum, it passes through the maxillary ostium to the middle meatus, with extension into the nasopharynx or oropharynx [pic 1] . In our study 62% of ACP occurred in young age group. Most age group (12-49 years)(Table-I), male:female ratio 2:1(Table-II). Chen et al[7] reported a female preponderance although this was not the case in this study while Laksmi et al[16] found male to female ratio was 1:1.5.

Regarding the site of origin of the ACP inside the maxillary antrum, we found that the left sided ACPs were more common that right sided (71.4% versus 28.6%) polyps as reported by Al Sanosi (2006) and Schramm (1980)[17,13]. And the site of origin of the polyp could be ascertained in only 14 out of 21 cases, in 8 of them it arises from the posterolateral wall of the maxillary sinus. In 4 of it arises from the infrolateral wall of the maxillary sinus and in 2 [9.5%] patients appeared to arise from postero-inferior wall of maxillary antrum.

In the remaining 7 patients the site of origin of polyp could not be ascertained as the antral cystic part was found to fill the whole of the maxillary antrum making visualization of site is impossible, even after puncturing the cyst. In the study done by EI Guindy et al the findings regarding the site of origin of ACP inside the maxillary antrum were that it arises from the medial wall of maxillary sinus in 5 cases, from the lateral wall of maxillary sinus in 14 cases and the site of origin of the polyp could not be ascertained in 5 cases[18]. In our study it can be concluded that commonest site of origin of the ACP. Inside the maxillary antrum is from posterior wall of maxillary sinus.

Histological appearance of these polyps is similar to other inflammatory polyps. However 38.1% polyps showed abundance of eosinophilic infiltration which disagrees with that reported by Min Y G et al, in this study under the title of " Histological structure of antrochoanal polyp " in 1995[21]

Regarding the treatment there is no doubt that ACP needs to be removed completely. Conventionally ACPs were treated by polypectomy in children and Caldwell-Luc operation in adults. Functional endoscopic sinus surgery has been a major advancement in the management of chronic sinonasal diseases. Surgical approach to the inflammatory pathologies of the sinus has changed remarkably since the time Messerklinger introduced the concept of functional endoscopic sinus surgery.

Functional endoscopic surgery has been shown to be a safe and effective method for pediatric sinusitis but its efficacy for ACPs in children is controversial. Modified endoscopic approaches were developed and proved to be effective in the treatment of ACPs[23]. It is generally recommended that the antral portion of ACP should be removed along with the base to decrease the chances of recurrence[5].

Weissman et al confirmed in his study the ability of endoscopic approach to remove the antral part completely under this technique an effective and safe method of managing ACP[26]. In this study, we used the TE approach for the ACPs and the CET approach for ACPs the recurrency after TE approach.

The success rate of TE approach was 76.2%. Most of these ACPs originated from inferior and posterior wall of maxillary antrum. For small or pedunculated ACPs, most of them were removed as a whole. The ACPs that were large or multitudinous in origin were removed in fragments. The ACPs that failed in TE approach were multitudinous or broad based in origin and difficult to excise completely. In addition, all 5 recurrent patients had concomitant rhinosinusitis. The success rate of CET approach in our study has 100% and TE approach was 76.9%.

In conclusion, the endoscopic approach as compared to previous modalities of treatment is an effective and efficient method of treating antrochoanal polyp, as it ensures that removal of the polyp leaving behind no intra-antral remnants and not to mention at the cost of minimal or no side effect of all. Its safety in children is considerable in capable hands. Early diagnosis& treatment of ACPs is also important because secondary rhinosinusitis can make the disease complicated & the surgeries difficult.

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ORIGINAL ARTICLE

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Microvascular free tissue reconstruction of hand wounds

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Abstract

Early, single stage reconstruction of hand wound with a well vascularised tissue carries the best possible result. It also enables to do any secondary procedures for tendon, nerve or joints. Free tissue transfer is only rarely indicated for palm. But when needed, these procedures can limit hospital stay and overall cost. In this article, we discussed four cases of free flap coverage of palmar hand wounds. Four different types of free flaps were used. All flaps survived. Functional outcome was good. Donor site was skin grafted in all cases but one.

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Introduction

A reconstructive surgeon is often disposed with the task of resurfacing a palmar hand wound. The wound may result from trauma, burn, infection or surgeon himself may create the wound after excision of tumor or release of contractures. The optimum soft tissue reconstruction provides a durable yet pliable cover which will prevent contracture, underneath which tendons will glide smoothly and allow hand to all forms of power grip and to execute delicate skills. Although palmar aspect of the hand is frequently involved in accidents, full thickness injury with exposed tendon, nerves and vessels are rare. The reason for this is the similarity of palmar skin to that of the glabrous skin of the sole which is thick, shock absorbing and resistant to mechanical strain[1]. But still few patients will need the requirement of soft tissue cover of palmar hand wounds following trauma, burn or after contracture release. There are many local, regional and distal flaps for resurfacing a palmar hand wound. The "reconstructive ladder" described by Mathes and Nahai is based on the principle of using the simplest approach to cover a wound which will maintain form and optimize function[2]. But this approach is not preferable in all case. Skin grafts are never preferable for a palmar wound, local flaps like distally based pedicled radial forearm flap leaves an unacceptable donor deformity and may not be doable in a complex trauma with vascular injury; Groin or abdominal flaps are bulky and requires prolonged hospital stay and a secondary stage. Development of a wide spectrum of free flaps over the years have enriched the armamentarium of a reconstructive surgeon and allows him/her to choose a suitable flap of adequate size and composition depending on the need of the patient. In this paper author will discuss four cases of free flap reconstruction of palmar wounds that were operated in Sylhet MAG Osmani medical college hospital.

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Materials and methods

Four patients having palmar hand wounds were treated with free flap coverage in Department of Plastic surgery Sylhet MAG Osmani Medical College and hospital. Among them one was a case of acute hand burn, one was to cover soft tissue loss over thenar area following trauma and two cases were for coverage of defects resulted from release of contractures. Age, gender, type of injury, type of free flap used, recipient vessel, type of anastomosis, size of the defect, donor site morbidity, postoperative outcome and complications were noted. A viable flap at the time of discharge and good opposition was considered successful outcome. Four different types of free flaps were used in four cases. They were free radial forearm flap, free dorsalis pedis flap, free lateral arm flap and free medial plantar flap.

Case reports:

Case 1: A 23 year old male patient following road traffic accident presented with soft tissue loss over thenar area of his dominant hand (right). He also had fractured 1st metacarpal fixed with K-wire in

orthopaedic department. After debridement the defect was 6X5cm. A free radial forearm flap was harvested from left hand and vascular anastomosis was performed in end to side for radial artery and venous anastomosis with end to end fashion. Three veins (cephalic veins and two venae comitantes.) were anastomosed. Donor site was skin grafted.

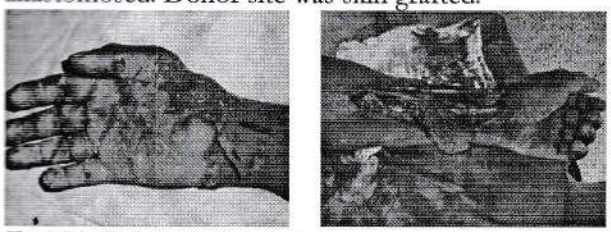

Fig 1(a): Defect over thenar area
Fig1 (b): Radial forearm flap harvested

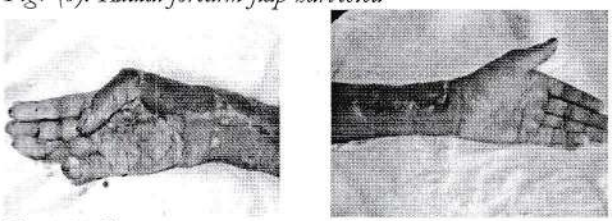

Fig 1 (c): Late outcome
Fig 1 (d): Skin grafted donor site

Case 2: A 43 year old female patient with a history of cut injury over her right palm inadvertently treated in a local hospital one year back presented with flexion contracture of her right middle finger with midpalmar space and 1st webspace contracture. Contractures were released with scar excision and the resultant defect in the palm was a diamond shaped defect with maximum diameter of 7X4cm with exposed tendons. A dorsalis pedis free flap was harvested from left foot and used to cover the defect. Recipient artery was radial artery and veins were cephalic vein and one venae comitantes. All anastomosis were in end to end fashion. Donor site was skin grafted.

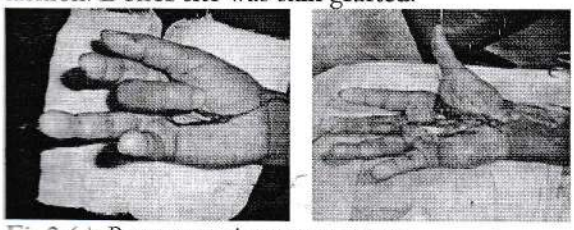

Fig 2 (a): Post traumatic scar contracture
Fig 2 (b): Contracture released

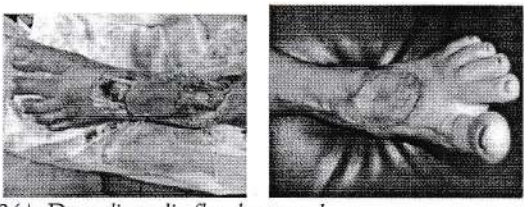

Fig 2(c): Dorsalis pedis flap harvested
Fig 2 (d): Skin grafted donor site

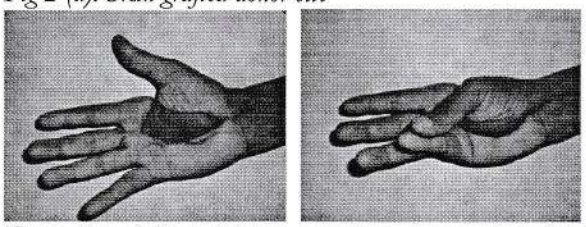

Fig 2 (e) and (f): satisfactory postoperative outcome with release of 1st webspace, flexion contracture of middle finger, midpalmar space contracture and good opposition.

Case 3: A 51 year old female patient with a history of flame burn of palmar surface her right hand were resurfaced with lateral arm flap for exposed deep palmar fascia over her thenar area and midpalmar space. The critical area covered by flap was 8X5cm. Rest of the area was skin grafted. Recipient vessels were radial artery and its venae comitantes. Anastomosis performed in end to end fashion.

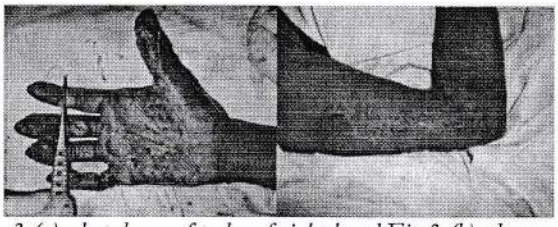

Fig 3 (a): deep burn of palm of right hand Fig 3 (b): donor area closed primarily

Fig 3 (c): post operative outcome after 3 months

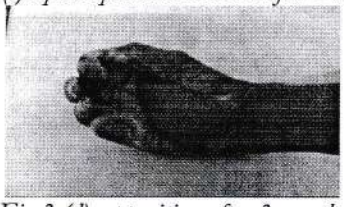

Fig 3 (d): opposition after 3 months

Fig 3 (e): gripping after 3months

Case 4: A 27 year old male presented with post burn scar contracture of middle, ring and little finger, midpalmar space contracture with ulnar deviation of wrist joint of left hand. After scar excision and contracture release midpalmar space (9X6cm) was resurfaced with free medial plantar flap. Rest of the areas was skin grafted. For joint stiffness little finger contracture was not released completely.

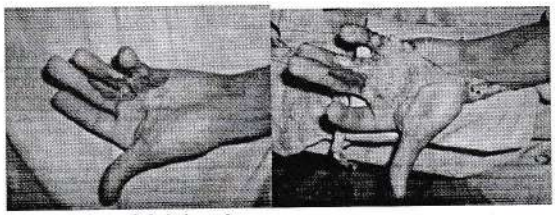

Fig 4 (a): PBSC left hand
Fig 4 (b): wound after release of contracture

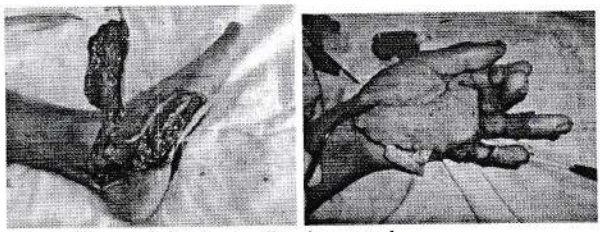

Fig 4 (c): medial plantar flap harvested
Fig 4 (d): flap inset

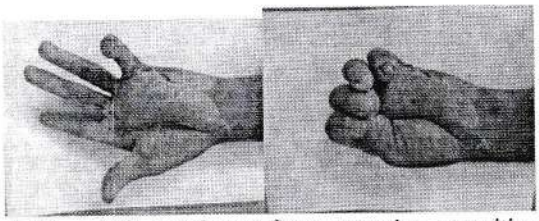

Fig 4 (e) and (f): satisfactory finger extension, opposition and flexion after 2 months

This prospective comparative study was conducted on two groups that included total 164 subjects admitted in the Medicine and Neurology departmentof the Sylhet M A G Osmani Medical College Hospital during the study period from July 2014 to December 2014. One group contained 82 diabetic patients presented with acute stroke. Other group included 82 patients of acute stroke without diabetes.

The diagnosis of stroke was made based onclinical data and CT scan of brain.
Patients with history of transient ischemic attack and recurrent stroke were not included in the study.

Past medical and personal history for cigarette smoking, arterial hypertension andother associated disease condition were also sought.
Stroke severity at admission was determined using the modified National Institutes of Health Stroke Scale [2] and stroke was classified as mild (score 0-5), moderate (score 6-14), severe (score 15-31) on mNIHSS scale.[3, 4]

All those who had documented history of diabetes in past (treated with either insulin, oral hypoglycemic agents or not treated) or those who had random blood glucoselevel ≥11.1 mmol/liter (200 mg/dl) or fasting blood glucose level≥ 7 mmol/liter (≥126mg/dl) and HbA1C ≥ 6.5%, were included in diabetic group. Those whohave no history of diabetes mellitus in past or random blood glucose level less than200 mg/dl or fasting blood glucose level less than 126 mg/dl and HbA1c below 6.5%were included in non diabetic group.

Informed written consent was obtained from the patients or eligible guardians after full explanation of the details of the disease process and purpose of the study.

Results

Table 1: summary of the cases

case	Age (years) and gender	Free flap used	Size of the defect(cm)	Recipient vessels	Type of anastomosis	Donor site	complication	outcome
1	23 / male	Radial forearm	6X5	Radial artery, cephalic vein, venae comitantes	Artery end to side Veins end to end	Skin grafted	none	Flap survived
2	43/ female	Dorsalis pedis	7X4	Radial artery, cephalic vein, venae comitantes	end to end	Skin grafted	Haematoma, needed evacuation	Flap survived
3	51/ female	Lateral arm	8X5	Radial artery, one venae comitantes	end to end	Primary closure	none	Flap survived
4	27/ male	Medial plantar	9X7	Radial artery, cephalic vein, one venae comitantes	end to end	Skin grafted	none	Flap survived

Among four patients reconstructed with free flaps for palmar wound during the period of 17 months in SOMCH two were female. The youngest patient was 23 and eldest was 51 years old. All except one had their defects on dominant hand. In all cases recipient artery was radial artery and arterial anastomosis was performed in end to end technique except case 1 where it was in end to side fashion. All flaps survived. Case 2 had collection of blood beneath the flap which needed evacuation in 1st post-operative day. The largest flap was 9X7 cm and the smallest was 6X5 cm.

Discussion

There are limited indications for free flap cover of a palmar defect. Local or regional flaps like reverse radial forearm flap, posterior interosseous flap, groin or abdominal flap can be used to cover most of the defects. However many surgeons prefer for free tissue transfer to avoid a donor site in a already mutilated hand or forearm[3,4]. Young women may prefer a flap from inconspicuous donor site to avoid an unsightly scar in forearm[5,6]. Ultimate decision will depend on size and nature of the defect, vascular status, exposed structures, patient's profile and choice and expertise of the surgeon.

It is very difficult to follow Gilllies' concept of 'replace like with like' in palmar defects. Never the less the aim of reconstruction is to have a thin, soft, pliable cover, easily adjusted to contour of hand, allows early mobilization and physiotherapy and most importantly facilitates secondary reconstruction of tendon or nerves when needed[7].

Common free flaps which are used to cover palmar surface are radial forearm, lateral arm, parascapular, dorsalis pedis, medial plantar, serratus fascial flap and temporoparietal fascia free flap. Choice of the flap is individualized according to the defect and body habitus of the patient. For example lateral arm flap which is suitable for one patient may be too thick with subcutaneous fat in another patient.

For a thin free flap temporoparietal fascia or serratus anterior fascia flap is ideal for palm. There is no donor site morbidity, scar is not conspicuous and allows secondary procedures after 4-6 months [8, 9,10]. However they need additional skin graft over the flap and technically more demanding.

Cutaneous free flaps are indicated for large and medium sized defect. Commonly used cutaneous free flaps are parascapular free flap[11], lateral arm flap[12], contralateral radial forearm flap[13] and dorsalis pedis flap. Cutaneous flap has the additional advantage of permitting immediate primary steps of later reconstruction, such as placing hunter rods for delayed tendon reconstruction.

The only flap that can replace like with like of palmar skin is medial plantar island flap or instep island flap. Several case reports published excellent results. The flap can be re-innervated and resembles texture of the palm[14,15].

In our experience we did four different types of free flaps for palmar defects. In the first case, a free radial forearm flap from the contra lateral forearm was used to cover a defect in the thenar area and exposed

metacarpal. Radial forearm flap is easy to harvest with a predictable anatomy and it has the advantage of good caliber vessels which are easier to anastomose, pedicle length is adjustable, can be reinnervated and composite flap with bone or palmaris longus tendon can be harvested. The disadvantage is the conspicuous donor site and if care is not taken during harvest to preserve peritenons, skin graft can be lost over tendons. Sacrifice of a major artery can be another disadvantage. Nevertheless, this flap is reliable and easy for the beginners.

The reason for doing the dorsalis pedis flap in the second case was to avoid visible skin grafted donor area over forearm. The patient didn't have any problem with scars in the foot so we chose dorsalis pedis flap. Due to anatomical variations of the vascularity and donor site complications, this flap has not become very popular among surgeons. Flap artery and veins are of good caliber and length which permits easier anastomosis. But only small defects can be covered with this flap.

The lateral arm flap is becoming popular for small to medium sized defects in arm because flap can be harvested from the same limb permitting surgery without general anaesthesia. It has a reliable vessel anatomy with pedicle length of about 7.8 cm,[16,17] but in comparison with radial forearm or ALT flap pedicle length is shorter. Flap dissection is rapid and if width is smaller than 6 cm it allows primary closure of donor site.

Considering the padding effect and the ability to withstand the shearing force, medial plantar free flap can be the ideal replacement of palm[18]. Limited case reports published good results. This flap can be reinnervated. Flap dissection is easy for a surgeon doing pedicle medial plantar flap.

In all the cases but one we did end to end anastomosis and in all cases we used radial artery as recipient artery. Preoperative Allen test was performed in all cases.

Other easier alternative for these cases were abdominal or groin flap. But these flaps are bulkier than these free flaps and it would require prolonged hospital stay with additional procedure. Free flaps permitted single stage cover, early recovery, early mobilization and better aesthetic results. The choice of surgery depends on patient profile, need, occupation, hand dominance, and expertise of the surgeon. But with our results we could recommend free flaps as reliable and good choice for resurfacing palmar hand wounds.

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ORIGINAL ARTICLE

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Outcome of Traumatic Gastrointestinal Tract Perforation

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Abstract

This cross-sectional observational study was designed to evaluate outcome of traumatic gastrointestinal tract perforation admitted in Casualty Surgery Department, Dhaka Medical College Hospital from January 2005 to December 2005. Fifty patients with traumatic gastrointestinal tract perforation were included. Majority were male (90%) and 76% were of young age group of 10 to 30 years. Penetrating injury (62%) was predominating, 50% had associated extra abdominal injury. Small intestine was the main organ involved (68%) and most common procedure was simple repair and resection with end to end anastomosis. Among the complication wound infection, urinary tract infection and pyrexia were studied and wound infection was (34%), urinary tract infection (10%) and pyrexia (28%). Overall mortality was 8%. In conclusion young people and male sex were predominantly affected by traumatic gastrointestinal tract perforation because this is the most active group of the society. Common post-operative complications werewound infection, urinary tract infection and pyrexia which can be reduced implementation of well-organized and coordinated infection control measures and adopting strict aseptic precaution and performing surgical intervention as early as possible.

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Introduction

Abdominal trauma is a very common surgical emergency and number of admission with abdominal trauma is increasing in Bangladesh due to rapid urbanization and increased social unrest even in rural areas. Thousands of peoples, majority of them are young, active group of population are becoming disabled or losing their lives for this sort of injury each year. It has been calculated that 120,000 people die from trauma each year in the USA and 10% of them die from abdominal trauma. But statistics is not clear in our country.[1]

Whatever may be the type of abdominal injury blunt, penetrating or blunt gastrointestinal tract is the most frequently affected organ, where stomach accounts for 5%, duodenum less than 1%, small intestine 20-25%, colon 5%. But all of them are curable traumatic conditions if detected early and managed promptly within the golden hour.[2]. Delay in their recognition often greatly impairs the chance of recovery and outcome. Traumatic gastrointestinal tract perforation is high on the list of curable traumatic condition in patients sustaining multiple injuries. Exceptions are made when these are associated with other injuries (like head and chest) which require immediate particular attention.

Although there is no clear cut data only for mortality in traumatic gastro-intestinal tract perforation but mortality for abdominal injuries was quite high in previous days (e.g. world war I - 53.5% world war II – 25%, Vietnam war 10%). But today the rate has been reduced to less than 5%.[3]

In Dhaka Medical College Hospital (where this study was carried out) though there have many limitations regarding some modern diagnostic facilities like MRI, modern operation theatre with well fashioned modern instruments, but have enough well trained general surgeons and other required medical and surgical consultants, anesthesiologist, intensive care unit. With all these available resources we are able to reduce morbidity and mortality in abdominal trauma case. This study was designed to evaluate the series outcome of traumatic gastrointestinal tract perforation.

Materials and Methods

This cross-sectional study was carried out in the Casualty Block, Dhaka Medical College Hospital (DMCH), Dhaka during the period from January 2005 to

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December 2005. A total number of 50 patients with traumatic gastrointestinal tract perforation were selected fulfilling the inclusion and exclusion criteria. Cases died preoperatively and laparotomy showed no perforation was excluded.

Immediately after admission, the patients were subjected to a thorough and detailed history taking and clinical examination. History taking provided particular attention to the type of injury and time of injury.

The clinical examination stressed on pulse rate, blood pressure, respiratory rate, state of hydration, level of consciousness, anaemia, degree of abdominal distension, evisceration of gut or omenturn, muscle guard, rebound tenderness, presence or absence of bowel sound and extra abdominal injuries.

Relevant investigations as far as practicable was done and recorded. In those patients requiring urgent laparotomy, all routine investigations were not possible because of lack of urgent laboratory diagnostic facilities. The only investigations that were done on urgent basis were plain X-ray abdomen and chest, Hb%, total and differential count of WBC and blood grouping and cross-matching. In a few patients, abdominal paracentesis was done.

The preoperative management, like parenteral fluid, nasogastric tube and blood transfusion, given to the patients were recorded. Detailed operative findings and procedures were noted. A careful record of the hospital stay, the postoperative complication and their management were done.

The statistical methods were employed for the analyses of the obtained data were presented in tabular form.

Results

Age of the patients in this series ranged from 10-60 years. Highest incidence was noted between the ages of 21-30 years (48.0%) followed by age group 10-20 years (28.0%). Male were predominant (90%) with a ratio of male and female was 9:1. Penetrating injury (62%) was predominant over blunt trauma (38%) (Table-I). The condition of the patients on admission was shock (48%) and haemodynamically stable (52%). Most of the patients were conscious (80%), 16% were semiconscious and 4% were unconscious (Table-I).

Table-I: Distribution of patients by baseline characteristics (n=50)

Baseline characteristics	Frequency	Percentage
Age		
10-20years	14	28.0
21-30years	24	48.0
31-40years	7	14.0
41-50 years	3	6.0
51-60 years	2	4.0
Sex		
Male	45	90.0
Female	5	10.0
Nature of trauma		
Penetrating	31	62.0
Blunt	19	38.0
Hemodynamic status		
Good/stable	26	52.0
Shock	24	48.0
Consciousness		
Unconscious	2	4.0
Semiconscious	8	16.0
Conscious	40	80.0

Extra abdominal injuries were associated in 50% of cases, majority being soft tissue injury (42%) followed by thoracic injury (8%), upper limb fracture (6%) pelvic fracture (4%), and head injury (4%) (Table-II).

Table-II: Frequency of associated extra abdominal injury (n=50)

Associated injuries	Number	Percentage
Head injury	2	4.0
Thoracic injury	4	8.0
Fracture Upper limb	3	6.0
Fracture Pelvis	2	4.0
Fracture lower limb	2	4.0
Soft tissue injury	21	42.0
None	25	50.0

Per operatively injury to the jejunum (48%) was found in highest number of patients, followed by Ileum (20%), Transverse colon (20%), Stomach (16%), Duodenum (12%), Ascending colon (8%), Caecum (4%), Descending colon (4%), Sigmoid colon (2%) cases (Table-III).

Table-III: Site of GIT involvement (n=50)

Portion of GIT involvement	Frequency	Percentage
Abdominal part of esophagus	0	00
Stomach	8	16.0
Duodenum	6	12.0
Jejunum	24	48.0
Ileum	10	20.0
Caecum	2	4.0
Ascending colon	8	16.0
Transverse cclon	10	20.0
Descending colon	2	4.0
Sigmoid colon	1	2.0

In this study 13 patients (26%) had mesenteric injury, 6 patients (12%) had liver injury, 4 patients (8%) had splenic injury, 3 patients (6%) had injury to kidney and diaphragm and 2 patients (4%) sustained injury to Pancreas (Table-IV)

Table-IV: Other intraabdominal organs involvement (n-50)

Organ involvement	Number	Percentage
Mesentery and Vessels	13	26.0
Liver	6	12.0
Spleen	4	8.0
Kidney	3	6.0
Urinary bladder	0	0.0
Diaphragm	3	6.0
Pancreas	2	4.0

Simple repair performed for 8 patients of stomach injury. Simple repair with gastrojejunostomy was done in 6 patients with duodenal injury. For small gut injury simple repair procedure followed in 24 patients and resection and anastomosis was done in 11 patients. Operative procedures followed for large gut injury were mainly repair and proximal defunctioningilleostomy / colostomy (20%). Other procedures followed in large gut injury were primary repair (8%), resection and anastomosis with proximal defunctioning colostomy (2%) and exteriorization as loop colostomy (6%) (Table-V)

Table-V: Operative procedure followed in the series (n=50)

Site of perforation	Procedure	Number	Percentage
Stomach	Simple repair	8	16.0
Duodenum	Simple repair with gastrojejunostomy	6	12.0
Small gut	Simple repair	24	48.0
	Resection & anastomosis	10	20.0
Large gut	Primary repair	4	8.0
	Repair & proximal stoma	10	20.0
	Resection & anastomosis with proximal colostomy	1	2.0
	Exteriorization as a loop of colostomy	3	6.0

Postoperative complications were wound infection (34%), urinary tract infection (10%), pyrexia (28%), wound dehiscence (8%), pulmonary and cardiac complication (6% each), complication of colostomy (2%), septicemia (4%) and mortality (8%) (Table-VI).

TableVI Post-Operative Complications (n=50)

Complication	Number	Percentage
Wound dehiscence	4	8.0
Wound infection	17	34.0
Anastomotic leakage	0	0.0
Pulmonary complication	3	6.0
Cardiac complication	3	6.0
Complication of colostomy	1	2.0
Obstruction	0	0.0
Septicaemia	2	4.0
Urinary tract infection	5	10.0
Pyrexia	14	28.0
Mortality	4	8.0

Majority of patients (20, 40%) were discharged within 10-20 days of hospital admission, 18 (36%) patients were discharged within 10 days and 12 (24%) patients were discharged after 20 days.

Discussion

Morbidity and mortality of traumatic gastro intestinal tract perforation has under gone spectacular changes during the whole length of twentieth century. Interest in this subject was aroused during world war-II and since then the morbidity, and mortality rates for abdominal

trauma have fallen steadily.4 But a dramatic fall in morbidity and mortality has occurred in 1988 when Royal college of surgeon of England reported that at least one in five and possibly as many as one in three trauma death in the hospital were avoidable by introducing Advance Trauma Life Support (ATLS). Realizing this fact they have started Advance Trauma Life Support course (ATLS), followed by the Advance Trauma Nursing Course (ATNC) and at the same time they have introduce the Pre-hospital Trauma Life Support Course (PHTLS) which all together radically altered the management and outcome of injured patient.5 But the situation is quite different in our setting and this Study is conducted with a view to detect the outcome of traumatic gastrointestinal tract perforation.

In this study young patients were the common victims and incidence decreased with advancing age. The highest incidence was in the age group 21-30 years (48%), followed by 11-20 years (28%), 31-40 years (14%). This indicates that the affected people of traumatic intestinal perforation are those who are most mobile and active in their daily life. This figure is quite similar with a study by Munns et al. [6] where the incidence was high in the age group 20 to 29 years (36%) which was almost same as the current study.

A male preponderance (90%) was noted in the present series. Similar male preponderance was reported in other studies.[6,7] The male predominance may be due to the fact that males are mainly involved in outdoor work; more hospital beds are available for male or may be due to more awareness of the male patient. All reflects the male dominant Society of the country.

Regarding nature of trauma the present series showed that 62% had penetrating trauma and 38% had blunt trauma. But in western record picture was different. Williams and Zollinger,[8] reported that 79% were blunt and 21% were penetrating group. In a study by Roy,[9] found that penetrating versus blunt trauma in gastrointestinal tract injury was 1.5:1. These variable incidences in the type of abdominal trauma reflect geographical and social influences. As a developing country economical scarcity is still prevailing in every sphere. The higher incidence of penetrating injury in this series may be due to social unrest that is prevailing throughout the country.

The general condition of the patient at the time of admission is an important factor in determining the factors modifying morbidity and mortality. In this series 48% patient were in shock at the time admission.

In the present study extra-abdominal injuries were associated in 50% of cases, majority being soft tissue injury (42%) followed by thoracic injury (8%), upper limb fracture (6%) pelvic fracture (4%), and head injury (4%). The result is quite similar to the study conducted by Cox,[10]where reported associated extra-abdominal injury was 50%.

Per operatively injury to the jejunum (48%) was found in highest number of patients, followed by Ileum (20%), transverse colon (20%), stomach (16%), Duodenum (12%), Ascending colon (8%), caecum (4%), Descending colon (4%), Sigmoid colon (2%) cases. Martin et al.[11]in their study showed that small gut injury was common in abdominal trauma which is almost similar to the present study.

Associated intra-abdominal organ injuries in this series were liver (12%), spleen (8%), kidney (6%), Diaphragm (6%), and mesentery and vessels (26%). So hollow viscous injuries are greater than solid organ injury in our series which was different from many western studies. In one study by Fitzerladet al.[12] showed predominance of solid organ injury.

Post-operative complication influenced morbidity greatly. In this series postoperative complications were wound infection (34%), urinary tract infection (10%), pyrexia (28%), wound dehiscence (8%), pulmonary and cardiac complication (6% each), complication of colostomy (2%), septicemia (4%) and mortality (8%). Munnset al.[6] in their study showed the mortality was 6.9% which was almost similar to our study. Post-operative complications has an impact on morbidity and mortality and most of the complications were due to gross contamination of wound at the spot by the handling of common people who do not have any knowledge of sterility. Besides that strict asepsis could not be maintained all time due to increased patients load in the casualty as it is the only separate casualty department in the country. Cross infection is also considered as a factor responsible for post-operative complication and ultimately influenced the morbidity and mortality.

Hospital stay of the patient showed that 36% of patient discharged within 7-10 days, 40% between 11 to 20 days and 24% stayed for more than 20 days and most of them had post-operative complication.

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ORIGINAL ARTICLE

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Lipid Profile in Type 2 Diabetes Mellitus Patients and it`s Correlation with BMI.

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Abstract

The present study was conducted to find out the correlation of body mass index (BMI) and four lipid profiles, viz. serum cholesterol, triglycerides, HDL-C and LDL-C in 100 randomly selected confirmed cases of diabetes mellitus (54 males and 46 females) aged more than 30 years admitted in the Medicine wards of Sylhet MAG Osmani Medical College Hospital. Nearly one-third (32%) of the patients were overweight and very few (2%) were obese. Of the 54 males, about 60% exhibited low HDL and of the 46 females, more than 95% exhibited low HDL. While 82% of the patients had raised triglycerides, only 20% had high LDL.The study demonstrated a significantly linear correlation between BMI and triglyceride ($r = 0.264$, $p = 0.008$), and a significantly negative correlation between BMI and HDL ($r = -0.159$, $p = 0.014$). However, no significant association was observed BMI and serum total cholesterol ($r = -0.030$, $p = 0.765$) and between BMI and LDL ($r = -0.127$, $p = 0.209$).

[OMTAJ 2015; 14(2)]

Introduction

The prevalence of diabetes is rapidly rising all over the world at an alarming rate and emergingas a global epidemic. From a survey of the International Diabetes Federation, worldwide there are 366 million people with diabetes in 2011, and the total number is expected to rise to 552 million by 2030.[1]Type 2 diabetes mellitus was thought to be confined to older adults for most of the 20th century, now found to affect the obese persons of any age, even before puberty.

Material and Methods

The present study was a hospital-based cross-sectional observational study.

The study was carried out in the Department of Medicine, Sylhet M.A.G. Osmani Medical College Hospital, Sylhet over a period of six months.

Patients with type2 diabetes mellitus admitted in the Medicine wards of Sylhet MAG Osmani Medical College Hospital, Sylhet, during the study period and fulfilled the predefined eligibility criteria (inclusion and exclusion criteria) were the study population.

Inclusion criteria:

•Patients with type 2 diabetes mellitus.

•Age of the patients 30 years or more irrespective of sex.

Exclusion criteria:

The subjects with following disease or conditions were excluded:

- Type 1 diabetes mellitus,
- Acute complications like diabetic keto-acidosis, non ketotic hyperosmolar state and hypoglycemia.
- Concurrent illnesses like chronic liver disease and hypothyroidism having adverse influence on lipid profiles.
- Pregnancy.

  Patients on drugs affecting lipid profile.

Results

The present study intended to find the correlation between BMI and lipid profile in patients with type2 diabetes included a total of 100 patients. The findings obtained from data analyses are documented below:

Forty percent of the patients were middle-aged (40 – 50 years old) followed by 30% early middle-aged (30 – 40 years old), 18% late middle-aged (50 – 60 years) and 12% elderly (60 years or more). The mean age of the patients was 47.7 years (32 – 72) (Table I).

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Table I. Distribution of patients by their age (n = 100)

Age (years)*	Frequency	Percentage
30 – 40	30	30.0
40 – 50	40	40.0
50 – 60	18	18.0
≥ 60	12	12.0

***Mean age** = (47.7 ± 9.5) years; **range** = (32 – 72) years#

Sex distribution shows that males were a bit higher (54%) than the females (46%)(Fig. 1).

Nearly two-thirds (64%) of the patients were of normal BMI. About one-third (32%) of the patients was overweight and only 2% were obese (Table II).

Table II. Distribution of patients by their BMI (n=100)

BMI (kg/m²)	Frequency	Percentage
<18.5 kg/m² (Underweight)	2	2.0
18.5 to < 23.0 kg/m² (Normal)	64	64.0
23.0 to < 25.0 kg/m² (Overweight)	32	32.0
25.0 to < 30.0 kg/m² (Obese)	2	2.0

The mean fasting plasma glucose level and mean glucose level 2 hrs after breakfast are illustrated in table III. About one-fifth (18%) of the patients had good glycemic control as indicated by HbA1c < 7%.

Table III. Distribution of patients by their investigation (n=100)

Other investigations	Frequency	Percentage	Mean ± SD
FPG (mg/dl)	-	-	148.0 ± 23.7
PG 2 hrs after breakfast (mg/dl)	-	-	235.6 ± 61.5
HbA1c (%)	-	-	9.1 ± 2.1
< 7%	18	18.0	---
≥ 7%	82	82.0	---

The average duration of diabetes was 40.2 months. Twenty percent of the patients were current smoker, 34% ex-smoker. Over one-third (36%) of the patients reported having hypertension (Table IV).

Table IV. Distribution of patients by their history (n=100)

Risk factors and co-morbidities	Frequency	Percentage	Mean ± SD
Duration of DM (months)	----	----	40.2 ± 31.1
Smoker			
Current smoker	20	20.0	----
Ex-smoker	34	34.0	----
Non- smoker	46	46.0	----
H/O Hypertension	36	36.0	----

The mean serum total cholesterol, LDL, HDL and triglycerides are depicted in table V. Over half of the patients (52%) had raised cholesterol. Of the 54 males, about 60% exhibited low HDL and of the 46 females, more than 95% exhibited low HDL. While 82% of the patients had raised triglycerides, only 20% had high LDL.

Table V. Distribution of patients by their lipid profile (n=100)

Lipid profile	Frequency	Percentage	Mean ± SD
Serum total cholesterol (mg/dl)			
< 200 (Normal)	48	48.0	214.7
≥ 200 (Raised)	52	52.0	± 46.1
Serum HDL cholesterol (mg/dl)			
Male (n = 54)			
< 40 (Low)	32	59.3	37.4 ±
≥ 40 (Normal)	22	40.7	4.7
Female (n = 46)			

< 50 (Low)	44	95.7	40.3 ±
≥ 50 (Normal)	2	4.3	4.9
Serum LDL cholesterol (mg/dl)			
< 130 (Normal)	80	80.0	112.4
≥ 130 (Raised)	20	20.0	± 29.8
Serum triglyceride (mg/dl)			
< 150 (Normal)	18	18.0	235.5
≥ 150 (Raised)	82	82.0	± 106.2

Correlation between BMI and lipid profile:

The correlation BMI and lipid profiles (total cholesterol, HDL, LDL and triglycerides) are shown in Fig. 2 – 5. A significantly linear correlation was observed between BMI and triglyceride (r = 0.264, p = 0.008), while a significantly negative correlation was observed between BMI and HDL (r = -0.159, p = 0.014). However, no significant association was observed BMI and serum total cholesterol (r = -0.030, p = 0.765) and between BMI and LDL (r = -0.127, p = 0.209).

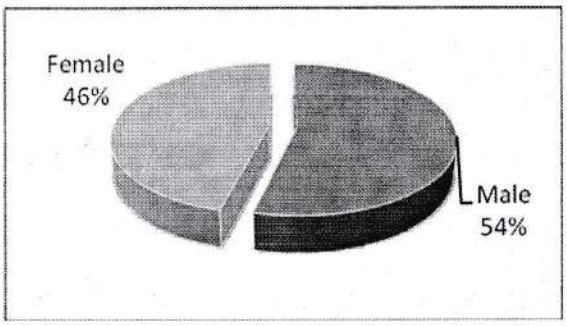

Fig 1. Distribution of patients by sex (n = 100)

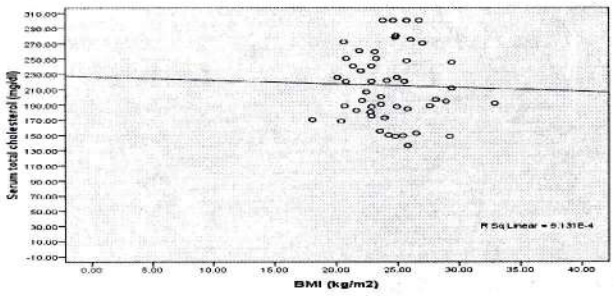

Fig 2. Correlation between BMI and serum total cholesterol

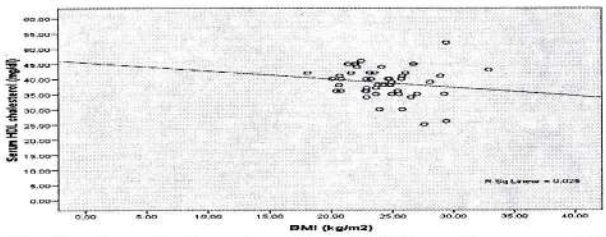

Fig 3. Correlation between BMI and serum HDL cholesterol

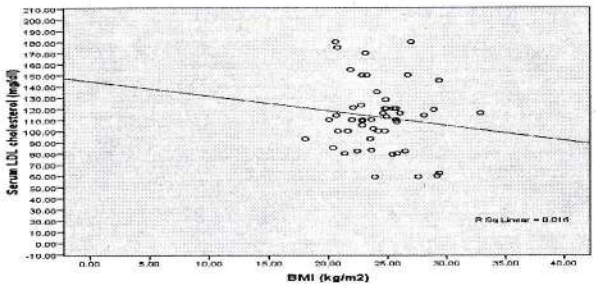

Fig 4. Correlation between BMI and LDL cholesterol

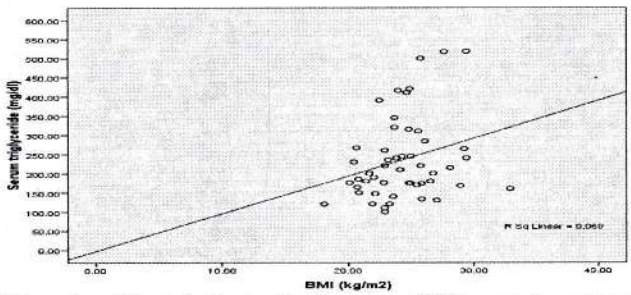

Fig 5. Correlation between BMI and serum triglycerides

Discussion

The association between body mass and lipid profile had been the much-talked about issue during the past decades.[2] Both lipid profile and body fat have been shown to be the important predictors for metabolic imbalances including dyslipidaemia, hypertension, diabetes, cardiovascular diseases, hyperinsulinaemia etc. In the present study, 70% of the population comprised of middle and early middle-aged with mean age of the patients being 48 years. Males and females were almost equal. Nearly one-third (32%) of the patients were overweight and very few (2%) were obese. The average duration of diabetes was 3 years and 4 months. Twenty percent of the patients were current smoker and 36% hypertensive. About one-fifth (18%) of the patients had good glycemic control as indicated by HbA1c < 7%. Over half of the patients (52%) had raised cholesterol. Of the 54 males, about 60% exhibited low HDL and of the 46 females, more than 95% exhibited low HDL. While 82% of the patients had raised triglycerides, only

< 50 (Low)	44	95.7	40.3 ±
≥ 50 (Normal)	2	4.3	4.9
Serum LDL cholesterol (mg/dl)			
< 130 (Normal)	80	80.0	112.4
≥ 130 (Raised)	20	20.0	± 29.8
Serum triglyceride (mg/dl)			
< 150 (Normal)	18	18.0	235.5
≥ 150 (Raised)	82	82.0	± 106.2

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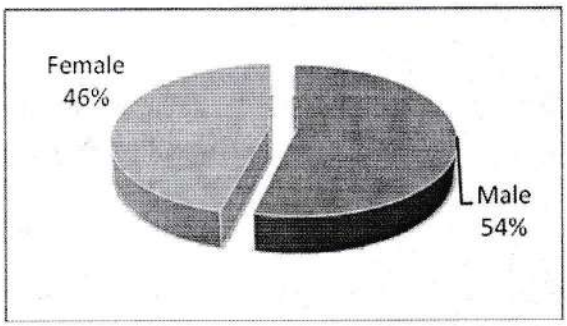

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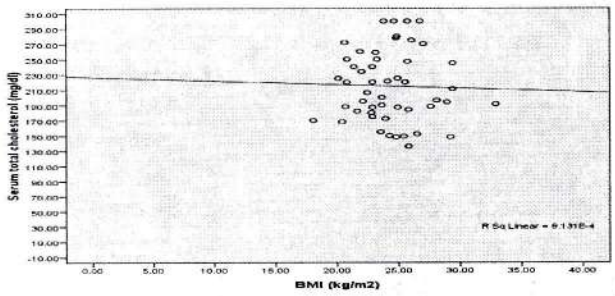

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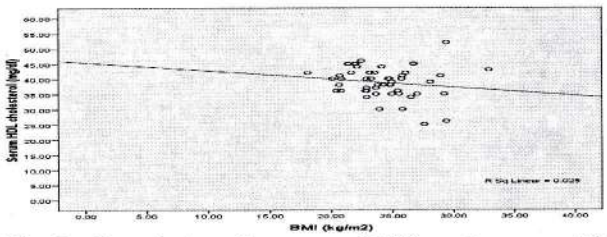
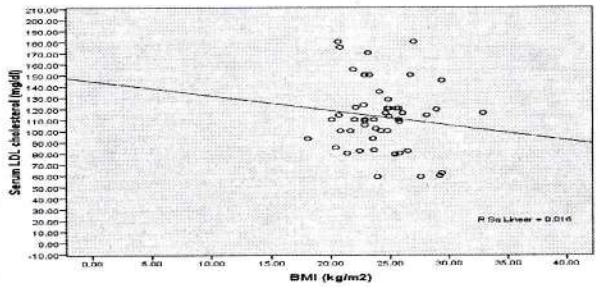


Fig 3. Correlation between BMI and serum HDL cholesterol



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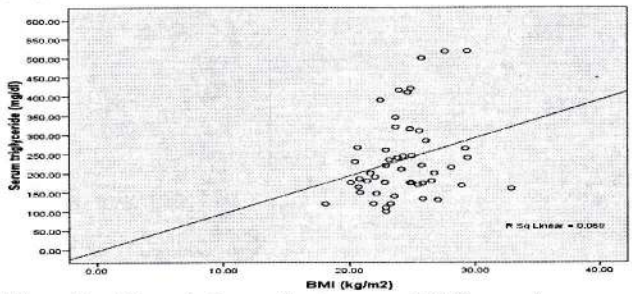

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20% had high LDL.The correlation BMI and lipid profiles demonstrated a significantly linear correlation between BMI and triglyceride ($r = 0.264$, $p = 0.008$), and a significantly negative correlation between BMI and HDL ($r = -0.159$, $p = 0.014$), which is quite characteristics of diabetic dyslipidemia.

Sandhu & colleagues (2008) showed age wise distribution of BMI and four lipid components in patients with diabetes mellitus.[3] In male patients with diabetes mellitus, middle-aged individuals (41 – 50 years) had the average BMI of 32.07 kg/m^2 and the elderly (61+ years) individuals had the mean BMI of 25.85 kg/m^2. For serum cholesterol, the maximum value was 222.97 mg/dl noted in middle-aged individuals and the minimum 189.42 mg/dl in early middle-aged (31 – 40 years) individuals. For HDL – C, the maximum value was 43.58 mg/dl in middle-aged males and the minimum value 40.06 mg/dl in elderly males. In females, the maximum value was 30.07 Kg/m^2 recorded in age group 31 – 40 years and the minimum 26.31 Kg/m^2 in age group 51 – 60 years for BMI. For LDL – C, almost equal distribution was recorded in all the four age groups. For triglyceride, the maximum value was 264.19 mg/dl noted in middle-aged and the minimum 235.08 mg/dl in age group 31 – 40 years. A statistically significant correlation ($r = 0.41$) was found in males and negatively significant correlation ($r = - 0.76$) in females between BMI and triglyceride. For HDL – C a statistically significant negative correlation ($r = -0.33$) was obtained only in males in age group 41 – 50 years. No significant correlation was found in any other cases in both the sexes. They concluded of the four lipid components, only triglyceride is adversely correlated with BMI both in males and females which is consistent with findings of the present study. Maki et al[4] (1997) explained in this direction that, BMI increased due to increase in adiposity characterized by decreased HDL-C and increased triglycerides. In several other studies as well, a significant relationship was found between cardiorespiratory fitness, BMI and LDL-C.[5] However, in a recent study conducted in India by Begum et al (2014) findings are quite opposite to the findings of the present study.[6] There was significant positive correlation between BMI with total cholesterol and LDL cholesterol level among type II DM cases ($p < 0.01$), whereas there was no significant correlation between BMI and triglyceride, HDL and VLDL cholesterol levels in type II DM cases ($p > 0.05$).

The increased weight and BMI in diabetics could be due to increase in adiposity associated with insulin resistance attributed to more of sedentary life style and less physical activity. Increase in body weight and BMI are important predictors of metabolic disturbances including dyslipidemia, hypertension and cardiovascular diseases.[7]

Whatever be the pattern of dyslipidemia, the significant and strong association of BMI with lipid abnormalities in type2 diabetics as observed in the present study and in the studies conducted by other investigators is a matter of great concern as they are at increased risk of early cardiovascular diseases.[8]

It can be concluded from the findings of the present studythat a significantly linear correlation exists between BMI and triglycerides and a significantly negative correlations is observed between BMI and HDL cholesterol. The observed dyslipidemia is characteristics of type2 diabetic patients. The female type2 diabetics are prone to have this type of dyslipidemia than their male counterparts. A further large sample study is recommended to validate the findings of the study.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 14 Number 2

Oral Health Status among School Going Children in Sylhet City

Md. Tafazzul Islam[1], M A Quashem Miah[2], Md. Nurul Amin Miah[3].

Abstract

This was a cross-sectional study on oral health condition among selected school children in Sylhet city, this study was conducted at Osmani Medical High School and Abdul Gafur Adarsha High School situated in Sylhet. The study was carried out among 117 students aged 15 years studying in class IX on 29 and 30th September, 2013. The main objective of the study was to assess the oral health condition of school going children through decayed, missing and filled teeth (DMFT) status. Data was collected by taking personal interview and clinical examination of the respondents. Upon analyzing data it was found that among 117 children 74 (63.2%) were male and 43 (36.8 %) were female. 48 (41%) respondents brush their teeth once in a day while 67 (57.9%) respondents brush their teeth twice a day, 2 (1.7%) of them brush their teeth more than twice daily. 64 (54.7%) students use fluoride containing toothpaste, 12 (10.3%) students stated that they do not use fluoride containing toothpaste and 41 (35%) students did not know whether their toothpaste contain fluoride or not. Among 74 boys 20 (27%) did not have any decayed tooth, 55 (74.3%) had tooth decay, 4 (5.4%) had their teeth filled. Among 43 girls 24 (55%) had no decayed teeth, 17 (39.6%) had tooth decay, 1 (2.3%) had missing teeth and 3 (7%) had filled teeth. Among 117 respondents 92 (78.6%) had normal gingival condition while 25 (21.4%) had red or swollen gingiva.

[OMTAJ 2015; 14(2)]

Introduction

The mouth and the teeth perform an essential set of functions, from the most basic, eating and speaking, to more subtle social functions related to appearance and non-verbal communication.[1] Primary human dentition comprises of 20 deciduous teeth while permanent dentition comprises of 32 permanent teeth. Good oral health is not dependent on the teeth alone; rather it extends to the health of the tissues supporting the teeth, that is, the gums or the periodontium.[2]

Dental diseases include dental caries, developmental defects of enamel, dental erosion and periodontal disease. The main cause of teeth loss is dental caries in which diet plays an important role[3].

Dental decay, also known as dental caries, is defined as a disease of hard tissues of the teeth caused by the action of microorganisms, found in plaque, on fermentable carbohydrates (principally sugar). At the individual level, caries is a preventable disease. Given its dynamic nature, the disease, once established, can be arrested or reversed prior to significant cavitations taking place. The carious process is essentially the same in primary and secondary dentitions.[4]

Oral health status in adults can be assessed by the presence or absence of dental caries by DMF index which was introduced by Klein, Palmer and Knutson in 1938 and modified by WHO:

1. DMF teeth index (DMFT, here D = decayed, M= missing, F= filled) which measures the prevalence of dental caries/ teeth.
2. DMF surfaces index (DMFS) which measures the severity of dental caries. In case of children, it is def (d= decayed, e= extracted, f= filled teeth).[5]

Eating patterns and food choices among children and teens are important factors that affect how quickly youngsters may develop tooth decay. The reason is sticky film of bacteria, called "plaque" that constantly forms on teeth and gums.[6] Thus regular and proper cleaning and brushing of teeth is required to prevent decay and thereby prevent loss of teeth in children and adults.

Material and Methods

The study was based on a cross sectional study design and the time frame for data collection was one week in September, 2013. The target population for this study are students attending in secondary schools in Sylhet

1. Assistant Professor, Deptt. of Dental Public Health, Dental Unit, Sylhet M A G Osmani Medical College.
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City. Sylhet Metropolitan area is the study area for the research. Dental caries and Periodontal diseases are the most common diseases in the country and are major public health problem.[5] All (26) secondary school students attending schools in Sylhet city comprised the study population. There are 20, 234 secondary school students in Sylhet city. School children aged 15 years were chosen for the study because many children leave the school system at the age of 16 years. Two (2) schools were conveniently selected due to cost consideration in terms of time, money and manpower which were limited. All children who satisfy the inclusion criteria below were included. 15 years old secondary school students in Class 9.

The dental health survey form was published in English as the researcher himself filled up the survey form. The survey was conducted in the class room on a normal school day. Data was collected through direct interview of the students and clinical examination was done after taking verbal consent of the respondents. Two assistants and all school teachers extended their support and co-operation and helped the researcher during data collection. Data collection was completed within 7 days. All data collected were checked for completeness and coded. The raw data were entered into the computer using Statistical package of Social Science (SPSS) program version 16. Before analysis was performed, data were first cleaned by running the frequency distribution for each item. Any suspicious entry was verified with the data in the questionnaire. Cross tabulation was performed on the related questions to check for accuracy in data entry. Since all data were categorical, percentages were derived.

Analysis was done according to the specific objectives of the study. To fulfill the objectives of the study, only the descriptive analysis was performed.

Results

1. Socio-demographic characteristics of respondents:

Total number of students: 117
Gender: Boys: 74
Girls: 43
Number of total school: 2
Osmani Medical High School: 69
Abdul Gafur Adarsha High School: 48
Age of the students: 15

Table I: Distribution of respondents according to gender and school

Characteristics		No of participants	Percentage (%)
Gender	Boy	74	63.2
	Girl	43	36.8
School	Osmani Medical High School	69	59
	Abdul Gafur Adarsha High School	48	41

Table showing distribution of respondents according to gender and school

2. Tooth cleaning behaviour among respondents

Table II:Tooth brushing practices among the respondents

Tooth brushing practices	Frequency	Percentage (%)
Once daily	48	41
Twice daily	67	57.3
More than twice	2	1.7

Table showing distribution of respondents according to tooth brushing practices

Table III: Time of brushing of teeth

Time of brushing	Frequency	Percentage (%)
Before breakfast	101	86.3
After breakfast	13	11.1
At night	56	47.9

Table showing distribution of respondents according to their time of brushing

Table IV:Method of cleaning of teeth

Method of cleaning	Frequency	Percentage (%)
Toothpaste	111	94.9
Toothpowder	6	5.1
Miswak	0	0

Table showing distribution of respondents according to their method of cleaning of teeth

Table V: Use of fluoride containing toothpaste

Presence of fluoride in toothpaste	Frequency	Percentage (%)
Yes	64	54.7
No	12	10.3
Don't know	41	35

Table showing distribution of respondents according to use of fluoride containing toothpaste

Oral examination record:

Table VI. Distribution of respondents by decayed, missing, filled teeth and DMFT

DMFT	Frequency
Decayed	174
Missing	7
Filled	74
DMFT	65
Mean DMFT	0.55

Table showing the number of decayed, missing and filled teeth and DMFT of the respondents

Table VII. Oral examination of boys

DMFT	Frequency	Percentage (%)
No cavity	20	27
Decayed	55	74.3
Missing	4	5.4
Filled	4	5.4

Table showing findings from oral examination of the boys

Table VIII: Oral examination of girls

DMFT	Frequency	Percentage (%)
No cavity	24	55.8
Decayed	17	39.6
Missing	1	2.3
Filled	3	7

Table showing findings from oral examination of the girls

Table IX: Distribution of the respondents by gingival condition

Gingival condition	Frequency	Percentage (%)
Normal	92	78.6
Red/Swollen	25	21.4

Table showing distribution of respondents according to their gingival condition

Discussion

Tooth cleaning practices:

This study found that almost all the adolescent school children (95%) who participated in the study, clean their teeth with tooth brush and toothpaste. More than 90% of adults aged 15 years and above in Malaysia brush their teeth with toothpaste.[6] Similarly, a very high proportion of adolescents (98%) brushed their teeth with toothbrush and tooth paste[7] in Sweden, Norway and Switzerland. Brushing teeth with toothpaste is common and has been reported in UK (Jackson, 2005). Cleaning teeth with toothbrush and toothpaste can be expected to be common practice among schoolchildren as oral health education in schools emphasizes the use of these oral hygiene aids. Adolescents are also at an age where they are conscious of personal grooming and are concern about the appearance of their teeth and mouth odour.[8] In Sylhet City, toothbrush and toothpaste are easily available and the population, who have relatively better socio-economic status compared to the rural population, generally can afford toothbrushes and toothpastes. These factors will certainly boost the practice of brushing teeth with toothpaste provided facilities such as water supply is available. Inaccessibility to water supply may be a deterrent to brushing teeth frequently.

A very small proportion (5%) of the adolescents cleaned their teeth using traditional methods such as toothbrush or fingers with tooth powder.

Tooth brushing practices

A majority (57%) of the adolescents in this study brush their teeth twice in a day though this lesser than the studies done by.[9] Tooth brushing is the most reliable means of controlling plaque if done thoroughly at regular intervals[10] and brushing teeth twice a day has been the commonly accepted recommendation by most dentists to control bacterial plaque.[2]

The present study revealed that majority (57%) of the respondents among school children in Sylhet city reported performing the recommended practice of brushing teeth twice in a day. This indicates that tooth brushing has become a social norm among the adolescents and was performed routinely. However, it is also possible that some may not actually practice what they have reported.

In this study, near half of(41%) of the adolescents who brush their teeth brush only once in a day while 57% brush twice daily. Generally, most adolescents in developed and developing countries brush their teeth although the evidences suggest that the frequency of tooth brushing varies from one country to another[5,7] A study in Malaysia of adults aged 15 years and above[6] showed equal proportion (57%) of adults who brush their teeth twice daily. However, this study was conducted in 1992.

In adolescents, socio-economical status may affect tooth brushing practice and frequency as well as oral hygiene and gingival health. It is already well known that adolescents from higher socio-economical status brush their teeth more frequently than adolescents from lower socio-economical status[1]. This may explain for the relatively adequate proportion (57%) of urban adolescents in this study who reported brushing at least twice daily. It is also important to take note that 41% of the respondents brushed their teeth only once daily. Future studies should identify this group of adolescents so that oral health education messages on frequency of brushing can be intensified for them.

This study in Sylhet City also demonstrated that tooth brushing was more responsive to family rather than to the influences of dental personnel. In primary socialization parents are role models to their young children and can exert strong influence on their primary health behaviour[4]. It is therefore important for oral health educators to target parents of very young children when trying to instil healthy behaviours such as tooth brushing as part of daily oral regime.

Furthermore, it is important to note that slightly more than half (55%) of the respondents in this study are aware that their toothpaste contain fluoride whilst 35%

were completely unaware. This is probably due to the fact that the availability of fluoridated toothpaste at home is usually beyond the control of most adolescents but depends on parents. Adolescents can be the resource person in families with regards to health information. They should be trained to read and interpret labels and help families to make healthy decisions.

Students, however, should be informed about the beneficial effect of fluoride either through dental health education or by including it into the school curriculum. However, no widespread use of toothpaste containing fluoride was found in the present study. So, it is therefore extremely important to take necessary steps to emphasize the importance and benefit of the fluoride containing toothpaste.

Oral Examination Record

In this study, majority (57%) of the students had decayed tooth which was lesser (65%) than that of other study.[7] However, 42% had no decayed tooth. Mean DMFT level of the students was 0.55% which was lesser (2%) than similar study.[7] The level of DMFT found in this study may be considered very low as it is less than 1.1(WHO). The gingival condition of the majority (82%) respondents was normal in this study.

Limitations of the study

There were several limitations to be considered in this study. Thus the findings of the study were discussed and interpreted within these limitations. The study was based on a cross sectional study design. The respondents of this study were not randomly selected due to resource constrain. Urban adolescents of two secondary schools in Sylhet city comprised of a convenient sample. It is possible that the sample is not reflective of the target population and hence, any information drawn from the sample may be biased and thus limits the chance of inferring to the adolescents of Sylhet city. However, the total number of respondents were 117.

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Evaluation And Pattern Of Donor Deferral In A Tertiary Level Hospital, Bangabandhu Sheikh Mujib Medical University, Dhaka

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Abstract

Healthy donor recruitment and retention is a challenge that faces the health today. The most important steps in improving the safety of blood is donor selection. Hence proper assessment is essential to ensure the safety of the recipient and on entire transfusion process. By the evaluation of donor questionnaire and physical examination, the donors are deferred for many reasons which is allied to our patient and donor safety. Therefore it's very important to scrutinize the reasons for such deferral among the potential donors in order to categorize them into temporary and permanent deferrals. The aim of the study was to evaluate the causes of donor deferral pattern in the centre of Transfusion Medicine dept. in BSMMU, Dhaka. The main objective is to assess the current reasons for donor deferral so that temporarily deferred donors with corrective reasons can be identified, informed and guided to improve their quality and later on come back as a regular donor. Therefore continuous process of blood supply can be regulated. Data was collected from the records maintained by the blood bank and it is a retrospective descriptive study based on evaluation of history and physical examination. Donors came were classified as physically fit or unfit for the comprehensive donation. Participants included between 1st January to 31st December on 2014.This study shows total 45,688 donors were found fit for donation over a period of one year and bloodletting was done from 22,167. Total 1239 donors were found unfit and among them 54.9% were temporal and 45.1% were permanently deferral. Male were 77.4% and Female were 22.5%. Frequent causes were donor with hypertension and drug 22.9%, asthma or severe allergy were found 12.5%. Furthermore, most common reasons for temporal deferral were earlier donation within 3 months 18.0%, anemic donor was found 14.7%, weight (<50 kg) 5.1%, jaundice within 6 months were 4.4% ,H/O taking antibiotic 4.2%, enteric fever ,dengue or chickenpox within 6 months were found 3.4%, Age restriction like >60years were 2.6%, Vaccinated for <1 week 0.8%,Tooth extraction or any dental procedure <15 days 0.6%.Remaining reasons for permanent deferral was Diabetes with drug or insulin 4.4%, recent major surgery <6 months 2.0%, TB or taking anti-TB drug 0.5%, residing any endemic zone or malaria within 3 years were 0.2% and any allergic, fungal or viral infection, tattoo on donation site 0.2%. The criteria for the selection and controls on donation as provided by law, are rigid and strict and we must not forget that donating blood is not just a way to save more lives, but also because the donor receives the result of analysis and can easily keep an eye on this health.

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Introduction

Blood transfusion is life saving procedure in many situations specially in trauma cases. Therefore the importance of availability of blood and blood products in an emergency situation cannot be overemphasized. Safe and adequate supply of blood and products is major public health issue faced globally. According to National AIDS control organization's statistics, the annual rate of blood donation is about 7.4 million units against the requirement of 10 million units in India.[1]

The rate and reasons of deferral differs from region to region and center to center. A voluntary donor is one who donates without any rewards or compulsion whereas a replacement donor is one who donates blood upon request of specific patient or patent's family which intended to be used specifically for the treatment of that a patient. Potential blood donors may not be able to donate for several reasons. All the donors are screened properly to ensure the blood drawn is safe for transfusion. There are large number of healthy individuals are not suitable to donate blood they are labeled as "deferred" donors.

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A donor who has been deferred can be due to temporary or permanent reasons. A temporarily deferred donor are deferred for a specific time period, but most often these prospective donors are then less likely to return in future for donation thinking they have been deferred for life time. Therefore individual deferred must given proper counseling and education regarding the reason for their deferral and advice them how to rectify the issue before the next visit. To protect blood donors and recipients appropriate donor history is necessary. At the same time, ensure the blood collection process should not provide any harm, which is significant for both the donor and patients.

This study aims to analyze the donor deferral rates ,various causes of deferrals as well as notify the causes of temporary deferrals who can come back again for future donation. This may also decrease the risk for both the patients and donors. The temporary deferral rates can also increase the donor pool level if we properly ensure the donors and then the donors will also compromise the temporary situation for the purpose of safety and to ensure the quality of blood products. The results are shown in the following tables.

Materials and methods

Data was collected from the records maintained by the blood bank and it is a retrospective descriptive study based on evaluation of history and physical examination. A donor questionnaire was used to collect the data annexure. Each and every donor were on the basis of medical history, physical examination, weight, age, blood pressure, pulse rate, temperature. Details of all those who were deferred were analyzed on the basis of sex and also cause of deferral. All the donors who are selected were then selected properly to ensure the blood drawn is for safe transfusion. Participants of this study were enrolled between 1st January,2014 to 31st December, 2014.

Results

Table I: Demographic characteristics (n=1239)

Sex	Frequency	Percent	P Value
Male	959	77.4	0.001
Female	280	22.5	
Total	1239	100	
Age in years	Frequency	Percent	Mean±SD
18-20	177	14.3	
21-30	652	52.6	
31-40	257	20.7	29.18±9.23
41-50	130	10.5	
>50	23	1.9	
Total	1239	100	

Table II: Total rejection for blood donation

H/O HTN with anti hypertensive drug	283	22.9
Previous donation <3 months	223	18.0
Anemic donor	182	14.7
H/O Asthma/ severe allergy	155	12.5
weight<50 kg	63	5.1
H/O Jaundice <6 months	54	4.4
H/O Diabetes with drug or insulin	55	4.4
H/O taking antibiotic <10 days	52	4.2
Menstruation / breast fed	43	3.5
H/O enteric fever and Dengue <6 months	42	3.4
> 60 age	32	2.6
H/O recent major surgery <6 months	25	2.0
H/O Vaccination <1 week	10	0.8
H/O Tooth extraction or any dental procedure <15 days	8	0.6
H/O TB or taking anti TB drugs 6	6	0.5
H/O residing endemic zone or H/O malaria <3 years	3	0.2
Skin lesion like allergic reaction, fungal or viral infection, tattoo mark on the donation site etc.	3	0.2
	1239	100

Table III : Temporal deferral for blood donation

	Frequency	Percent
Previous donation <3 months	223	18.0
Anemic donor	182	14.7
H/O taking antibiotic <10 days	52	4.2
Low weight<50 kg	63	5.1
H/O enteric fever and Dengue <6 months	42	3.4
H/O Jaundice <6 months	54	4.4
Menstruation / breast fed	43	3.5
H/O Vaccination <1 week	10	0.8
H/O Tooth extraction or any dental procedure <15 days	8	0.6
Skin lesion like allergic reaction, fungal or viral infection, tattoo mark on the donation site etc.	3	0.2

Table IV: Permanent deferral for blood donation

	Frequency	Percent
H/O HTN with anti hypertensive drug	283	22.9
H/O Asthma/ severe allergy	155	12.5
H/O Diabetes with drug or insulin	55	4.4
> 60 age	32	2.6
H/O recent major surgery <6 months	25	2.0
H/O TB or taking anti TB drugs	6	0.5
H/O residing endemic zone or H/O malaria <3 years	3	0.2

Table V: Percentage of temporal deferral and permanent deferral

	Number	Percentage (95% CI)	P Value	Z Value
Permanent	559	45.1 (41.0-49-2)	<0.00	4.90
Temporal	680	54.9 (51.2-58.6)	1	

A total number of deferred donor were 1239are the part of this study. This is a study over a period of one year From 1st January to 31st December 2014. Among them 77.4% were male and 22.6% were female. The deferred donors were categorized in temporary54.9%and permanent 45.1% deferral. Most common causes of deferral were found donor with hypertension and antihypertensive drug 22.9%, H/O asthma or severe allergy were found 12.5%. Furthermore, other most common reasons for temporal deferral were earlier donation within or <3 months or H/O frequent donation were 18.0%, followed by anemic donor was 14.7%, low weight(<50kg) 5.1%, H/O jaundice within 6 months were 4.4%, H/O taking antibiotics<10 days 4.2%,H/O of enteric fever ,dengue or chickenpox within 6 months were found 3.4%, age restriction like >60years or were 2.6%, H/O vaccination for <1 week were 1.6%,H/O tooth extraction or any dental procedure <15 days 0.6%. The other reasons remaining for permanent deferral remains H/O Diabetes with drug or in insulin 4.4%, H/O recent major surgery 2.0%, H/O TB or taking anti-TB drug 0.5%, H/O residing any endemic zone or H/O malaria within 3 years were 0.2% and skin lesion on the donation site like any allergic reaction, fungal or viral. Infection, tattoo mark 0.2%. The P value of temporary and permanent deferral remains 0.001 and z value is 4.90.This study also shows that temporal deferral remains higher than the permanent deferrals. It is also very important for our future regular donors to return again after the correction of their problems or the disease condition to increase our donor pool. Furthermore, permanently rejected donors are also valuable to alert the general people and to be conscious more for the next time as well as can hold back their risks and settlement.

Discussion:

Donor selection has vital importance in blood banking and transfusion medicine. The preamble of our study was to device a protocol which could prevent the loss of whole blood/component and be safe for the donors and recipients. This study shows total 45,688 donors were found physically fit for donation over a period of one year and bloodletting was done from 22,167. Several studies have been reported for the similar deferral rates. The deferral rates also varies from centre to centre. Even through the deferral rates were found to be similar but the major reasons deferral varies and also reflecting the socioeconomic drive and status.In a study from Coimbra, Portugal the major cause for deferral lies low hemoglobin count and then closely followed by medication and general health illness. But the deferral of donor due to any reason has a very negative impact and many temporarily deferred potential donors do not want to return to donate in future. Hence analysis of rejection pattern will not only help in donor but also secures the patients safety .It will also help to maintain the donor pool in the long run [1].

In south India it was similar for priority of rejection was hypertension followed by anemia. But in our country frequent blood donation is again consisting a great problem .Whether they are not coming voluntarily or ignorance about frequent donation. They do not even think for the consequences to be anemic in following donation. Next reason come for rejection is anemic donor which is also common for female donors in respect of our socioeconomic condition and high prevalence of iron deficiency in females. Hypertension sometimes may be undetected in some cases but careful history and physical examination can solve the problems as it has got some risks during the donation process [2].

The next important cause for deferral remains medication. Drug consumption among the donors due to proper information given to the donation criteria. It is also more common for Aligarh, India [3]. In our country its about 4.2%. In Iran the temporary deferral was 88.6% and permanent were 11.4%. Among them female is more common for that. In our country temporal deferral pattern is higher which is about 54.9% and permanent deferral is about 45.1%. Another thing is that deferral rate was higher in first time donors in comparison to regular donors. It's also being same for our country. This findings also confirms the importance of retaining safe donors regular donors. Some of the donor eligibility criteria in our center were different from those in other countries. For example, in center of South Nigeria, every sexual relationship outside of legal marriage was assumed to be an unsafe sexual contact even with use of protective devices (barrier methods like condoms). The deferral period for tattooing in our center according to

Table V: Percentage of temporal deferral and permanent deferral

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their SOP is one year but, according to the American Red Cross criteria, if the tattoo was applied by a state-regulated entity using sterile needles and ink, this is acceptable for blood donation[4].

In a study of London, the one of leading cause of donor rejection during their traveling they have to report for travel to any endemic zone of Malaria. Donors who were travel in the areas of Africa or India their PCR is positive up to 7 years We don't even know if the donors if not give their appropriate history of travel or residing in any endemic zone of malaria. In our country even the donor are frequently asked for any infection of malaria or their visit to any endemic zone. But it yet impending a risk to our population [5].

For acupuncture, the deferral period in their center is one year but again, according to the American Red Cross criteria, that is also acceptable. But in respect to our research it usually increases the risk of transfusion transmitted diseases. So its strongly prohibited in our country. We must encourage donors to donate blood only for altruistic reasons [5]. We must educate them regarding donation criteria. Physicians must give donors assurances regarding the confidentiality of donor selection so that potential donors answer the questions honestly.[6] Physicians must also give assurances regarding the confidentially of the self-exclusion option for donors who divulge their high-risk behaviors. Blood centers must recruit first-time donors, maintain their existing donors and identify the barriers that slow down donation.

In conclusion, blood donation is the endowment without inducement of reward. A blood bank plays a pivotal role in ensuring the supply of safe blood as and when required. However, given the ever changing socioeconomic environment and human factors involved, healthy donor recruitment and mention is a challenge that faces the health today. While it is important to ensure that there is adequate supply of blood, it is important to ensure that adequate supply of collection process does not harm either the donor or the recipient. This is achieved by the donor deferral criteria and stringent screening of collected blood for possible transfusion transmitted infection. The first step towards blood safety is to encourage blood donations from voluntary non-remunerated donors and obtained from low risk regular donors, who are donating blood two to three times a year. Youth who are healthy, enthusiastic and approachable as a group, if recruited young may become future donors and motivators for blood donation.

The aim of this research/learning is to increase the pool of voluntary blood donors as well as to ascertain the reasons for blood donation deferral among these donors and elimination of unnecessary deferrals though revision of the national criteria of donor selection and rigorous a adherence to the standard operational procedures by the blood donor's physicians should be considered. Also it emphasized to improve the blood donor retention strategies to boost the regular blood donors pool.

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Results of anterior cervical decompression, fusion and stabilization by plate and screw for unstable lower cervical spine injury

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Abstract

The purpose of this study was to find out the results of anterior cervical decompression, fusion and stabilization by plate and screws in unstable lower cervical spine injury. This prospective interventional study was conducted in the Department of Orthopaedics at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from January 2013 to December 2014 for a period of 2 (two) years. The patients with unstable lower cervical spine injury diagnosed on the basis of presenting complain, clinical examination and investigations were selected as study population. They were treated by cervical traction followed by anterior cervical decompression, fusion and stabilization by plate and screws. All patients were evaluated clinically and radiographically before and after surgery. A total number of 15 patients were included in this study and followed up for a period of 6 months. Mean age was 35.53 (±13.81) years within the range of 12 – 60 years. Male female ratio was 14:1. Maximum 5 (33.3%) patients level of injury was C5/6 followed by 4 (26.6%) and 3 (20.0%) patients level of injury were C4/5 and C6/7 respectively. Other three patient's levels of injury were C3/4, C5 and C6 respectively. Mean SLIC score was 6.78 (1.18) range from 5 to 8. Before operation all patients had low ASIA grade. After operation it was increased gradually. After 3 months 13 (86.7%) patients had sign of fusion and after 6 months all patients had sign of fusion. Mean VAS was 1.73 (1.43), 0.60 (0.91) and 0.33 (0.72) after 1 month, 3 months and 6 months respectively. Most of the patients (53.3%) condition was good followed by 3 (20.0%), 2(13.3%) and 2(13.3%) patients condition was excellent, good, fair and poor respectively as per MMC grading. Anterior cervical decompression, fusion and stabilization by plate and screws give a good result for unstable lower cervical spine injury.

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Introduction

Cervical spine transmits load, allows motion and protects the spinal cord. An unstable spine gives rise to incapacitating deformity, pain and also may damage the spinal cord and nerve roots. Cervical spine becomes unstable due to developmental disorders, trauma, infections, degenerative diseases; vertebral body tumours and following surgery for spinal disorders[1]. The cervical spine consists of 7 cervical vertebrae. The part of cervical spine from C3 through C7 is taken as lower cervical spine[2]. Spinal cord injury was first reported more than 5000 years ago in the Edwin Surgical Papyrus[3]. Bohler in 1967 first reported use of anterior cervical plate and screw fixation in a patient with cervical spinal trauma[4].

The incidence of serious cervical spine injuries is low but associated rates of death and disability are high[5]. Prevalence of traumatic spinal cord injury (SCI) is approximately 750 per million worldwide[6]. One third of all spinal injuries involve cervical vertebrae[7].

Anterior cervical plating may be used for anterior column support to patients with severe compression fracture or instability or burst fracture. Anterior cervical fusion with plate fixation provides immediate stability to affected area, reduces risk of graft extrusion, avoids need for extended post operative

external immobilization and significantly shortens the rehabilitation period[8].

The goals of stabilization are to realign the spine, prevent further loss of neurological function, enhance neurological recovery, and restore biomechanical integrity to the spine[9].

An anterior or posterior approach can be used if disc fragments are not found in the canal but the only recommended approach is anterior cervical discectomy and open reduction, if the disc fragment is present[10]. Furthermore, patients should be maintained in a supine position with rigid collar immobilization or other stable neutral immobilization, while standard Advanced Trauma Life Support protocols are performed[11].

The complications related to anterior cervical approach are many including injury to nerves, vessels, trachea, oesophagus, cord and complications related to implant, graft and graft site[12].

Fusion was defined by noting the presence or absence of bridging trabeculae across the interspace, radiolugent lines between the graft and vertebral body, and loss of endplate definition[13]. A fusion grade was assigned using the Bridwell et al. (1995)[14].

Despite biomechanical data suggesting greater efficacy of posterior fixation, clinical results of anterior inter-body fusion and plate fixation have been quite satisfactory[15].

Therefore this study was undertaken to find out the results of anterior cervical decompression, fusion and stabilization by plate and screw in unstable lower cervical spine injury.

Materials and Methods

This prospective interventional study was carried out in the Department of Orthopaedic Surgery at Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka from January 2013 to December 2014 for a period of two (2) years. The patients with unstable lower cervical spine injury (C3-C7) diagnosed on the basis of presenting complains, clinical examination and investigations were selected as study population. Less than 4 SLIC scores were excluded. The purposive sampling was performed. Demographic and clinical variables like age, gender, occupation, site of involvement, cause of injury and cord lesion were recorded. Informed verbal & written consent was taken. All patients were treated initially by tong traction followed by anterior cervical decompression, fusion and stabilization by plate and screw. All patients were evaluated clinically and radiographically before and after surgery. In this study ASIA impairment scale, sign of fusion according to fusion grading of Bridwell et al. (1995)[14] and Modified Macnab Criteria were used for evaluation of the result. Statistical analysis was performed by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-12) (SPSS Inc, Chicago, IL, USA). The summarized data was interpreted accordingly and was then presented in the form of tables.

Results

A total number of 15 patients of unstable lower cervical spine were selected. Out of Seven fracture and dislocation, 3 (20.0%) patients' level of injury was C6/7 followed by 2 (13.5), 1 (6.7) and 1 (6.7) were C5/6, C4/5 and C3/4. Out of six dislocation, 3 (20.0) patients level of injury were C4/5 and C5/6 in each group. Out of two compression fracture, 1 (6.7%) patient's level of injury was C5 and C6 in each group. Out of 2 (13.3%) patients of grade A (pre operative) one (50.0%) remain unchanged (grade A) and another one (50.0%) improved by 1 grade (grade B) after six months. Among six (40.0%) patients of grade B (pre operative), two (33.3 %) patients were improved by 1 grade (grade C) and four (66.7%) patients were improved by 2 grade (grade D) after six months. Out of seven (46.7%) patients of grade C (pre operative), four (57.1%) patients were improved by 1 grade (grade D) and three (42.9%) patients were improved by 2 grade (grade E) after six months. Table IV shows post operative complications of the patients. Complications were seen among only few patients, 3(20.0%), 3(20.0%), 2 (13.3%) and 1 (6.7%) patients had dysphagia, neck pain, bed sore and temporary hoarseness respectively. As per Bridwell et al. (1995)[14]

fusion grading, after 3 months 13 (86.7%) had fusion grade I, 1 (6.7%) had fusion grade II and 1 (6.7%) had fusion grade III. After 6 months all patients showed that the graft was fused and their fusion grade was I. Most of the patients (53.3%) condition was good followed by 3 (20.0%), 2(13.3%) and 2(13.3%) patients condition was excellent, fair and poor respectively as per MMC grading

Table I: Distribution of patients by demographic and clinical findings (n=15)

	Frequency	Percentage
Age (Mean ± SD)	35.53 ±13.81	
Min-Max	12 - 60	
Gender		
Male	14	93.3
Female	1	6.7
Cause of injury		
Road traffic accident (RTA)	2	13.3
Carrying heavy weight on head	7	46.7
Fall from height	5	33.3
Diving injury	1	6.7
Cord lesion		
Incomplete	13	86.7
Complete	2	13.3
Level of injury		
C3/4	1	6.7
C4/5	4	26.7
C5	1	6.7
C5/6	5	33.5
C6	1	6.7
C6/7	3	20.0

Table II: Distribution of patients by shifting of ASIA grade after operation (n=15)

ASIA grading	Before operation	After 6 months follow up				
		A	B	C	D	E
A	2 (13.3)	1 (50.0)	1 (50.0)			
B	6 (40.0)			2 (33.3)	4 (66.7)	
C	7 (46.7)				4 (57.1)	3 (42.9)

Table III: Distribution of patients by post operative complication, fusion and MMC grading (n=15)

	Frequency (n)	Percentage
Complications		
Bed sore	2	13.3
Dysphagia	3	20.0
Neck pain	3	20.0
Temporary hoarseness	1	6.7
Fusion grade (Bridwell et al., 1995)[14]		
After 3 months of treatment		
Grade I	13	86.6
Grade II	1	6.7
Grade III	1	6.7
After 6 months of treatment		
Grade I	15	100.0
Grade II	0	0.0
Grade III	0	0.0
MMC grading		
Excellent	3	20.0
Good	8	53.3
Fair	2	13.3
Poor	2	13.3

Discussion

The evaluation and management of cervical spine injuries is a core component of the practice of emergency medicine[11]. A total number of 15 patients were evaluated in this study whose mean (SD) age was 35.53 (13.81) within the range of 12-60 years[7]. Goldberg et al (2001) have reported that older age is an important risk factor for cervical spine injury. Males were predominant by females (14:1). Males are affected 4 times as frequently as females[11].

The most common mechanism of injury was noted to be accidental falls, with motor vehicle/transport injuries being the second most common[16]. We found 7(46.7%) injuries were due to carrying heavy weight on head followed by 5(33.3%), 2(13.3%) and 1(6.7%) injuries due to fall from height, RTA and diving respectively.

Maximum (86.7%) patients had incomplete cord of lesion and 2 (13.3%) patients had complete cord of lesion in this study. Incomplete cord lesion is very common among the cervical spine injury patients[17].

Maximum 5 (33.3%) patients level of injury was C5/6 followed by 4 (26.6%) and 3 (20.0%) patients level of injury were C4/5 and C6/7 respectively. Other three

patient's level of injury was C3/4, C5 and C6 respectively. Benumof (2000) has reported similar result[18].

Out of 2 (13.3%) patients of grade A 1 (50.0%) remain unchanged (grade A) and another one (50.0%) improved by 1 grade (grade B) after six months. Among 6 (40.0%) patients of grade B, two (33.3 %) patients were improved by 1 grade (grade C) and four (66.7%) patients were improved by 2 grades (grade D) after six months. Out of seven (46.7%) patients of grade C, 4 (57.1%) patients were improved by 1 grade (grade D) and three (42.9%) patients were improved by 2 grades (grade E) after six months. Frankel observed that 60% of patients (Grades B, C or D) improved (spontaneously) by one grade. Although many of the patients presented grade A improved to B or C, only 5% of these patients improved to D or E[19].

Post operative complications (dysphagia, bed sore, neck pain and temporary hoarseness) were seen among few patients. One Oesophageal complication, two cases of paralysis of the recurrent laryngeal nerve and two infections were found[20].

After 6 months all patients showed that the graft was fused and their fusion grade was I. It is very clear from this result that bony fusion occurs mostly within 3 months (86.7%)[21].

Eight (53.3%) patients condition was good followed by 3 (20.0%), 2(13.3%) and 2(13.3%) patients condition was excellent, fair and poor respectively as per MMC grading.

In conclusion, the use of anterior cervical decompression, fusion and plating in unstable lower cervical spine injuries enhances arthrodesis and neurological recovery. Improved fusion rates, low complications and early rehabilitation justify that this is a good option for the management of unstable lower cervical spine injury.

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ORIGINAL ARTICLE

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Comparative Study of Early Versus Delayed Enteral Feeding for Achievement of full Enteral Feeding for Preterm Small for Date Babies

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Abstract

Growth-restricted preterm infant's initiation of enteral feeding is frequently delayed, even though delayed enteral feeding could diminish the functional adaptation of the gastrointestinal tract and result in feeding intolerance later. There is no evidence that this delay is beneficial and it might further compromise nutrition and growth. Early initiation of feedings, if well-tolerated, may promote growth and shorten the duration of parenteral nutrition and hospital stay.

To evaluate the achievement of full enteral feeding of early and delayed enteral feeding in preterm small for date babies (weighing 1-1.5 kg).

Gestational age (34.27 ±1.07 weeks vs 33.97 ± 1.30 weeks; p=0.167), sex (41 male, 19 female vs 40 male, 25 female; p=0.427) and weight (1196.3 ±135.9 gram vs 1172.3 ±136.4 gram; p=0.288) were statistically similar in early and late feeding group.

Full enteral feeding was established in 45 (75.0%) neonates in early feeding group and 47 (72.3%) neonates in late feeding group (p=0.733).
Age at achievement of full enteral feeding was significant earlier in early feeding group than that of late feeding group (11.62 ± 1.51 days vs 14.34 ± 2.51 days; p<0.001).

Final outcome such as discharged home [45 (75.0%) vs 47 (72.3%); p>0.05], death [10 (16.7%) vs 11 (16.9%); p>0.05], oral feeding not established [1 (1.7%) vs 2 (3.1%); p>0.05], referred to paediatric surgery [4 (6.7%) vs 5 (7.7%); p>0.05] did not differ significantly between early and late feeding group.
Length of hospital stay of those achieved full enteral feeding was 14.73 ± 1.50 days in early feeding group and 17.40 ± 2.49 days in late feeding group. Length of hospital stay of those achieved full enteral feeding was significant earlier in early feeding group than that of late feeding group (14.73 ± 1.50 days vs 17.40 ± 2.49 days; p<0.001).

Findings of this randomized controlled trial concludes that early enteral feeding with breast milk results in a few days earlier in establishing full enteral feeds and earlier discharged from the hospital.

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Introduction

Live born infants delivered before 37 weeks from the 1st day of the last menstrual period are termed premature. Low birth weight (LBW) is defined as birth weight of baby below 2500 grams and very low birth weight (VLBW) baby is defined as birth weight below 1500 grams. Premature baby may be low birth weight or small for date (SFD). Small for date baby is defined as birth weight 2 standard deviations below the mean for gestational age or birth weight below 10th percentile.[1] Preterm small for date babies are those babies who born before 37 completed weeks and birth weight below 10th percentile for gestational age. Low birth weight is one of the major health problems both in developed and developing countries and is closely associated with fetal and neonatal mortality and morbidity, inhibited growth and poor cognitive development of children, increased risk of chronic disease later in life.[2]
The global prevalence of LBW is 15.5% which means that every year about 20.6 million such infants are born each year with 96.5% of them in developing countries. There is significantvariation in LBW

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incidence rate across the world with the highest incidence in south central Asia (27.1%) and lowest in Europe (6.5%).[3,4]

There is no actual data of VLBW and preterm small for date babies in our country. Prevalence of LBW in Bangladesh is 21.6%.[5] Approximately one third of low birth weight infants are small for date babies.[6] It can be assumed that about 7% babies are born small for date in Bangladesh.

Due to good obstetric care and day by day improvement of neonatal care survival of preterm infants increases.

Feeding strategy is one of the major clinical challenges, because of excess prematurity, very low birth weight preterm infants are not often able to be directly breast fed and prolonged parernteral nutrition will predispose them to sepsis and phlebitis.[7]

The optimum time for introducing enteral feeding to a VLBW infant is controversial. Trophic feeding is the practice of feeding to very low birth weight premature infants to stimulate development of immature gastrointestinal tract. The benefits of trophic feeding include enhanced gut motility, improved growth, decreased need for parenteral nutrition, fewer episodes of sepsis and shortened hospital stay. Once the infant is stable, small volume feeding are given in addition to intravenous fluid. Feeding is gradually advanced and parenteral nutrition decreased. Careful early feeding of breast milk or formula tends to reduce the risk of hypoglycemia, dehydration, and hyperbilirubinemia.[8]

Most infants weighing < 1500 gm require tube feeding because they are unable to coordinate breathing, sucking and swallowing. Intestinal track readiness for feeding may be determined by active bowel sound, passage of meconium, and the absence of abdominal distention, bilious gastric aspirate. Enteral feeding can begin as early as day 1 (provided infant is medically stable). Using small volume trophic feed (approximately 10 ml/kg/day) to stimulate gastrointestinal tract and prevent mucosal atrophy. As baby can tolerate feeding may be increased by 10-20 ml/kg/day. Clinical studies across the world have consistently demonstrated that infants who are fed earlier and are advanced according to a feeding plan achieve full enteral feeds sooner than their counterpart.[9]

The only feeding practice that has consistently shown to have a protective effect against NEC is the use of breast milk instead of formula feeds. Human milk is recommended when initiating enteral feeds.[10] Mother's own freshly expressed preterm milk has a relatively high protein and fat content and preserved anti-infective properties. Donor human milk (DHM) is an alternative option if mother's own milk is not available. If there is no access to human milk, cow's milk-based artificial formulas are used.[11] Generally initiation of enteral feeding is frequently delayed in preterm growth restricted infant though there is no evidence that delayed enteral feeding is beneficial. Also delayed feeding might further compromise nutrition and growth.[7]In this respect,

minimal enteral feeding (MEF) of very low-birth-weight infants has been introduced as a strategy to improve feeding tolerance and prevent complications of prolonged parenteral nutrition.[12]

Although MEF has been shown to improve the clinical outcome with no additional increase in the relative risk of any complication, limited information is currently available regarding the effect of early versus delayed introduction of MEF on feeding intolerance in IUGR infants.[13,14] Additionally, most trials of enteral feeding in preterm infants have showed conflicting results.[13,15] Thus, the feeding protocol that would be more suitable for preterm infants with IUGR.[12] not yet standardized.

Postnatal growth restriction is common in preterm infants and is associated with adverse neuro–developmental outcomes.[16] Early introduction of enteral feeds may improve nutrition and growth and better outcome.[17] Conversely late introduction may results in villous atrophy and reduced hormone and enzyme production due to lack of intestinal stimulation.[7] Late introduction may also results in prolonged use of parenteral nutrition with increased risk of sepsis, cholestatic jaundice and vitamin and mineral deficiencies.[7,18]

One study suggested that early enteral feeding is better than delayed enteral feeding for preterm small for date babies.[19] they found that full sustained enteral feeding was achieved at an earlier age in the early feeding group. In the absence of accepted standards for feeding preterm infants with IUGR, the present study aimed to examine the effect of early versus delayed introduction of enteral feeding on achievement of target enteral feeding, days of achievement of target feeding and documentation of hospital stay in preterm small for date babies.

Materials and Methods

This open labeled randomized controlled trial was conducted in the Department of Paediatrics Sylhet MAG Osmani Medical College Hospital during the period from July 2012 to June 2014. One hundred forty neonates with preterm small for date babies were selected according to inclusion and exclusion criteria. Inclusion criteria were baby born preterm (<37 completed weeks) having birth weight below 10th percentile for gestational age, birth weight 1000- 1500 grams (VLBW), less than 48 hours postnatal age. Exclusion criteria were major congenital anomaly, Rhesus iso-immunization, previous intrauterine or exchange transfusion and multi-organ dysfunction. They were divided randomly into two groups as Group A (early feeding group) and Group B (late feeding group) each consisting 70 patients. After randomization 10 patients from group-A and 5 patients from group-B were excluded from analysis due to incomplete data. So, final sample size was 60 patients in Group A and 65 patients in Group B.

Randomization and intervention

Detail history was taken of all neonate admitted in paediatrics ward weighing 1 to 1.5 Kg. Then thorough examination was done of these neonates. Gestational age was calculated from LMP (Last menstrual period) and NBS (New Ballard score). When there is discrepancy between LMP and NBS then NBS was considered final. When gestational age was less than 37 weeks and birth weight below 10th percentile then these babies were included in the study.

After enrollment group allocation of the first case was done by lottery method. !st case was selected for early feeding group and second case goes to other group (delayed feeding group). Then group allocation continued accordingly.

Trophic feeding or gut priming (1 ml/kg) was the minimum amount of feeding to prepare gut. After 4 hours of first feeding, if no intolerance of feeding developed then second feeding was given as same amount.

After a trophic feeding of 1 ml/kg, the feeds were gradually increased in both groups. Amount of increment of feeds were same in both groups e.g-2 ml 2 hourly on day 3, increased 4 ml 2 hourly on next day and so on to reach 150 ml/ kg/ day and sustained for 72 hours. The only difference in both groups were the day of starting of feeds- early groups on day 2 and delayed group on day 4.[72]

N G tube was introduced and a syringe was connected with the open end of tube to administered feeds, and milk was administered by the law of gravitation. To measure the gastric tube length, the tube tip was at the xiphisternum and measured to the ear lobe and then to the nose. Infants in each group received 1ml/kg breast milk every 4 hours on day 1 and were advanced 2 ml/kg/day if tolerated along with parenteral nutrition.

Parenteral nutrition was started just after admission and continued until milk feeding established. The only choice was the mother's breast milk. Feeding was started in 2 days of birth in early feeding group and 4 days in delayed feeding group.[72] Rate of increase of feed was same for both groups. Follow up was given every day to monitor vital signs, tolerance of feeding, vomiting, urine output, bowel movement, abdominal distention, any bleeding manifestation. The target was to reach 150ml/kg/day and sustain for 72 hours.

If feeding intolerance developed which was manifested by inability to digest enteral feeding and presented as pre-feed GRV (gastric residual volume) more than 50%, abdominal distention, vomiting or both then enteral feeding was stop in affected infant. Parenteral nutrition was continued along with stoppage of enteral feeding for 2 days. After 2 days if there was no or minimum gastric aspirate, no vomiting or subsidence of abdominal distention again trophic feeding was started and increased gradually. But if still infants cannot tolerate feeding then they were considered as early stage of NEC and treatment was given for NEC accordingly along with keeping infant nothing per oral. If any infant developed sepsis then he or she was treated accordingly.

Treatment modalities for both groups were according to management plan of preterm small for date babies in Sylhet M A G Osmani Medical College Hospital.

Outcome measures

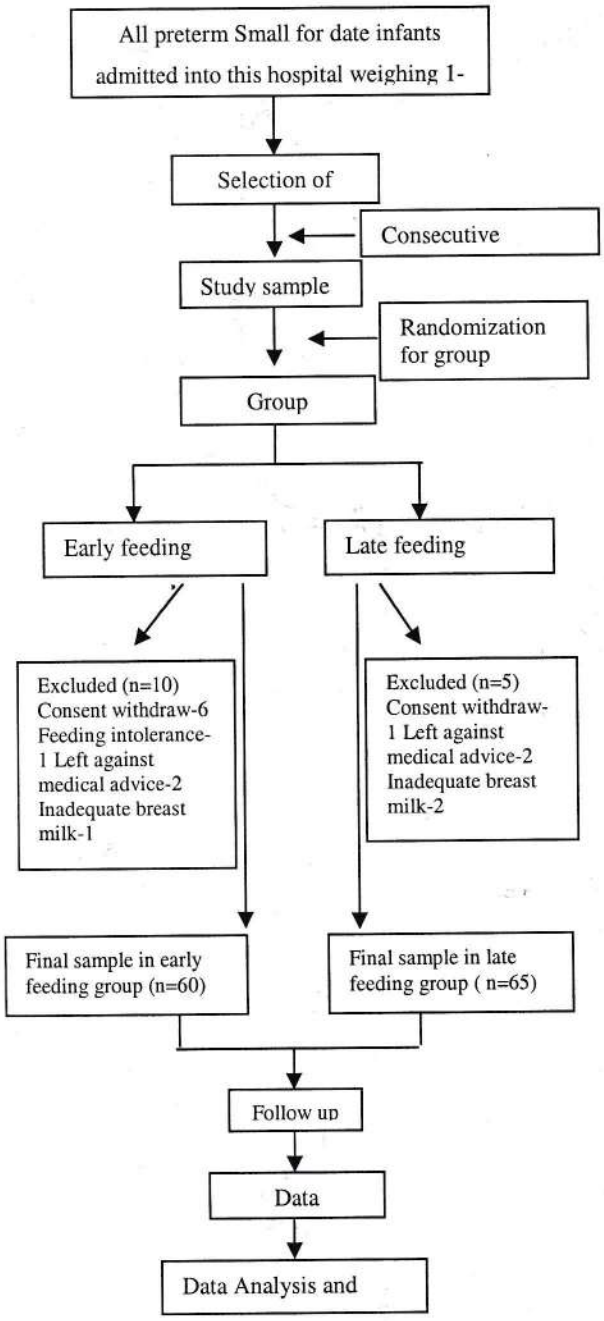
Primary outcome measure:

- Achieve full enteral feeding upto 150 ml/kg/day and sustained for 72 hours.
- Age in days to achieve full enteral feeding.

Secondary outcome measure:

Duration of hospital stay

Flow chart: Randomization and intervention



Data collection and analysis

Relevant data were recorded in a pre-designed data collection sheet designed for the study .

Data were processed manually and analyzed with the help of SPSS (Statistical package for social sciences) Version 21.0.

Quantitative data were expressed as mean and standard deviation; and comparison was done by unpaired "t" test.

Qualitative data was expressed as frequency and percentage and comparison was carried by Chi-square (χ^2) test or Fisher's exact test.

A probability value (p) of less than 0.05 was considered statistical significance.

Results

Table-I: Distribution of the patients on baseline characteristics:

Baseline characteristics	Study subjects			p-value
	Early feeding (n=60)		Delayed feeding (n=65)	
Gestational age				
	32-33 weeks	5 (8.3)	14 (21.5)	p=0.118
	34-35 weeks	42 (70.0)	38 (58.5)	
	36 weeks	13 (21.7)	13 (20.0)	
	Mean ±SD in weeks	34.27 ±1.07	33.97 ±1.30	p=0.167
Mode of delivery				
	Vaginal delivery	46 (76.7)	45 (69.2)	p=0.351
	Caesarean section	14 (23.3)	20 (30.8)	
	Male	41 (68.3)	40 (61.5)	p=0.427
	Female	19 (31.7)	25 (38.5)	
Weight (mean ±SD) gms	1196.3 ±135.9		1172.3 ±136.4	p=0.288

The mean gestational age in both groups was almost identical (34.27 ±1.07 weeks vs 33.97 ± 1.30 weeks; t=1.390; p=0.167). Gestational age was also similar when gestational age was categorized in weeks (χ^2=4.270; p=0.118).

Mode of delivery between groups did not differ significantly (χ^2=0.871; p=0.351).

The sex of the patients in group-A and group-B did not show any statistically significant difference (χ^2=0.632; p=0.427).

The mean weight of the patients in both groups did not differ significantly (1196.3 ±135.9 gram vs 1172.3 ±136.4 gram; t=1.068.p=0.288).

Table-II: Distribution of patients according to achievement of full enteral feeding.

Full enteral feeding	Study subjects		p-value
	Early feeding (n=60)	Delayed feeding (n=65)	
Established	45 (75.0)	47 (72.3)	p=0.733
Not Established	15 (25.0)	18 (27.7)	
Total	60 (100.0)	65 (100.0)	

Full enteral feeding was established in 45 (75.0%) neonates in early feeding group and 47 (72.3%) neonates in late feeding group. Difference between two feeding groups is not statistically significant (χ^2=0.116; p=0.733).

Table-III: Distribution of patients according to age at achievement of full enteral feeding.

Age at achievement of full enteral feeding	Study subjects		p-value
	Early feeding (n=45)	Delayed feeding (n=47)	
Mean (day)	11.62	14.34	p<0.001
Standard deviation	± 1.51	± 2.51	
Range (day)	11-17	13-26	

Age at achievement of full enteral feeding was 11.62 ± 1.51 days in early feeding group and 14.34 ± 2.51 days in late feeding group. Age at achievement of full enteral feeding was significant earlier in early feeding group than that of late feeding group (t=-6.252; p<0.001).

Table-IV: Distribution of patients according to final outcome.

Final outcome	Study subjects		p-value
	Early feeding (n=60)	Delayed feeding (n=65)	
Discharged	45 (75.0)	47 (72.3)	p>0.05
Death	10 (16.7)	11 (16.9)	p>0.05
Feeding not established	1 (1.7)	2 (3.1)	p>0.05
Referred to paediatric surgery	4 (6.7)	5 (7.7)	p>0.05
Total	60 (100.0)	65 (100.0)	

Final outcome such as discharged from hospital [45 (75.0%) vs 47 (72.3%); Z=0.343; p>0.05], death [10 (16.7%) vs 11 (16.9%); Z=-0.030; p>0.05], oral feeding not established [1 (1.7%) vs 2 (3.1%); Z=-0.515; p>0.05], referred to paediatric surgery [4 (6.7%) vs 5 (7.7%); Z=-0.216; p>0.05] did not differ significantly between early feeding group and late feeding group.

Table-V: Distribution of patients according to cause of death.

Cause of death	Study subjects		p-value
	Early feeding (n=10)	Delayed feeding (n=11)	
Sepsis	3 (30.0)	5 (45.5)	
Recurrent apnoea	4 (40.0)	4 (36.4)	p=0.861
Hypothermia	3 (30.0)	2 (18.1)	
Total	60 (100.0)	65 (100.0)	

Causes of death were sepsis in 3 (30.0%), recurrent apnoea in 4 (40.0%)] and hypothermia in 3 (30.0%) in early feeding group; while causes of death were sepsis in 5 (45.5%), recurrent apnoea in 4 (36.4%)] and hypothermia in 2 (18.1%) neonates in late feeding group. Difference between two feeding groups was not statistically significant (p=0.861).

Table-VI: Distribution of patients according to length of hospital stay of those achieved full enteral feeding.

Length of hospital stay	Study subjects		p-value
	Early feeding (n=45)	Delayed feeding (n=47)	
Mean (day)	14.73	17.40	p<0.001
Standard deviation	1.50	2.49	
Range (day)	14-20	16-29	

Length of hospital stay of those achieved full enteral feeding was 14.73 ± 1.50 days in early feeding group and 17.40 ± 2.49 days in late feeding group. Length of hospital stay of those achieved full enteral feeding was significant earlier in early feeding group than that of late feeding group (t=-6.199; p<0.001).

Discussion

Optimal enteral feeding methods in preterm infants have not been well defined. Controversy exists regarding when feeding should be started, whether minimal enteral feeding should be used routinely in small preterm infants, and how fast to advance enteral feedings.[14] Preterm infants can exhibit delayed gastric

emptying and often have feeding residuals, although what constitutes a clinically significant gastric residuals remains unclear.[20]

In this study the mean gestational age in both groups was almost identical (34.27 ±1.07 weeks vs 33.97 ± 1.30 weeks; p=0.167). The mode of delivery between groups did not differ significantly in the current study (p=0.351) (Table I). These results was similar to the study of Sallakh-Niknezhad et al.[21] groups did not differ significantly (1196.3 ±135.9 gram vs 1172.3 ±136.4 gram; p=0.288) (Table I). This result was supported by Leaf et al.[7] and Sallakh-Niknezhad for a modest delay in enteral feeding. On the other hand, others studies showed that delaying enteral feeding could be detrimental. Parenteral nutrition is usually used as an alternative source of nutrients, but side effects are common[8] (Sepsis, Pulmonary embolism, metabolic complication, Cholestatic liver disease etc).
In this respect, MEF (minimal enteral feeding) of very low-birth-weight infants has been introduced into clinical practice as an alternative approach to delayed enteral intake.[12] This approach has recognized benefits, including enhanced endocrine and exocrine hormonal activity, improved growth of intestinal mucosa, maturation of gut motility, and improved overall clinical outcome, with no proven increase in the relative risk of feeding intolerance.[15,25,2,7,6,27] It can be concluded that early enteral feeding with breast milk results in early establishment of full enteral feeds and earlier discharge from the hospital.

Recommendation

- Early enteral feeding with breast milk may be recommended for preterm small for date babies.
- A large multicenter study may further strengthen the findings of the present study.

Limitation of the study

- Single centre study, may not reflect the situation of whole country.
- Small sample size.

No NICU facility in this hospital.

In this study the mean weight of the patients in both groups did not differ significantly (1196.3 ±135.9 gram vs 1172.3 ±136.4 gram; p=0.288) (Table I). This result was supported by Leaf et al.[7] and Sallakh-Niknezhad et al.[21] that there was no significant difference of weight of the infants between early enteral feeding and late enteral feeding group.
In this study of early and late feeding group of small for date babies we observed no difference in the percentage of establishment of full enteral feeding (75.0% vs 72.3%) (Table II) but the age at achievement of full enteral feeding was significantly earlier in early feeding group than that of late feeding group (11-17 vs 13-26) (Table III). Therefore the benefit of starting feeds earlier was a shorter duration of parenteral nutrition and of high-dependency care. This result was correlated with the study of Leaf et al.[21] that the infants in early versus late initiation of feeding in premature growth restricted newborns and SFD identified by antenatal Doppler studies showed infant those started earlier feed achieved sustained enteral feeding at a significantly earlier age.
In this study discharged of neonate from hospital did not differ significantly between early group and late feeding group (Table IV). This result was supported by the study of Leaf et al.[7] that discharged from the hospital in both early and late feeding group was almost similar.
In this study death from all cause was almost similar in both early feeding and late feeding group but none of these death were due to gastrointestinal causes (Table V). Similar findings were reported in the study of Leaf et al.[7] A meta-analysis also did not detect any statistically significant differences overall death (typical RR 1.06 (95% CI 0.55 to 2.05).[22]
In the current study the length of hospital stay of those achieved full enteral feeding was significantly earlier in early feeding group than that of late feeding group (Table VI). This result was correlated with the study of Sallakh-Niknezhad et al.[21] that infants with early enteral feeding were discharged -sooner than infants who received trophic feeding. But Leaf et al.[7] found that there was no difference in overall length of hospital stay.
Study of Baschat AA. Hartung J, Kalche KD suggested that preterm infants with IUGR often have prenatal hemodynamic disturbances,[22,23] and these prenatal hemodynamic abnormalities have been associated with increased perinatal mortality and morbidity.[13,24,25,26] Furthermore, postnatal physiological studies have shown persistent flow abnormalities in superior mesenteric artery blood flow velocity in these infants during the first days of life.[8,27] Therefore, the gradual recovery of intestinal perfusion during the first days of life provides a sound rationale

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ORIGINAL ARTICLE

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A Comparative study between the complications of AO type 31-A2 trochanteric fracture of femur treated by Dynamic Hip Screw & Proximal femoral locking compression plate in elderly.

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Abstract

Trochanteric fractures have been marked as one of the biggest problem of the contemporary civilization. The objective of the study was to compare the complications of AO type 31-A2 fracture who got treatment by dynamic hip screw (DHS) than that of proximal femoral locking compression plate (PF-LCP) in elderly. This was a prospective comparative study, conducted during the period from 1st July 2010 to 30th June 2012 at the department of Orthopaedics in Sylhet M.A.G. Osmani Medical College Hospital, Sylhet, Bangladesh. 30 admitted patients of AO type 31-A2 fracture of femur, satisfying inclusion and exclusion criteria, were purposively included as two groups named group A and group B. The result showed the insignificant statistical difference between group-A and group-B (t=-0.756; p>0.05). The study revealed that the total operation time was significantly lower in group-A than that of group-B (t= -7.151; p<0.001). Post operative complications were similar in both groups such as superficial wound infection [1 (6.7%) vs 0 (0.0%); $\chi 2=1.034$; p>0.05], varus deformity [5 (33.3%) vs 2 (13.4%); $\chi 2=0.682$; p>0.05] and Implant failure [3 (20.0%) vs 0 (0.0%); $\chi 2=0.240$; p>0.05]. Any method of fixation was not also superior to other in respect of length of postoperative hospital stay.(t=-0.192; p>0.05). The findings of the study will give baseline information about complications of the two types of treatment procedures.

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Introduction

Trochanteric fractures are around four times more frequent than the other fractures of the proximal part of femur. The usual occurrence is in older patients above 60 years of age especially in women when there is far greater loss of the skeletal mass and the mechanism of injury is usually due to low-energy trauma like a simple fall.[1] Due to a number of unpropitious factors, trochanteric fractures pose a challenge to the orthopedic surgeon – typically, an elderly patient who tolerates recumbency poorly, suffers an unstable fracture in osteoporotic bone, engaging the area of the skeleton with the highest loads.[2] The incidence of intertrochanteric fractures is showing a steady upward trend because of the increase in number of elderly population superadded with osteoporosis. Hip fractures occur in 350,000 annually in USA. In the year 2050, 6.3 million annual hip fractures are expected to occur worldwide.[3]

The AO Müller classification of intertrochanteric fracture denotes extracapsular trochanteric fractures as Type 31-A, which further subdivides trochanteric fractures into three types, namely A1, A2 and A3 types. The AO type 31-A2 variety is the multifragmentary pertrochanteric fractures.[4]

There are several devices for fixation of trochanter fractures, namely dynamic hip screw (DHS), Smith-Peterson triflanged nail, Jewett nail blade plate, External fixator.[5] Before choosing the best implant for fixation of unstable trochanteric fractures an orthopedic surgeon has to consider several confounding factors including the health and age of the patient, ambulatory demands of the patients, osteoporotic status, the degree of displacement of the fractures, the available resources, experience of the surgeon.[6]

Since 1950's the sliding hip screw has become the standard fixation device for extracapsular hip fractures.[7] We agreed with this and indeed, a study comparing this standard device with any new implant could even be considered unethical in patients with

stable two-part fractures. Hence, we have therefore restricted our study to unstable fractures, namely AO type31-A2 fracture. However, patient's requirement of early mobilization renders the surgeons to give up choosing the conservative method of treatment. Eventually surgery is the rational choice of treatment for unstable intertrochanteric fractures.

However failure of fixation is reported although the modes of failure of dynamic hip screw devices were due to following mechanisms: screw cut-out, plate pull-off from the shaft and fatigue failure in cases of delayed union. These considerations led to the development of newer generation implant or devices, which it is suggested, have the advantage of closed insertion through small incisions resulting in shorter operating time and decreased transfusion requirements, and the mechanical advantage of a shorter lever arm reducing the risk of fatigue failure of the implant. The Proximal femoral locking compression plate (PF-LCP) was developed with this in mind in the early 2000, which allows angular-stable plating for the treatment of complex comminuted and osteoporotic fractures, shown to be clinically effective with low complication rate.[8]

In our country numbers of studies were conducted focusing on the effectiveness of DHS fixation in unstable trochanteric fractures in National Institute of Traumatology Orthopaedics & Rehabilitation (NITOR) and Bangabandhu Sheikh Mujib Medical University (BSMMU). To the best of our knowledge no published data regarding the comparison between the complications of DHS and PF-LCP in the fixation of unstable trochanteric fractures is available. So the objective of the study was to compare the complications in elderly patient of AO type 31-A2 fracture who got treatment by DHS than that of PF-LCP in elderly.

Materials and Methods

This was a prospective comparative study, conducted during the period from 1st July 2010 to 30th June 2012 at the department of Orthopaedics in Sylhet M.A.G. Osmani Medical College Hospital, Sylhet, Bangladesh. Thirty (30) admitted patients of AO type 31-A2 fracture of femur in the Department of Orthopaedics, during the study period were included in the study by purposive sampling. The study chiefly dealt with some outcome variables such as, operation time, length of post operative hospital stay, per-operative blood transfusion and post operative complication in two groups of patients who had namely Dynamic Hip Screw (DHS) operation as group-A and Proximal Femoral Locking Compression Plate (PF-LCP) as group-B. Every odd number of patient was taken as group-A and even number was taken as group-B. Quantitative data were analyzed by mean and standard deviation; and comparison was done between two groups by unpaired t-test. Qualitative data were analyzed by rate, ratio, and percentage; and comparison was done between two groups by Chi-Square (x^2) test. A probability (p) value of < 0.05 was considered statistically significant. Ethical issues were maintained properly. After collecting data, editing was done manually and was analyzed with the help of Statistical Package for the Social Sciences (SPSS) software package version 16.

Results

Regarding per-operative blood transfusion, insignificant statistical difference between group-A, (1.27 SD± 0.46 unit blood transfusion) and group-B (1.40 SD± 0.51 unit) was observed (t=-0.756; p>0.05) (Table-I). We observed that the mean total operation time was 86.33 (SD ± 6.40) minutes of patients in group-A; whereas the mean total operation time was 101.00 (SD± 4.71) minutes of patients in group-B. The total operation time was significantly lower in group-A than that of group-B (t= -7.151; p<0.001) (Table-2).

Table-I: Distribution of patients by Per Operative blood transfusion

Study group	Mean unit of blood	Standard deviation	*p value
Group-A (n=15)	1.27	± 0.46	p>0.05
Group-B (n=15)	1.40	± 0.51	
*Unpaired t test was employed to analyze the data			

Table-II: Distribution of patients by total operation time

Study group	Total operation time (minutes)		*p value
	Mean	Standard deviation	
Group-A (n=15)	86.33	± 6.40	p<0.001
Group-B (n=15)	101.00	± 4.71	
*Unpaired t test was employed to analyze the data			

The intervention required time for post operative hospital stay was almost equal in patients of group-A (5.73, SD± 1.06) days and group-B was (5.60, SD±0.81) days. So, any method of fixation was not superior to other in respect of length of postoperative hospital stay.(t=-0.192; p>0.05) (Table-III).

Table-III: Distribution of patients by length of postoperative hospital stay

Study group	Length of postoperative hospital stay (days)		*p value
	Mean	Standard deviation	
Group-A (n=15)	5.73	± 1.06	p>0.05
Group-B (n=15)	5.60	± 0.81	

Post operative complications were similar in both groups such as superficial wound infection [1 (6.7%) vs 0 (0.0%); $\chi2=1.034$; p>0.05], varus deformity [5 (33.3%) vs 2 (13.4%); $\chi2=0.682$; p>0.05] and Implant failure [3 (20.0%) vs 0 (0.0%); $\chi2=0.240$; p>0.05] (Table-IV).

Table-IV: Distribution of patients by post operative complications

Types of complications	Study group		*p value
	Group-A (n=15)	Group-B (n=15)	
Superficial wound infection	1 (6.7%)	0 (0.0%)	p>0.05
Varus deformity	5 (33.3%)	2 (13.4%)	p>0.05
Implant failure	3 (20.0%)	0 (0.0%)	p>0.05
*Unpaired t test was employed to analyze the data			

Discussion

Management of unstable trochanteric fracture has traditionally been difficult. This challenging fact was dealt with by various authors with a variety of methods at different times. Comparison among these studies is often difficult and wide variations frequently exist. This prospective comparative study was conducted to compare the complication of operated AO type 31-A2 fracture by DHS and PF-LCP fixation Operation time was one of the significant aspects of this study. The PF-LCP procedure demanded more operation time than DHS procedure. The mean total operation time was 86.33 (SD ± 6.40) minutes in patients treated with DHS; whereas the mean total operation time was 101.00 (SD± 4.71) minutes in patients treated with PF-LCP. The duration of operation was significantly lower in DHS fixation group than that of PF-LCP fixation group (p<0.001). This result was supported by Sahin et al. and Avakian et al. where the mean duration of surgery was 80.5 min and 85.2 min for DHS method respectively.[9,10] The mean total operation time for DHS fixation was little higher to the study of Zamal (72.5 ± 5.4 minutes) but lower than the study of Ali (132.5±16.63 minutes).[11,12] Zha et al., reported the duration of operation of unstable intertrochanteric fractures fracture treated with PF-LCP was 32.60 (SD 12.80) minutes; while Sun et al. found the operation time was from 40 to 90 minutes (with an average of 55 minutes) in patients treated with PF-LCP.[13,14] Zamal also reported of shorter duration of operation in PF-LCP treated group (96.5 ± 3.3 minutes).[11] Zhu et al. found there were no statistical differences of the operative time between two methods, (p>0.05).[15] Except this study, all the above mentioned studies used image intensifier during the operative procedure. Perhaps, the absence of image intensifier had the impact on total operation time for both the procedure in current study.

This study yielded DHS group needed 1.27 (SD± 0.46) unit blood transfusion; and PF-LCP group required 1.40 (SD± 0.51) unit which reflected no statistically significant inference (t=-0.756; p>0.05). Ali reported requirement of peroperative blood transfusion (3.06±0.63 unit) which was higher in relation to present study.[12] Whereas Avakian et al., Zamal and Butt et al compared DHS with some other intervention like PF-LCP or proximal femoral nails (PFNs) or gamma nail mentioning peroperative blood loss without any statistical information.[10,11,16]

In the current study, the mean length of postoperative hospital stay of the patients in DHS group was 5.73 (SD± 1.06) days; whereas the mean length of postoperative hospital stays of the patients in PF-LCP group was 5.60 (SD±0.81) days. Any method of fixation was not superior to other in respect of length of postoperative hospital stay (p=0.849). Some related studies reported total hospital stay without emphasizing post operative hospital confinement.

This study showed no significant statistical difference in post operative complication between DHS and PF-LCP group. The complications were superficial wound infection [1 (6.7%) vs 0 (0.0%); p>0.05], varus deformity [5 (33.3%) vs 2 (13.4%); p>0.05] and implant failure [3 (20.0%) vs 0 (0.0%); p>0.05]. Kayali et al. found superficial infection (2.8%) and haematoma formation (2.8%) patients treated with

DHS.[17] The rate of superficial wound infection in the present series was similar to the study of Alam and Rahman.[7,18] This finding was also in accordance with the study of Larson et al and Kyle et al,.[1,5] Butt et al. reported wound infection of 4.16% which was higher to this study.[16] In this study, varus deformity occurred in 5 patients (33.3%) of DHS group and 2 patients (13.4%) in PF-LCP group; whereas implant failure in the form cut out of lag screw was found in 3 patients (20.0%) treated by DHS. Probable factors for these types of complications were- poor bone quality, unstable fracture pattern. Zha et al. among their 76 patient of unstable intertrochanteric fracture treated with PF-LCP breakage of implant in 1.3% patients, but had no varus angulation, no screw cut-out, no deep infection or superficial infection.[13] Khan et al. reported infection (7.0%), implant failure (7.0%) and varus deformity (1.0%) of their patients treated with DHS.[19] Laghari et al. found superficial infection (4.44%) and varus angulation (2.22%).[20] Setiobudi et al. found superficial infection in 6.4%, lag screw cutout in 3.8% of their patients treated with DHS.[21] Interestingly no such complication was reported by Zamal.[11]

In conclusion, total operation time ($p<0.01$) was significantly shorter in dynamic hip screw fixation group. But in terms of post operative complications, no statistically significant result was elicited between two groups. Although the results of unstable fractures are less reliable, the goal of treatment of unstable trochanteric fractures in the elderly is to restore mobility safely and efficiently while minimizing the risk of complications and technical failure and to restore the patient to preoperative status.

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ORIGINAL ARTICLE

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METABOLIC CORRELATES OF HIGH SENSITIVITY C- REACTIVE PROTEIN IN ADULT MANIPURI POPULATION

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Abstract

C-reactive protein (CRP), an inflammatory marker, has been known to play a role in the development of cardiovascular diseases. High sensitivity assays have linked minor CRP elevation, previously considered clinically normal, with increased cardiovascular risk in both clinical and healthy populations. This cross sectional, obsevational study aims to evaluate the association of high sensitivity c- reactive protein (hs-CRP) with some metabolic parameters in the Manipuri population of 18 years or older. Data was collected from 136 adult Manipuri men and women by a simple random sampling method and the study was conducted in the department of Microbiology, Sylhet M.A.G. Osmani Medical College, Sylhet. Serum high sensitivity C-reactive protein concentrations were measured by enzyme linked immunosorbent (ELISA) method. Result showed that hs-CRP of total participants was 1.8743 ng/ml. (Std. Deviation 0.75212). Body fat percentage of this ethnic group was also measured and it was found to be predictive for raised hs-CRP. This observation yielded that apart from the low-density lipoprotein- cholesterol (LDL-c) the raised level of other metabolic correlates like fasting blood sugar, total cholesterol, triglyceride, the high-density lipoprotein- cholesterol (HDL-c) have potential effect on raising the hs-CRP level in this Manipuri population.

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Introduction

C-reactive protein (CRP) is a nonspecific acute phase reactant that rapidly increases in plasma concentration in response to inflammation, infection, and injury[1]. In recent years, studies using high sensitivity assays have linked minor CRP elevation, previously considered clinically normal, with increased cardiovascular risk in both clinical and healthy populations[2,3,4,5].

Current evidence suggests a link between body composition and CRP concentration, as excess body fat (even at low levels) is associated with higher CRP[6,7,8,9]. In part, this relationship reflects the low-level production of pro-inflammatory cytokines (e.g.,IL-6) by adipose tissue in individuals with excess body fat. Abdominal obesity, however, appears to be more closely associated with adipokine secretion than does subcutaneous tissue[10,11,12]. Most population-level studies of CRP have been conducted among Europeans, European-derived groups in North America, and Japanese populations. Few studies have measured CRP among different racial and ethnic groups in developed nations, and even fewer among individuals in developing nations. Some studies have documented substantial CRP variation by ethnicity[13]. Surprisingly, this issue of variation has attracted little attention. As a result, the extent of inter population variation remains unknown, and it is unclear whether variation in CRP concentration reflects genetic differences, lifestyle variation (e.g., physical activity levels), developmental effects, environmental differences (e.g., air pollution exposure), or some combination of these factors. The scarcity of comparative data from non-Western groups is unfortunate given the considerable variation in diet and lifestyle factors, environmental conditions, body composition, and burden of established risk factors for CVD between different human populations. Consequently, the extent of inter population variation in CRP concentration, and the association between CRP and measures of body composition in different populations remain largely unknown.

Inflammation has been shown to play a role in the development of atherosclerosis.[14,15] C-reactive protein, one of the most extensively studied plasma inflammatory marker, has been recognized as a strong predictor for cardiovascular disease[16]. It is important to understand the potential risk factors underlying the

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elevated CRP levels in healthy subjects. Many studies conducted in Western countries have explored the relationship between CRP and related cardiovascular risk factors in healthy men and women[17], and in older person[18]. Raised plasma CRP concentrations have been shown to be associated with aging, smoking, elevated plasma triglyceride (TG) and low-density lipoprotein- cholesterol levels, obesity and chronic infections[19]. However, ethnicity and gender have also been reported to play a role. CRP levels were significantly lower in individuals of Chinese descents compared to European descents in Canada, but the differences disappeared after correcting for either body mass index (BMI) or waist[20]. Asians, especially East Asians, residing in North America had lower CRP levels compared to other races/ ethnicities in the same continent[21]. Multiethnic Study of Atherosclerosis (MESA) cohort study, observed that women had higher CRP levels than men in all ethnic groups examined including Caucasians, Chinese, African American and Hispanics[22]. It was observed that a greater proportion of women than men with elevated CRP levels when stratified by BMI. However, to date, few studies have examined the association of plasma CRP concentration with anthropometric body fatness indicators and plasma lipid parameters in older adults in Asian populations[23]. The Manipuri is an important Indigenous group in Bangladesh having different ethnicity. Their lifestyle, food habit and configuration are different from others[24].

No previous study regarding hs-CRP level in adult Manipuri population, a remarkable ethnic group of Bangladesh, was done. So, this study was designed to explore the association of the level of hs-CRP in the indigenous adult Manipuri population with some of their metabolic parameters.

Materials and methods

A total number of 136 apparently healthy subjects of different age and sex were studied. All the samples were collected from different places of Sylhet division of Bangladesh. Ethical issues were maintained properly. Data collection sheet included two components: an in-house in-person questionnaire interview and a physical examination. The questionnaire included questions to elicit information on demographic, socio-economic condition and reproductive status. Physical examination included measurements of anthropometric parameters, blood pressure and fasting blood sugar. High sensitivity C-reactive protein was measured with a commercially available enzyme linked immunosorbent assay (ELISA) method using ELISA Kit (Diagnostic Biochem Canada Inc.).

Participants' descriptive data were weighted according to sampling design and t- test was performed to compare the means of age, anthropometric measurements and serum parameters stratified by gender. Pearson's correlation analysis was used to assess the crude associations of CRP with each of anthropometric measurements, Fasting blood sugars and lipid parameters stratified by gender.

Percentage of adult body fat from BMI was calculated by the following formula which is established by Deurenberg and co-workers….

Adult body fat %=(1.20* BMI) + (0.23* Age) - (10.8* Sex) - 5.4. (Where, sex is 1 for male and 0 for female).

At local work stations each subject was investigated for a minimum 8 hour fasting blood glucose with a portable device (ACCU-CHEK made by Roche Diagnostics, Germany.)

Laboratory analysis for fasting serum lipid profiles (Total cholesterol, Triglyceride, HDL-cholesterol and LDL-cholesterol) was done in the Department of Pathology, Sylhet M.A.G. Osmani Medical College.

Results

Table I : hs-CRP(ng/ml) of participants (n=136)

	N	Minimum	Maximum	Mean	Std. Deviation
hs	Male n=42	0.90	2.88	1.9852	0.63294
	Female n=94	0.09	2.98	1.8248	0.79782
	Total n=136	0.09	2.98	1.8743	0.75212

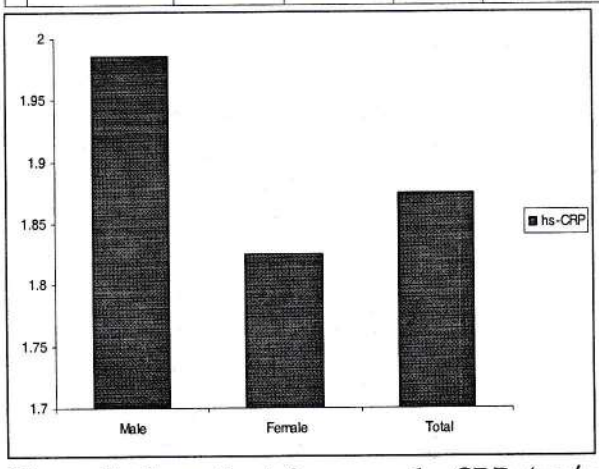

Figure I: Bar- chart for mean hs-CRP (ng/ml) value in male, female and total participants.

Mean hs-CRP of male participants was 1.9852(ng/ml) (Std. Deviation 0.63294), in case of female it was

1.8248 (ng/ml) (Std. Deviation 0.79782), in case of total participants it was 1.8743 (ng/ml)(Std. Deviation 0.7521)

The common metabolic markers were used in this study included Fasting Blood Sugar (FBS),Total Cholesterol (Chol), Triglyceride (TG), High Density Lipoprotien (HDL-c), Low Density Lipoprotien (LDL-c).

Table II : The metabolic markers according to the sex

Sex		FBS (mmol/l)	Total Chol (mg/dl)	TG (mg/dl)	HDL-c (mg/dl)	LDL-c (mg/dl)
Male (n=42)	Mean	5.9500	187.9524	173.3810	46.7143	106.3095
	Std. Deviation	2.23009	15.33997	35.34358	4.34649	10.09102
Female (n=94)	Mean	5.7021	195.0426	166.0957	47.5745	112.3723
	Std. Deviation	1.04593	14.68004	26.08673	4.60362	13.72305
Total (n=136)	Mean	5.7787	192.8529	168.3456	47.3088	110.5000
	Std. Deviation	1.50905	15.18992	29.31878	4.52731	12.98318

The body fat percentage was also an important tool that also included in this study.

Table III: Body fat percentage of the participant

Sex Of The Participant	Body fat percentage Mean	Std. Deviation
Male (n=42)	22.3574	5.61241
Female (n=94)	32.4071	6.91868
Total (n=136)	29.3035	8.01624

This study investigated the relationship between the body fat percentage with high sensitivity C-Reactive Protein (hs-CRP) among the Manipuri people.

Table IV: Pearson's correlation analysis of Body Fat Percentage of the participants

	Sex Of The Participant					
	Male (n=42)		Female (n=94)		Total	
Body Fat %	Coefficient	P value	Coefficient	P value	Coefficient	P value
	0.571	0.001	0.288	0.005	0.226	0.008

*P value < 0.05 was taken as significant

*Correlation is significant at the 0.05 level (2-tailed).

*There is positive relation of body fat percentage with the hs-CRP, as we found that the correlation coefficient in the total population was 0.226 and the p value was 0.008 ($p < 0.05$)

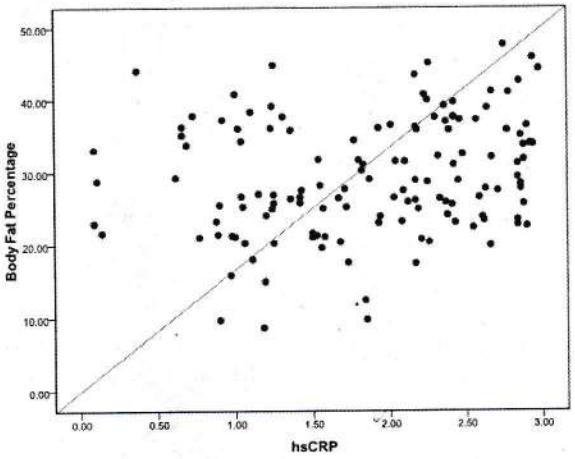

Figure II: Scattered diagram showing positive correlation of percentage of body fat with hs-CRP(ng/ml).

This study investigated the relationship between the different metabolic markers with high sensitivity C-Reactive Protein (hs-CRP) among the Manipuri people.

Table V: Pearson's correlation analysis of CRP with metabolic markers in all participants

	Sex Of The Participant					
	Male (n=42)		Female (n=94)		Total (n=136)	
Metabolic Indices	Coefficient	P value	Coefficient	P value	Coefficient	P value
Fasting Blood Sugar	0.571	0.001	0.206	0.047	0.206	0.016
HDL-c	0.249	0.112	0.182	0.079	0.173	0.045
LDL-c	0.187	0.236	0.040	0.700	0.038	0.657
Total Cholesterol	0.145	0.360	0.257	0.120	0.233	0.006
Triglyceride	0.282	0.070	0.142	0.171	0.193	0.024

*P value < 0.05 was taken as significant

*Correlation is significant at the 0.05 level (2-tailed).

The Perason's correlation test found that FBS had positive relation with hs-CRP in man (coefficient = 0.57, $p<0.05$) but HDL (coefficient = 0.249, $p>0.112$), LDL (coefficient = 0.187, $p>0.236$), CHOL (coefficient = 0.145, $p>0.360$), TG level (coefficient= 0.282, $p>0.070$) had no association with elevated hs-CRP in Manipuri male. The female Manipuri showed

that FBS had positive relation with hs-CRP (FBS coefficient = 0.206, p<0.047) while HDL (coefficient = 0.182, p>0.079), LDL (coefficient = 0.040, p>0.700), Total Cholesterol (coefficient = 0.257, p>0.012), TG (coefficient = 0.142, p>0.171) had no association with elevated hs-CRP in Manipuri female.

Discussion

This study was a cross sectional, observational study performed in Department of Microbiology, Sylhet M. A. G. Osmani medical college from 1st January, 2012 to 31st December, 2012.The Target population were the adult Manipuri men and women in Bangladesh residing in the Sylhet division. Simple random sampling technique was applied to select the sample from the adult Manipuri people that fulfilling the enrolment criteria. All the samples were collected from different places of Sylhet division of Bangladesh.The adult population in this study were minimum age was 18 years of age and the oldest was of 76 years. Both the male and female sexes were included in this study without specifying equality in numbers. Rather the importance was given on the respondents while collecting the data randomly.

Forouhi et al (2001) investigated the association of circulating C-reactive protein (CRP) concentrations and indices of body fat distribution and the insulin resistance syndrome in South Asians and Europeans, included 113 healthy South Asian and European men and women in West London.[25] A Taiwanese's study by Tsai et al (2008) involved only aged group of people, 65 years and above, almost equal number of male of female sexes of above 1300 participants[26]. Lear et al (2003) studied association of CRP with some anthropometric indices that measured in adult (>18 years) 91 European and 91 Chinese men and women. Ford et al (2004) examined the distribution and correlates of CRP, using data only from 2205 American women >20 years of age[27]. Snodgrass et al (2007), conducted their study, including 141 healthy Yakut adult volunteers where 85 were females and 56 were males; 18–58 years old and found mean age of male was 32.3 years (stand. dev.11.4) and in case of female 31.0 years (stand. dev.11.2),so there are some differences. Most of the participants were from the age group of 28-37 years of age (n= 39, 28.7%)[28].

Lee et al (2009) examined CRP distribution, gender difference, and determinants of CRP concentrations in 4923 Korean adults (2248 men; 2675 women) at Gangnam, Seoul. The mean age of this study population was 39.91 years with the standard deviation 15.16. Study of Lee et al showed the mean age in men 46.6 years (standard deviation 10.1) and in female 45.3 years (standard deviation 10.7)[29].

Now about the key factor of this study, that was hs-CRP. Mean hs-CRP, of male Manipuri participants was 1.9852 ng/ml (Std. Deviation 0.63294), in case of Manipuri female it was 1.8248 ng/ml (Std. Deviation 0.79782), in case of total participants it was 1.8743 ng/ml (Std. Deviation 0.75212). Snodgrass et al (2007), among the Yakut, median serum equivalent CRP concentration was 0.79 mg/L in women and 0.86 mg/L among men[28]. Forouhi et al (2001) median CRP level in South Asian women was 1.35 mg which was nearly double that in European women 0.70mg (P .0.05)[25]. Study of Lee et al showed CRP was higher in men than women, 1.01 mg/L in men and 0.62 mg/L in women, based on the study population[29]. This study has some similarity with our study. Comparative study of Lear et al (2003) found Chinese men and women had significantly lower CRP levels compared with European men and women: median 0.36 mg/L (range, 0.11 to 20.20) versus 0.69 mg/L (range, 0.11 to 9.91) (P <0 .05, respectively)[20].

This study investigated the relationship between the body fat percentage with high sensitivity C-Reactive Protein (hsCRP) among the Manipuri people. The finding showed that there was positive correlation in both sexes (coefficient = 0.57, p<0.05 in male ; coefficient = 0.288 p<0.05 in female). Forouhi et al (2001) found in their study population (European and South-Asian) the fat percentage (regression coefficients=0.06 P<0.026 in European) was predictive for CRP in case of European while not in case of South-Asian (regression coefficients=0.04, p>0.096)[25]. Snodgrass et al (2007) did correlation test to relate CRP with fat percentages and found that body fat percentage in both the sexes had positive relation (coefficients=0.492 p<0.001 in female, coefficients =0.340 0.05 in male)[28].

The common metabolic correlates or serological markers were used in this study included the Fasting Blood glucose (FBG), Total Cholesterol (Chol), Triglyceride (TG), High Density Lipoprotien (HDL), Low Density Lipoprotien (LDL). This study investigated any association of these indices with hs-CRP. The Perason's correlation was performed and findings showed FBG had positive relation with hsCRP in man (FBG coefficient = 0.57, p<0.05) but HDL (coefficient = 0.249, p>0.112), LDL (coefficient = 0.187, p>0.236), Total Cholesterol (coefficient =

0.145, p>0.360), TG level (coefficient = 0.282, p>0.070) had no association with elevated hs-CRP in Manipuri male. Now the other sex, the female Manipuri showed the findings that FBG had positive relation with hs-CRP (FBS coefficient = 0.206, p<0.047) as in man but HDL (coefficient = 0.182, p>0.079), LDL (coefficient = 0.040, p>0.700), Total Cholesterol (coefficient = 0.257, p>0.012), TG level (coefficient = 0.142, p>0.171) had no association with elevated hs-CRP in Manipuri female. So there was no difference in the metabolic correlates in terms of sex.

The observation of Tsai et al (2008) resulted in CRP marginally negatively correlated with HDL-C (coefficient = -0.07, $p<0.1$) in male subjects. Obviously, for women, the CRP negatively correlated with HDL-C (coefficient = -0.124, $p<0.05$).The same study found the positive correlation of CRP and TG as the findings in male (coefficient= 0.058 $p<0.05$) in female (coefficient= 0.066, $p<0.05$)[26].

Lee et al (2009) had applied Pearson's correlation test for the data collected from Korean adults to find any association of large number of metabolic, physiological, biochemical parameters with the elevated CRP. They found the positive association of Total cholesterol, (coefficient=0.054 p<0.009 in male, coefficient=0.183 p<0.001 in female) HDL cholesterol, (coefficient= 0.264 p<0.001 in male, coefficient= 0.263 p<0.001 in female) and Triglyceride, (coefficient= 0.146 p<0.001 in male, coefficient= 0.298 p<0.001 in female)[29]

In conclusion, after studying different anthropological and metabolic data of 136 subjects of different age and sex from an ethnic group Manipuri, some outcomes draw attention of scientific interest. Disregarding the age and sex differences the hs-CRP of total participants was 1.8743 ng/ml (Std. Deviation 0.75212) and found to have a positive correlation with some anthropometric indices like BMI, waist and hip circumference and waist-hip ratio. Body fat percentage of this ethnic group was also measured and it was found to be predictive for raised hs-CRP. This observation yielded that apart from the LDL-c the raised level of other metabolic correlates like fasting blood sugar, total cholesterol, triglyceride, HDL-c have potential effect on raising the hs-CRP level in this Manipuri population. This facts findings of this study were reasonably not analogous with other research outcome. It was expected that there would be differences in terms of gender and age variety. This study could open a door for welcoming some rational thoughts for studying C-reactive protein and it's correlates in larger aspects including the mainstream people and other ethnic variety. Such research might raise the awareness among both the health care providers and seekers of measuring CRP level as routine check-up to foresee the early cardiovascular event.

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ORIGINAL ARTICLE

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Ultimate Perinatal Outcome Of Uncomplicated Oligohydramnios -A Clinical Study

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Abstract

Oligohydramnios is a common condition we frequently encounter during our daily practices while working in an Obstetrics and Gynaecology setup. The condition- oligohydramnios usually causes undue worry and mental agony forthe mother and the keen concern for consulting physician as well. The study was under taken with the view to explore the relation between isolatedoligohydramnios and perinatal out come due to its possible potential adverse consequences.Pregnant women with isolatedoligohydramnios were recruited for the study after obtaining informed consent. Patients were admitted for labour and delivery who were ultimately delivered between July 2008 and June 2010 with a gestational age 36-42 weeks of singleton pregnancy. The study was conducted at the Department of Obstetrics and Gynaecology, The Combined Military Hospital, Dhaka, Bangladesh. These patients underwent monitoring by determination of amniotic fluid index (AFI) and biophysical profile. The amniotic fluid index was determined by the four quadrant technique on admission. Oligohydramnios was defined as severe when AFI ≤5 cm, Borderline oligohydramnios as an AFI is 5.1-8 cm and normal amniotic fluid volume as an AFI 8.1-20 cm. Patients with AFI>8 cm were excluded. FHR tracing was done by CTG. Variables used are maternal age, parity, gestational age, the appearance of amniotic fluid at amniotomy including meconium stained or not seen. Neonatal outcome variables were birth weight, APGAR scores at 1 and 5 minutes and admission to the neonatal intensive care unit. The mode of delivery and perinatal outcome were compared with women having normal amniotic fluid. A combined perinatal index as an indicator of adverse perinatal outcome was used.In this study, oligohydramnios was diagnosed in 3% of women with ultrasound screening. Approximately two third of the oligohydramnios cases in the screening group were isolated with no clearly associated factors (e. g. premature rupture of the membranes, congenital anomalies, diabetes, hypertension, postdated and intrauterine growth restriction). Foetal weight centiles in isolated oligohydramnios cases did not change significantly from diagnosis until delivery, pregnancies with isolated oligohydramnios had similar perinatal outcomes to pregnancies with a normal amniotic fluid index. Isolated oligohydramnios is not associated with impaired foetal growth or an increased risk of adverse perinatal outcomes. However, it increases the risk for labour induction and caesarean section.

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Introduction

Though the precise origin of the amniotic fluid is still not well understood still the fact- serum osmolality and sodium, urea, creatinine content of maternal serum and amniotic fluid are not significantly different suggests that amniotic fluid is an ultrafiltrate of maternal serum. The average amount of amniotic fluid at term is 800 ml, its specific gravity 1.008 and p^H of 7.2. Reduced amount of amniotic fluid that is oligohydramnios poses a challenge in obstetric management particularly when it is diagnosed before term and the incidence varies from less than 0.5% to above 5%. Among these incidences severe oligohydramnios complicates 0.7% of pregnancies. There is no simple accurate method currently available

to measure amniotic fluid volume. Oligohydramnios may be more objectively determined by identification of the largest pocket of fluid measuring less than 2 cm x 2cm or the total of 4 quadrants less than 5 cm, or amniotic fluid volume less than 500 ml at 32-36 weeks gestations indicates oligohydramnios. The sum of the results is the amniotic fluid index (AFI). An AFI less than 5 cm indicates oligohydramnios although 8 cm has occasionally been used as a cut-off threshold. Because the AFV depends on the gestational age, oligohydramnios has been defined as an AFI less than the fifth percentile (corresponding to an AFI of <6.8 cm at term). Oligohydramnios has been defined as an single deepest pocket (SDP) less than 2 cm. Perinatal morbidity rates have been shown to increase sharply with SDPs below this value. Some have suggested that an SDP of 2.5-3.0 cm is a better lower limit for separating normal SDPs from thoseconsistent with oligohydramnios. An AFI between 5 and 10 cm indicates a decreased fluid volume. An AFI between 10 cm and 15 cm is normal. Clinically the diagnosis may be prompted by a lag in sequential fundal height measurements (Size of uterus less than that expected for the dates) or by foetal parts that are easily palpated through the maternal abdomen. Apparently low-risk, term patient is incidentally noted to have a low AFI which is one of the major causes for antenatal foetal surveillance and induction of labour.Oligohydramnios often associated with an increased risk of caesarean delivery for foetal distress, low APGAR score, post maturity, meconium aspiration syndrome and perinatal mortality and morbidity.

However, oligohydramnios is often accompanied by other maternal and foetal conditions such as congenital anomalies, hypertension, diabetes, preterm premature rupture of the foetal membranes (PROM) and intrauterine growth restriction (IUGR). Each condition can predispose foetus to adverse outcomes, thus, it is not entirely clear whether the adverse perinatal outcomes merely reflect the sequelae of other conditions or if reduced amniotic fluid volume itself contributes to the adverse outcomes. Will the foetal growth and perinatal outcome also be compromised in pregnancies in which oligohydramnios is diagnosed but no other unfavorable maternal and foetal condition coexists? This question was examined by using data from a large prospective study with systematic sonographic surveillance. In Bangladesh there is limited data available regarding the causes, effects and outcomes of complicated pregnancies with oligohydramnios. But the effect of isolatedoligohydramnios on pregnancy outcome has not been studied. This study was conducted to evaluate the effect of isolated oligohydramnios on the mode of delivery and its association with perinatal morbidity and mortality in our population

Materials and methods

This was a prospective observational study designed as a cross sectional way and was carried out among 100 patients in Obstetrics and Gynecology department of combined Military Hospital, Dhaka, Bangladesh. This study was conducted for a period of 2 years from July 2008 to June 2010. Pregnant women with isolated Oligohydramnios were recruited for the study after obtaining informed consent. The mode of delivery and perinatal outcome were compared with women having normal amniotic fluid. Inclusion criteria were-admitted cases of isolated oligohydramnios during this study period, cases between 18 to 40 years of age, cases both primi and multi gravid, duration of pregnancy from 36 t0 42 weeks. On the other hand patients with medical disorders like diabetes, eclampsia, pre-eclampsia, PROM and multiple pregnancies were excluded.

Foetal growth restriction, congenital anomaly and premature rupture of membranes were also not included in this study. Structured Questionnaire and a check list were used to collect face to face interview.

Statistical analysis of data:

Statistical analyses of the results were obtained by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-15) (SPSS Inc, Chicago, IL, USA). The results were presented in tables, figures and diagrams. During analysis frequency distribution for all the variables will worked out and produced in tabular form. χ^2 tests were used to compare proportions.

Results

Table I: Incidence of oligohydramnios among the hospital admitted patients with in the mentioned 2 years duration in CMH Dhaka.

Total number of admitted patients	Number of patients with oligohydramnios	Percentage (%)
4895	148	3 (%)

Table II: Distribution of the patients age (N=100)

Age groups (yrs)	Number of Patients	Percentage (%)	Mean age S.D
18-20	12	12	25.8+5.5
21 – 25	40	40	
26-30	32	32	
>30	16	16	

Mean age of the patients was 25.8+11.44 S.D

Table III: Parity of the patients (N=100)

Parity		Number of patients	Percentage%
Nulliparous		33	33
Multiparous		67	67
	2nd gravida	40	59.70
	3rd graida	12	17.91
	4th gravida	4	5.97
	5th gravida	1	1.49

Among 100 patients multiparous were 67% and nulliparous were 33%.

Table IV: Distribution of past obstetric outcome among multigraida patients (n=67)

Past obstetric history	Number of patients	Percentage (%)
Vaginal delivery	30	90
Previous C/S	27	40.29
MR		
Vaginal delivery	30	90
Previous C/S	27	40.29
One	5	7.46
Two	1	1.49
Abortion		
One	3	4.47
Two	3	4.47
Perinatal death	5	7.46

This table shows the past obstetric history. Actually in this study there were some patients with history of to or more occurrence simultaneously, For example, some patients had history of C/S or NVD along with history of MR, abortion or perinatal death

The occurrence of oligohydramnios is more in case of previous history of C/S, and with history of MR, and with history of abortion as in these cases there is chance of associated placental insufficiency. History of previous perinatal death reflects the association with congenital anomalies or IUGR or previous history of severe oligohydramnios.

Table V: Amniotic fluid index (N=100)

AFI	Number of patients	Percentage (%)
5.1–8 cm (Borderline Oligohydramnios)	32	32
<5 cm (Severe oligohydramnios)	68	68
The study showed that among 100 pationts 68% patients had severe oligohydramnios and about 32% had borderline oligohydramnios.		

Table VI: Possible causes associated with oligohydramnios (N148).

Associated pregnancy complications	Number	Percentage (%)
PROM	20	14
Congenital anomalies of foetus (renal problem)	02	1
Post dated pregnancy	04	3
Placental insuffiency (Like PIH Bronchial asthma)	1	8
IUGR	02	1
Without any apparent complications isolated oligohydramnios.	106	73

and different causes of placental in sufficiency (8%). Other causes are IUGR, congenital anomalies and post dated pregnancy are associated with 1%,1%,3% of oligohydramnios patients respectively.

Table VII: Indication of caesarean section (N=72)

Indications	No. of patients	Percentage (%)
Foetal distress	48	66.66
H/) previous C/S	16	22.22
Malpresentation	08	11.12

Among 72 C/S 66.66 % was due to foetal distress which seems to be very high in comparison to other indications of C/S.

Table VIII: Comparison of Caesarean section between borderline and severe oligohydramnios

Oligohydramnios	C/S	NVD (N=32)	P-value
Borderline Oligohydramnios (N=32)	12	20	X^2=25.00 P=<0.001
Severe Oligohydramnios (N-68)	60	08	

In severe oligohydramnios group caesarean section was significantly higher (P=>0.001); than borderline oligohydramnios.

Table IX: Distribution of mode of delivery with parity (N=100)

Gravida	Mode of delivery			
	NVD		C/S	
	No.	Percentage	No.	Percentage
Multi	10	10	57	57
Primi	18	18	15	15
Total	28	28	72	72

The table shows that about 10% multiigravida patients had NVD and 57% had C/S due to various causes (mainly due to foetal distress) and 18% of primigravida patients had NVD and 15% had C/S (mainly due to previous history of C/S).

Table X: Birth weight of babies (N=100)

Weight (in gm)	Number of babies	Percentage (%)
>2500	68	68%
1501 – 2500	32	32%

Study shows babies had birth weight > 2500 gm whereas 68% and 32% alive babies had birth weight between 1501-2500 gm.

Table XI: Distribution of foetal outcome (N=100).

Disease	Number	Conservative treatment	Admission number
No foetal morbidity	87 (87%)	Nil	Nil
Morbidity - Birth asphyxia - Neonatal sepsis - Neonatal jaundice - Meconium aspiration syndrome	13 (13%) 10 (10%) 2 (2%) 0 (0%) 1 (1%)	7 (7%) 7 (7%) Nil Nil Nil	6 (6%) 3 (3%) 2 (2%) 0 (0%) 1 (1%)
Mortality - Early neonatal death - Still birth	Nil Nil Nil	Nil Nil Nil	Nil Nil Nil

In this study, out of 100 deliveries 13% of the foetus had suffered from neonatal complications like birth asphyxia, meconium aspiration syndrome (MAS), neonatal sepsis.

Table XII: Maternal outcome after delivery of foetus. (N-148)

Maternal outcome		Absence of any morbidity or exaggeration of illness		Morbidity or exaggeration of illness	
		No. of Pt	%	No. of Pt	%
Patient with no other complications	After NVD	28	19	Nil	Nil
	After C/S	72	49	Nil	Nil
Patient with medical illness	After NVD	13	9	Nil	Nil
	After C/S	35	23	Nil	Nil

This table shows that no mother had any kind of complications like fever, wound infection or any exaggeration of sign- symptoms of medical illness like anemia, heart disease, asthma, jaundice etc. It reflects that oligohydramnios has its affect only on pregnancy and foetal outcome not on maternal health.

Discussion

The study was designed to explore the role of isolated oligohydramnios for adverse perinatal outcome among the patients came to Obstetrics and Gynaecology department of Combined Military Hospital, Dhaka in a confined time period. As CMH, Dhaka is a tertiary hospital- it deals mainly with referred cases. This department has a specialized Obstetrics unit for these kinds of high risk pregnancies known as Fetomatemal Medicine unit. In our study most of the patients were selected from different part of our country for highest possible pregnancy management and for the best possible foetal monitoring and management. In this period of 24 months study the percentage of admitted oligohydramnios patient were found 3%. Two third of these patients were isolatedoligohydramnios cases and their perinatal outcome was similar in comparison to the patients with normal amniotic fluid volume.

It is well established that oligohydramnios is associated with a high risk of adverse perinatal outcomes.[1,2,3] On the other hand isolated oligohydramnios is a poor predictor for adverse perinatal outcome and isolated oligohydramnios is not associated with adverse perinatal outcome. The results of this study are

consistent with that of other studies done on the low risk population.[4,5,6,7]

These results also strongly correlate with a previous study of Zhang et al.[6] which used data from multicentre clinical trial of Routine Antenatal Diagnostic Imaging with Ultrasound (RADIUS) to show that isolated oligohydramnios is not associated with impaired foetal growth or an increased risk of adverse Perinatal outcome. An explanation for these seemingly conflicting observations lies in the fact that not all oligohydramnios are the same. Our study shows that oligohydramnios with unfavourable maternal and/or foetal conditions (such as IUGR, anomalies or hypertension) leads to a much worse prenatal outcome than a normal amniotic fluid volume with the same conditions. However, we found in the current study that about two third of the oligohydramnios cases did not have any coexisting medical or obstetric conditions that indicate these were uncomplicated oligohydramnios. Fetuses in these cases tend to be appropriately sized at the diagnosis of isolated oligohydramnios. More importantly, with advancing gestation, their growth does not seem to be impaired. Although these fetuses are slightly lighter by 100 g at birth, their prenatal outcomes were similar to pregnancies with a normal amniotic fluid volume.

For instance, Garmelet al.[8] compared outcomes of 65 women with isolated oligohydramnios (amniotic fluid index < 8 cm) and an appropriately grown fetus before 37 weeks to those of a normal amniotic fluid index control group matched by sonogram indication. There was no significant difference in risks of caesarean delivery, IUGR, intrauterine death or birth asphyxia. Conway et al.[9]and Rainforddt al.[3] compared term pregnancies with uncomplicated oligohydramnios (amniotic fluid index <5cm) for immediate labour induction to term pregnancies with a normal amniotic fluid index (amniotic fluid index > 5 cm). Both studies found no difference in operative delivery for foetal distress or perinatal outcomes. Magann et al.[10] compared 79 women at high risk with an amniotic fluid index < 5 cm with 79 subjects who had a similar diagnosis of pregnancy complications but an amniotic fluid index > 5 cm. They found no difference in intrapartum complications, caesarean delivery for foetal distress or neonatal outcomes. Despite being retrospective and using somewhat different definitions of oligohydramnios in different study populations (term vs preterm, low risk vs high risk pregnancies), these studies, suggest that immediate delivery for pregnancies with isolated oligohydramnios may not be necessary.

We found for the first time that half of the oligohydramnios cases would have remained undetected if sonographic examination were done only based on clinical indications. Fortunately, two-thirds of the incidentally identified cases at the screening were isolated oligohydramnios. Their perinatal outcomes were favourable. Therefore, it is very unlikely that an ultrasound screening for oligohydramnios in low risk pregnancies in late gestation would improve perinatal outcomes to a clinically meaningful degree.

There is no indication that the quality of routine ultrasound measurement on foetal biometry and amniotic fluid was compromised. Nonetheless, the number of oligohydramnios cases was still small, and two-thirds of the cases had only one ultrasound exam before delivery. This may reflect the clinical practice of hastened delivery and reluctance to perform unnecessary sonographic examinations.

Incidence of oligohydramnios patients at Dhaka CMH are 148 (3%) out of admitted 4895 patients during the period of study. Among the 148 oligohydramnios patients, 106 patients were found having isolated oligohydramnios. It indicates that isolated oligohydramnios patients were two-third of total oligohydramnios patients. The rate of caesarean section is higher in oligohydramnios patients due to foetal distress. Among 100 patients of oligohydramnios meconium stained liquor were found only in 12 patients which means that it is not statistically significant.

In this study out of 100 deliveries 13% of the foetus had suffered from neonatal complications like birth asphyxia, meconium aspiration syndrome (MAS), neonatal sepsis.

The study shows that 83.3% admitted babies stayed in neonatal ward for <7 days and among them 0 baby died. 16.7% babies were treated for 7-21 days, among them 0 babies could not survive. 0 babies were treated for more than 21 days.

In this study, there was no maternal death or morbidity and not even any exaggeration of medical illness associated with oligohydramnios. Hospital stay following delivery was short because of scarcity of hospital bed. Patients were discharged early after normal delivery – usually in the first post-natal day and usually at the third post-operative day after caesarean section.

In conclusion, oligohydramnios incidence is more among multigravid patient. There were no significant relation between meconium-stained liquor and isolated oligohydramnios. Caesarean section deliveries were significantly higher in women with isolated oligohydramnios. Indication of caesarean section was mainly due to foetal distress. Low birth weight baby was not significantly higher in women with isolated oligohydramnios. Neonatal morbidity like admission in neonatal ward was not significantly higher in women with isolated oligohydramnios.

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ORIGINAL ARTICLE

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Role of High Resolution Ultrasonogram in the Evaluation of Palpable Breast Lumps and Correlation with FNAC reports

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Abstract

High resolution ultrasound has become the investigation of choice in the evaluation of palpable breast lump due to its efficacy, wide availability and non-invasiveness. To explore the accuracy of USG by comparing with FNAC reports, this cross sectional study was conducted in the Institute of Nuclear Medicine & Allied Sciences, Sylhet & two private clinics of Sylhet during the period from April 2014 to May 2016. High resolution breast ultrasonogram was performed by Volusion 730 ProV using 7.5 to 12 MHz linear transducer, SIEMENS Ultrasound Machine using 5 to 10 MHz linear transducer & LOGIQ 7 unit (GE Healthcare) with a 12-MHz linear transducer.

Total 114 patients with clinically palpable breast masses were evaluated by ultrasound and positive cases were correlated with FNAC findings. Out of 114 patients, majority were presented at 26-35 years age range (35.96%). Right breast was involved in most of the cases (44.08%) and highest numbers of lesions were found in upper and outer quadrant. On ultrasound evaluation, 47 patients showed fibro-adenoma, 15 patients showed cystic lesions, 13 patients showed abscess, 09 patients showed lipoma, 07 patients showed malignant mass and 02 patients had galactocele. Positive cases were correlated with FNAC report. All cysts diagnosed by ultrasound were confirmed by FNAC (accuracy 100%). Accuracy of fibro-adenoma diagnosis was 89.36%, abscess 92.31%, lipoma 55.56% , malignant mass 85.71% and galactocele 50.0%.

Definite & early diagnosis of breast disease is necessary in the subsequent management purpose. High resolution Ultrasound is efficient in differentiating cystic from solid breast masses as well as detection of suspicious breast lesions and should therefore be used in the evaluation of symptomatic breast masses.

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Introduction

Worldwide one of the commonest reasons for a woman to seek medical attention is when she feels a palpable abnormality in her breast. Ultrasonogram has gained clinical acceptance tremendously over the decades in this context. Ultrasound imaging of the breast uses sound waves to produce pictures of the internal structures of the breast. Ultrasound is safe, noninvasive, does not use ionizing radiation and requires little to no special preparation.

Wild & Neal in 1952 were the first to report the use of diagnostic sonography in the evaluation of breast disease.[1] Due to its lack of ionizing radiation, ultrasound is the modality of choice for evaluating a palpable mass in pregnant women. It is also the modality of choice for evaluating palpable masses in lactating women because tissue density limits mammographic evaluation.[2] Multiple studies have shown that screening ultrasound, in addition to mammography, can detect an additional 2-5 cancers per 1000 women screened.[3]

The main proven use of ultrasound is in the differential diagnosis of palpable lesions of the breast. Ultrasound can also be used to precisely locate the position of a known tumor to help guide the doctor during a biopsy or aspiration procedure. Originally, ultrasonography was primarily used as a relatively inexpensive and effective method of differentiating cystic breast masses from solid breast masses. However it also provides valuable information about the nature and extent of solid masses and other breast lesions. The role of ultrsound in the screening of specific groups of patients, such as those with mammographically dense breasts and those at high

risk for breast carcinoma, is still under investigation. This study was performed to evaluate the role of ultrasound in a wide range of patients in Sylhet and to detect its accuracy by correlating with FNAC reports.

Materials & Methods

This cross sectional study was conducted in the Institute of Nuclear Medicine & Allied Sciences, Sylhet and two private clinics of Sylhet for a period of two years. A total of 114 female patients were included in this study who were referred to have ultrasonogram of breasts to evaluate palpable breast mass. High resolution breast ultrasound was performed by Volusion 730 ProV using 7.5 to 12 MHz linear transducer, SIEMENS Ultrasound Machine using 5 to 10 MHz linear transducer and LOGIQ 7 unit (GE Healthcare) with a 12-MHz linear transducer. Both axillas were routinely evaluated during the breast ultrasound to detect any enlarged lymph node. Before ultrasound examination, physical examination was performed & mammogram report was correlated, if available. Patient's position was supine with ipsilateral arm comfortably elevated over the patient's head which provides a more stable scanning surface. For the lateral margin of the breast, the patient was rolled slightly towards the opposite side. For relatively large or pendulous breasts, patients were positioned obliquely towards the contra lateral side to allow the breast to lie flat on the chest wall. Gain was balanced in the image from the low-level echoes of the subcutaneous fat to the low level echoes of the retromammary fat. Palpation was done during scanning for precisely localizing palpable abnormalities in relation to the ultrasound image. The area under evaluation was immobilized and skin adequately lubricated to facilitate ultrasound transmission. The transducer was gently applied and both longitudinal and transverse scans were taken. The retro-areolar area was evaluated by angling the transducer in multiple planes to avoid the shadowing artifact produced by the nipple.

Results

Total 114 patients were enrolled in the study within the age range of 16 to 75 years and majority of them belonged to the group of 26-35 years (Table I). Majority of the patients were married (Table II). Out of 114 patients, 93 had sonologically detected abnormalities (Table III). Unilateral involvement of right breast was most commonly found (Table IV). Total 93 positive cases were correlated with FNAC reports. Accuracy of US was highest (100%) in case of cyst and lowest (50%) in case of galactocele (Table VI).

Table I: Age distribution of the patients

Age groups	Number of patients	Percentage (%)
16-25	28	24.56
26-35	41	35.96
36-45	21	18.42
46-55	13	11.40
56-65	09	7.89
66-75	02	1.75

Table II: Distribution of the patients according to marital status

Group	Number of patients	Percentage (%)
Married	102	89.47
Unmarried	12	10.52

Table III: Distribution of the patients according to USG findings

USG findings	Number of patients	Percentage (%)
Normal	21	18.42
Abnormal	93	81.58

Table IV: Distribution of site of involvement

Involved breast	Number of patients	Percentage (%)
Both breasts	27	29.03
Only right breast	41	44.08
Only left breast	25	26.88

Table V: Location of pathology according to quadrant of breast

Quadrant of breast	Number of lesions	Percentage (%)
Upper & outer	62	66.67%
Upper & inner	41	44.09%
Lower & outer	54	58.06%
Lower & inner	37	39.78%
Central	10	10.75%

Table VI: Type of lesion as determined by USG & FNAC

Lesion type	Detected by USG	Confirmed by FNAC	Accuracy of USG
Fibrodenoma	47	42	89.36%
Cyst	15	15	100%
Abscess	13	12	92.31%
Lipoma	09	05	55.56%
Galactocele	02	01	50%
Malignant mass	07	06	85.71%

Discussion

It has been suggested that ultrasound use should be considered in most instances of a palpable breast finding, particularly in young women. A primary advantage is the ability to directly correlate the physical exam finding with imaging. Ultrasonography has a sensitivity of 89 percent and a specificity of 78 percent in detecting abnormalities in symptomatic women.[4] It is able to verify whether breast mass is present or not, whether the mass is definitely benign and no further evaluation is necessary, or whether the mass is possibly malignant and needs a biopsy.[5]

It is well established that breast pathologies are age related. In a study involving 3294 patients, Sterns found that majority of carcinoma suggestive lesions were in women over 55 years of age.[6] On the other hand, another study showed the mean age of presentation in case of benign breast diseases to be 28.4 years.[7] As our study included patients with both benign and malignant lesions, age range of the patients extended from 16 to 75 years and the mean age was 45.5 years. Highest number of patients i.e. 35.96% is in the age group of 26-35 years. This corresponds to a great extent with that of Khanna et al. which was 39.8% in the age group of 21-30 years.[8] Unilateral involvement of right breast was most common which was in agreement with the finding by Sangma et al.[7] Out of 114 cases in our study 93 were detected by ultrasound for the presence of lump, thus giving a sensitivity of 81.58%. This is in close conformity with results reported by Fleishcher et al. (84%) and Mansoor et al. (86%).[9, 10]

The classic benign features of a fibroadenoma in ultrasound are: a well-circumscribed hypoechoic mass that may be oval, round, or acrolobulated, three or fewer circumscribed lobulations, well-circumscribed margins, and horizontal growth greater than vertical growth. The diameter commonly ranges from 2 to 3 cm or less, although some may grow considerably larger. Fibroadenomas accounted for 50.54% of the breast lumps in our study. Our finding was in agreement with most of the available literature on benign breast lumps, where the frequency of fibroadenoma ranged from 46.6%-55.6%.[11-14]

Breast cysts are the commonest cause of breast lumps in women between 35 and 50 years of age.[15] Sensitivity of USG for detection of cystic masses is very high, so it has a definite role in differentiation of cystic from solid masses of the breast. Total 15 patients were diagnosed by ultrasound to have breast cysts and all of them were confirmed in FNAC reports. The accuracy of ultrasound in diagnosing cystic breast lesions was 100%, which was better than the findings of Fleishcher et al. (96%) and Mansoor et al. (90.9%).[9, 10]

The differential diagnosis for a complex mass includes infectious abscess. These masses are almost always clinically apparent as patients usually present with marked breast pain, a palpable mass, erythema and/or fever. If a patient has a history of pregnancy and lactation an abscess is classified as a puerperal abscess. Puerperal abscesses are more common than non-puerperal abscesses. On ultrasound, abscesses are usually large complex masses with associated hypervascularity, thickened walls and internal echoes. This study found breast abscess in 13.98% patients which is almost similar to previous works.[7] Accuracy of abscess diagnosis was 92.31%.

Carcinoma typically appears as an irregularly shaped mass with spiculated margins with shadowing and architectural distortion of adjacent breast tissue. The lesion may contain malignant micro calcifications. Benign lesions of the breast are more readily diagnosed by ultrasound than malignant lesions.[16] Accuracy of malignant mass detection by USG in our study was 85.71%.

Technical improvement over the last decade has made real time ultrasonography an important imaging modality for detection of breast pathologies, especially breast lump & breast pain evaluation. It can now detect not only early tumors under 1 cm in diameter but also intra ductal components using high resolution real systems. However it is highly operator dependent and there can be significant intra- and inter-observer variability. But newer techniques such as high resolution ultrasound imaging, elastoscan etc with the aid of computer analysis hold the promise of better evaluation of lesions in the future.

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ORIGINAL ARTICLE

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Results of Locking Buttress Plate Fixation in Displaced Tibial Plateau Fracture

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Abstract

Objective of this study is to find out the result of fixation of displaced tibial plateau fracture by locking buttress plate. This was a prospective interventional study carried out in the Department of Orthopaedics at BSMMU, Dhaka from July 2012 to June 2014. For this study, a total number of 14 patients presented with closed tibial plateau fractures, age from 18 to 70 years, irrespective of sex and age of the fracture not more than 7 days admitted at the Orthopaedic Department at BSMMU were enrolled for this study. All patients were treated with locking buttress plate fixation. Post-operative follow up after locking buttress plate fixation at 4 to 6 weeks intervals for at least 6 months. Each of the patients was evaluated at follow up on 6th month using modified Rasmussen criteria for clinical and radiological assessment. Patients were clinically assessed for infection, pain on full weight bearing, knee extension, range of motion of knee joint, stability, walking capacity and power of quadriceps. Radiological assessment for union of fracture, articular depression, condylar widening, osteoarthrosis, varus valgus angulation were observed during follow up. Male was more predominant. The mean age was 36.64 years. Motor Vehicle Accident was the main mechanism of trauma. Fractures involving the lateral plateau were common. During post-operative follow up, two patients had wound infection, most of the patients had no osteoarthrosis, and two patients had restricted movement of the knee joints. Fracture union time was 14.57 weeks.Clinically & radiologically excellent and good results were 7.1% & 78.6% and 14.3% & 71.4% respectively. Overall satisfactory outcome was 85.7%.This study permits to conclude that fixation by locking buttress plate may be the effective method for the management of displaced tibial plateau fracture.

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Introduction

The knee joint is one of three major weight bearing joints in the lower extremity.The proximal tibia is expanded in the transverse axis, providing an adequate weight bearing surface for the body weight; transmitted through the lower end of femur. It comprises of two prominent masses, the medial and lateral condyle separated by an irregularly roughened intercondylar area.[1]

The proximal tibial fractures are not uncommon. They result from indirect coronal or direct axial compressive forces. This makes about 1% of all fractures and 8% of the fractures in elderly. Most injuries affect lateral tibial condyle (55 to 70%), isolated medial condyle fractures occur in 10 to 23% and bicondylar 10 to 30% [2] , associated soft tissue injuries in 10-30% [3] . The stationary lower limb may be struck by a moving object; this is the common pedestrian injury, the co called "BUMPER FRACTURE", since the bumper of most vehicles being places roughly at knee height.[4]

These fractures encompass many and varied fracture configurations that involve medial, lateral or both plateaus with many degrees of articular depressions and displacements with characteristic morphology and response to the treatment.[3]

Conservative treatment may be feasible in non displaced intraarticular fracture but debatable. External fixators often cause permanent joint stiffness, Traditional open reduction and internal fixation with insertion of a single or double buttress plates through a single incision usually requires extensive stripping of the soft tissue enveloped the proximal tibia, leading to considerable devascularization of fracture fragments, thus delaying fracture healing and increasing the risks of infection and non-union.[5] Most recently locking compression plate is used to treat for tibial plateau fracture.[6]

Advantage of locked plating are, internal fixator, give angular stability, maintain high stability, better conservation of blood supply to the bone, no displacement of locking screw, combination of both dynamic compression plating and locked plating, allows early functional mobilization.[7]

Treatments of tibial plateau fractures remain challenging because of their number, variety and complexity. Due to advancement, especially in orthopedic trauma, a better understanding of biomechanics, quality of implants, principles of internal fixation, development of locking buttress plate, soft issue care, antibiotics and asepsis have all contributed to the radical change. Thus we have advanced from traditional buttress plate to locking buttress plate fixation in treatment of displaced tibial plateau fracture. Due to the improvement of the alertness of patients, availability of diagnostic facilities and proper implant, displaced tibial plateau fracture can easily be managed by locking buttress plate in our country.

Materials & Methods

The present single centered, prospective interventional study was conducted between the periods of July 2012 to June 2014 for duration of two years in the Department of Orthopaedic, Bangabandhu Sheikh Mujib Medical University, Dhaka. The patients with tibial plateau fractures diagnosed on the basis of presenting complaints clinical examination and investigations age of the patient more than 18 years and age of the fracture not more than 7 days who was admitted in the above mentioned hospital during the study period was selected for the study, a total number of 15 patients were selected in this series. 1 patient was lost during follow-up; therefore 14 patients were available for follow up for a period of at least 6 months.

At the arrival of the patient with tibial plateau fractures, a detailed history was taken and thorough physical examination was done. The limb was inspected for open wounds and soft-tissue crush or contusion, and a thorough neurovascular examination was performed. A pulse deficit or neurological deficit was a sign of compartment syndrome or vascular injury, which was identified and treated immediately. The ipsilateral femur, knee, ankle and foot also were examined.

Anteroposterior &lateral views of knee with proximal tibia and distal femur was taken to see nature of fracture and for classification of fracture. The routine tests were carried out in all patients as a measure of anaesthesia fitness & also to rule out other coexisting disease.Informed written consent was taken from all the patients. Operation was done at earliest possible time depending on skin conditions and amount of swelling. Follow up(Appendix-V) was given at regular intervals. At the 6th months' follow up, during which time the clinical and radiological evaluation was done on the basis of modified Rasmussen clinical and radiological criteria which were verified by the guide & the data was collected by researcher himself. A longer follow up could not be achieved due to time constraint in this study.

Modified Rasmussen criteria for evaluation of treatment of displaced tibial plateau fracture:

Modified Rasmussen Criteria for Clinical Assessment [8]

Pain	
None	6
Occasional	5
Stabbing pain in certain position	3
Constant pain after activity	1
Significant rest pain	-3
Walking Capacity	
Normal walking capacity for age	6
Walking outdoor more than one hour	5
Walking outdoor 15 mins -1 hr	3
Walking out door <15 mins	1
Walking indoor only	0
Wheel chair or bed ridden	-3
Knee Extension	

Normal	4
Lack of extension < 10^0	2
Lack of extension > 10^0	0
Lack of extension >20^0	-2
Total Range of Motion	
Full	6
Atleast 120^0	5
Atleast 90^0	3
Atleast 60^0	1
<60^0	-3
Stability	
Normal Stability in Extension and 20^0 Flexion	6
Abnormal instability in 20^0 Flexion	4
Instability in Extension <10^0	2
Instability in Extension > 10^0	0
Power of quadriceps	
Grade 5	2
Grade 3-4	1
Grade<3	-2

Clinical Grading

Maximum Score	**30**
Excellent	**28-30**
Good	**24-27**
Fair	**20-23**
Poor	**< 20**

Modified Rasmussen Criteria for Radiological Assessment 8

Articular depressions	
None	3
< 5mm	2
6-10mm	1
>10 mm	0
Condylar widening	
None	3
< 5mm	2
6-10mm	1
>10 mm	0
Valgus Varus angulation	
None	3
<10^0	2
10^0 -20^0	1
>20^0	0
Osteoarthrosis	
None / No progress	1
Progression by 1 grade	0
Progression by > 1 grade	-1

Radiological Grading

Excellent	**9-10**
Good	**7-8**
Fair	**5-6**
Poor	**< 5**

Operative Procedure:

Under spinal anesthesia and patient was in supine position, antero-Lateral / antero-medial / both approach was used. Incised the skin over the anterolateral / anteromedial / both aspect of proximal tibia. Divided the superficial and deep fascia; raised full thickness flaps down to the fascia followed the investing fascia of anterior compartment. Sharply elevated the entire comportment from anterolateral / anteromedial / both tibial surface. A sub meniscal arthrotomy was performed to see the fracture and depression if needed. To elevated the depression make a hole in upper tibia and bone graft was given, reduced the fracture and hold by temporary K-wire. Fixation of fracture by locking plate by 6.5mm cancellous screws and 4.5mm cortical screws. Wound was closed in layers after maintaining the haemostasis. A closed suction drain was kept in situ and dressing was given. A long leg back slab was applied.

Postoperative care and follow-up:

All patients were given adequate sedatives and analgesics. Limb elevation (by keeping pillow underneath) with knee in slight flexion was maintained for the first 48-72 hours. Antibiotics were prescribed as stated earlier. Isometric quadriceps exercises were begun as soon as pain subsided.

The patient was advised non weight bearing crutch ambulation. Check dressing was done 4th post operative day, if wound healthy patients was discharge with advice about limb care and regular follow up.

Patients were followed at OPD of Orthopaedics Department at 2 weeks and then 4 to 6 weeks interval for at least 6 months.

Results

This study was conducted on patients with age ranging from 18 to 70 years with a mean age of 36.64 years at the time of admission. Out of them 08 (57.1%) patients were male and 06 (42.9%) patients were

female. Maximum 04 (28.6%) patients were housewife. Most of the injury 13 (92.9%) were due to MVA and only 01 (7.1%) was due to FFH. Maximum injury 8 (57.1%) were on left side and Maximum 9 (64.4%) were Schatzker type II.(Table 1)

Table-I: Demographic information (n=14)

	Frequency	Percentage
Male	8	57.1
Female	6	42.9
Age (year)	36.64 ± 14.45	
Cause of injury		
Motor Vehicle Accident	13	92.9
Fall from height	1	7.1
Side of injury		
Right	6	42.9
Left	8	57.1
Schatzker type		
II	9	64.4
III	1	7.1
IV	3	21.4
V	1	7.1

06 patients had no pain, 06 (42.9%) patients had occasional pain and 02 (14.3%) patients had stabbing pain in certain position. Maximum 07 (50.0%) patients were able to walk outdoor more than one hour followed by 05 (35.7%) patients had normal walking capacity and 02 (14.3%) patients were able to walk outdoor from 15 minutes to 1 hour.

Most of the patients 10 (71.5%) knee extension was normal followed by 03 (21.4%) patients had lack of extension <10° and 01 (7.1%) had lack of extension > 10°. Maximum 7 (50.0%) patients range of motion (ROM) was at least 120° followed by 5 (35.8%) patients had full ROM, 1 (7.1%) patient had at least 90° ROM and remaining 1 (7.1%) patient had at least 60° ROM.

Maximum 7 (50.0%) patients had abnormal instability in 20° flexion, 06 (42.9%) patients had normal stability in extension and 20° flexion. Most of the patients 11(78.6%) power of quadriceps was grade 5.

Table II: Clinical and radiological grading (n=14)

Clinical grading	Frequency	Percent
Excellent	1	7.1
Good	11	78.6
Poor	2	14.3
Radiological grading		
Excellent	2	14.3
Good	10	71.5
Fair	1	7.1
Poor	1	7.1
Overall Result		
Satisfactory	**12**	**85.7**
Non-satisfactory	**2**	**14.3**

Most of the patients' 11 (78.6%) clinical grading was good, 2 (14.3%) patients' clinical grading was poor and rest 1 (7.1%) patient's clinical grading was excellent.(Table II)

Table III: Postoperative radiological findings of the patients (n=14)

Radiological findings	Frequency	Percent
Articular depression		
6 - 10 mm	1	7.1
< 5 mm	9	64.3
None	4	28.6
Condylar Widening		
6 - 10 mm	1	7.1
< 5mm	11	78.6
None	2	14.3
Varus Valgus Angulation		
10° - 20°	2	14.3
< 10°	8	57.1
None	4	28.6
Osteoarthrosis		
Progression by 1 grade	2	14.3
None/No progress	12	85.7

Most of the patients' 9 (64.3%) articular depression was <5 mm. Only 01 (7.1%) patient's articular depression was 6 – 10 mm and 4 (28.6%) patients had

angulation was < 10°. Two (14.3%) patient's varus valgus angulation was 10° - 20° and 4 (28.6%) patients had none. Most of the patients 12 (85.7%) had no progress in osteoarthrosis. Two (14.3%) patient's osteoarthrosis was progressed by 1 grade.

Most of the patients' 10 (71.5%) radiological grading was good, 2 (14.3%) patients' radiological grading was excellent.(Table II)

Table IV: Distribution of patients by postoperative complications (n=14)

Complications	Frequency	Percent
Wound infection	2	14.3
Knee stiffness	2	14.3
No complications	10	71.4

Most of the patients' 12 (85.7%) outcome was satisfactory.(Table II) Mean ± SD of hospital stay was 14.57 ± 4.76 days with ranging from 10 to 27 days. Mean ± SD of union time was 16.42 ± 4.08 weeks with ranging from 12 to 26 weeks.

Discussion

In present study, common age group affecting tibial plateau fracture was 3rd and 4th deca–de. Similar to this study, Mahajan[9] showed most of the patients were in age group of 20-40 years (68%) with mean age of 36.4 years, in Gur et al.[10] study, mean age of 39 years. But mean age was higher (45.2years) in Yu et al[11] study. Male was predominant than female like in Yu et al.[11] study 61.1%, in Mahajan[9] study 88%.

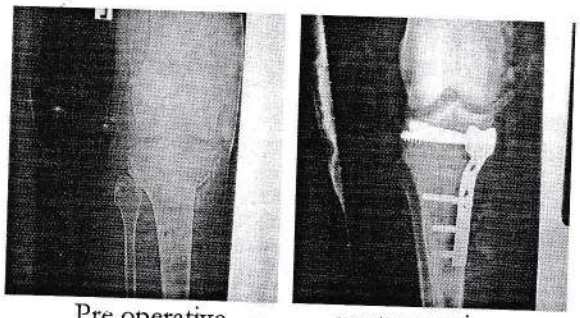
In our study, common mode of the injury was MVA and, businessman, service holder and students were the victims. MVA was lower than present result in Mahajan[9] 68% and Ibrahim[12]-76%.Similar results were showed by Yu *et al.*[11] Increased MVA is one of the burning problems in modern society. So, occupationally tibial plateau fractures are seen in people with high level of activity, movement and travel.

In our study, there was left sided predominance compared to the right side. It was seen in Yu *et al.*[11] that left sided injury was 53.7% but right sided (60%) predominance in Mahajan[9] study.

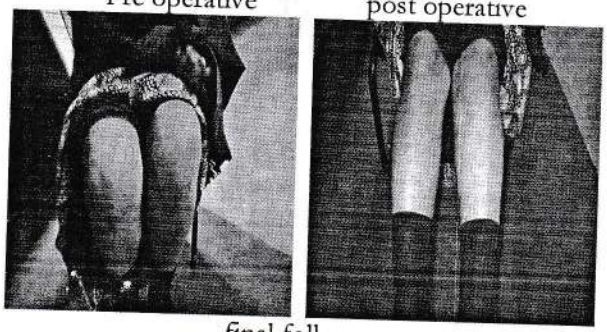
In this study, lateral plateau fracture i,e Schatzker type II was common. In Ibrahim[12] & Biyani et al[13] study, type II was 53.4% & 60.3% respectively.

In this study, at six month follow up, most of the patient had no pain, acceptable ROM at knee with normal stability in extension. Only one patient had lack of extension > 10°. Two patients needed occasional medical treatment for residual knee pain in current study. Hsu *et al*[14] have reported that ROM was restored in all patients with more than 120 degree of flexion, extension lag was in 4.5% and pain in 9.1% patients. 9.1% patients needed occasional medical treatment for residual knee pain. Mahajan[9] also assessed 84% full ROM at knee with extension lags in 16% patient.

In this study, radiology at six month evaluated that most of the patients' articular depression, condylar widening and varus valgus angulation was less. Hsu *et al.*[14] have reported that depression greater than 4mm was not found, varus valgus greater than 5° was not demonstrated in any case but condylar widening was noted in 27% patients.



Pre operative post operative



final follow up

During the period of short follow-up, no accelerated degenerative change in the operated knee joint was found in present study like Hsu et al.[14] long period (49.8 months) study. Outcomes may be affected in longer follow up.

Mean of union time was less in this study. It was shown that mean union time was 15.4 weeks (range 12-30 weeks) in the study of Yu et al.[11] and 16.5 weeks in Jong-keun et al.[15].

Overall satisfactory outcome in current study was 85.7%. This result complies with the study of Ibrahim,[12] Edwin,[16] Gur et al.[10] and Ballmer et al.[17]

where satisfactory outcome was 83.4%, 87.0%, 86.8% and 86.6% respectively. They all evaluated the final outcomes by using modified Rasmussen criteria.

In this study, post operative complications were wound infection and knee stiffness.(Table IV) Knee stiffness was 10% cases in the study of Ibrahim [12], 13.8%in Yu et al.[11] Wound infection was 8% cases in the study of Mahajan [9] 3% in Yu et al.[11] and 4.5% in Hsu et al.,[14] which is lower than present study. In current series possible causes of knee stiffness is lack of proper physiotherapy and infection rate increased due to improper timing of surgery and malhandling of soft tissue. To overcome this problem, less invasive surgery has been developed with infection rate between 3.7% - 13.3%.[18] Wound infections were controlled in both cases by coverage of broad spectrum antibiotic and regular dressing. Knee stiffness also improved by physiotherapy.

We employed ORIF technique but achieved satisfactory results. If we employed MIPO with indirect reduction technique, minimum soft tissue handling at surgery and rigid fixation, early mobilization would have been allowed. With aggressive supervised physiotherapy, above mentioned complication would be less and we would have achieved this goal much earlier.

It is concluded from this prospective interventional study that locking buttress plate fixation is an effective modalities of treatment for tibial plateau fractures with significant articular depression and displacement.

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CASE REPORT

The Osmani Medical Teachers Association Journal Volume 14 Number 2

Successful repair of Oesophageal Atresia with Tracheo-Oesophageal Fistula

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Abstract

Oesophageal Atresia with or without Tracheo-Oesophageal Fistula is a common neonatal surgical emergency. Repair of Oesophageal Atresia with or without Tracheo-Oesophageal Fistula needs strong surgical skill, Neonatal intensive care unit (NICU) support with delicate pre-operative & post-operative management. Our case is a three days old male neonate admitted in a private hospital on 5th March, 2015 with a history of excessive salivation, inability to swallow and feeding is followed by regurgitation, choking & coughing.

–After thorough evaluation it was diagnosed as a case of Oesophageal Atresia (EA) with distal Tracheo-Oesophageal Fistula(TE–F). Patient was operated on 07th March, 2015 in a private hospital by a standard right postero-lateral thoracotomy incision at fourth inter-costal space keeping a chest tube drain on the right side.Patient was allowed breast milk through Nasogastric tube (N-G tube) on 6th postoperative day (POD). On 10th(POD)N-G tube was removed and oral feeding started. Patient was discharged on 14th POD (21st March,2015) in satisfactory condition and was regularly followed up. So far our knowledge, it is the First case report of survivorin Sylhet, Bangladesh operated for repair of EA– with TEF till to date.

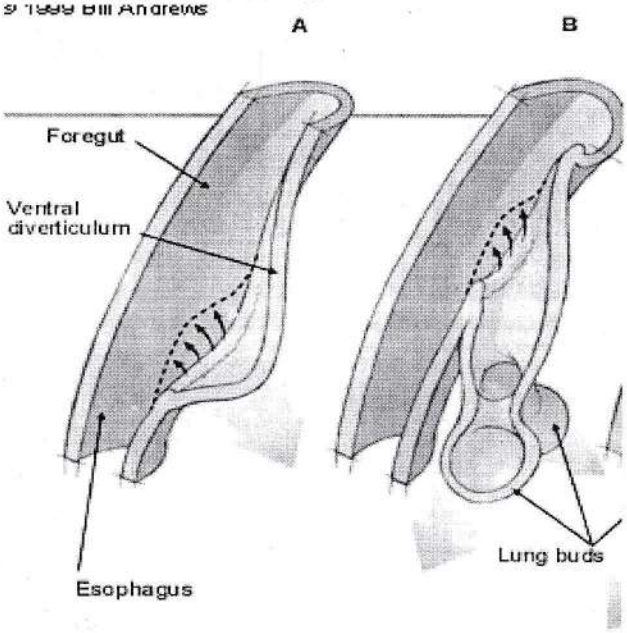
[OMTAJ 2015; 14(2)]

Introduction

Oesophageal atresia is a congenital abnormality in which there is a blind ending oesophagus. It can occur in isolation or there may be one or more fistulae communicating between the abnormal oesophagus and the trachea, known as a tracheo-Oesophageal fistula (TOF).[1]The exact etiology is uncertain but there appears to be a defect in embryological development.

Embryology of Oesophagus :

The oesophagus and trachea both develop from the primitive foregut. In a 4- to 6-week-old embryo, the caudal part of the foregut forms a ventral diverticulum that evolves into the trachea.



Development of EA-TEF :

The longitudinal tracheoOesophageal fold fuses to form a septum that divides the foregut into a ventral laryngotracheal tube and a dorsal esophagus. The posterior deviation of the tracheo Oesophageal septum causes incomplete separation of the oesophagus from the laryngotracheal tube and results in a TEF.

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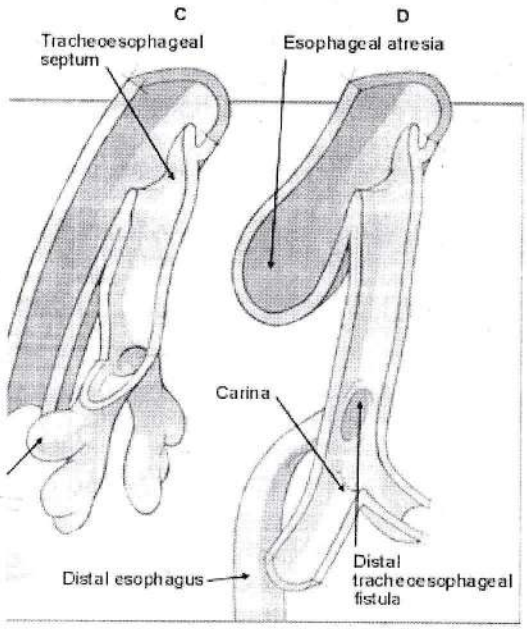
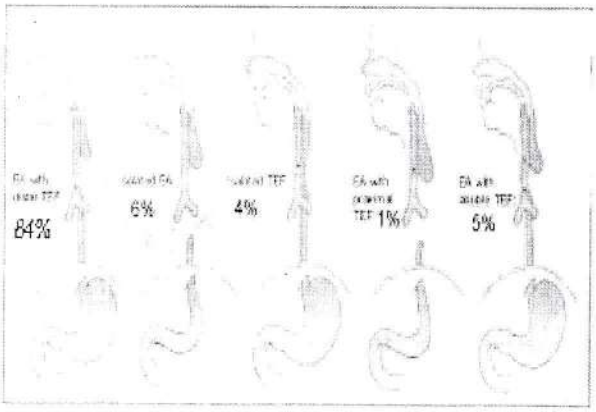


5 main categories of EA- TEFs:



Types of oOesophageal atresia, tracheal fistula or combination of the two

5 Types of malformation

- 84% have oOesophageal atresia with distal tracheo-oOesophageal fistula
- 6% Isolated atresia with no fistula
- 4% Isolated tracheo-oOesophageal 'H' Type fistula with no atresia
- 5% Atresia with upper pouch fistula
- 1% Atresia with upper and lower pouch fistula

Epidemiology :

The estimated incidence is 1 in 3,000 births.[2] Finland has a comparatively high figure of 1 in 2,500 births.The recurrence risk in subsequent pregnancies of EA-TEF is <1%.[3]In more than 50% of babies, EA-TEF is present with other anomalies. Associated anomalies are more likely if there is isolated EA and, in such cases, can occur in up to 65%.[3]They include :

- **Vertebral** – Hemivertebrae and scoliosis
- **Anorectal malformation**
- **Cardiac defects**– VSD, Patent DuctusArteriosus and Tretralogyof Fallot
- **TracheoOesophageal** (American Oesophageal)
- **Renal tract**– Ectopic kidneys, horseshoe, duplex systems, renal agenesis, urethral malformations and hypospadias
- **Limb defects** – radial agenesis most common

The **CHARGE** association:

- **C**oloboma
- **H**eart defects
- **A**tresia choanae
- **R**etarded development
- **G**enital hypoplasia
- **E**ar abnormalities

Chromosomal abnormalities:
Trisomy 13,18 and 21.

Investigations :

Neonatal abdomen & chest radiographs

X-ray chest – will normally demonstrate a dilated upper pouch containing a replogle tube.

Abdomen – a normal bowel gas pattern will be visible where there is connection via fistula to the lower oesophagus. But abdomen will be gasless if there is isolated atresia without fistula and Oesophageal atresia with upper pouch fistula.

Diagnosis of EA :

If an NG-tube(8-10Fr) is inserted CXR will show coiling in the mediastinum and dilated upper pouch of oesophagus containing the N-G tube.

Plain X-Ray Abdomen will show either normal bowel gas pattern or a gasless abdomen in case of isolated atresia/fistula to the upper pouch of oesophagus .

Diagnosis of TEF :

Contrast studies are seldom required to confirm the diagnosis because it may cause aspiration pneumonitis

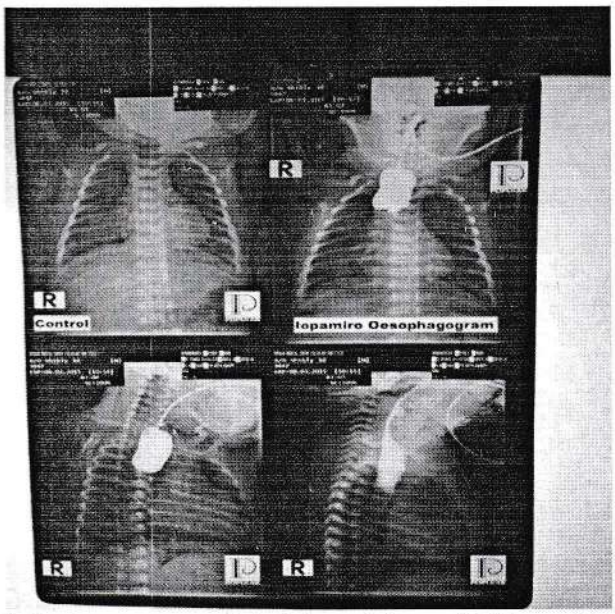
or pulmonary injury. Presence of air in the gastrointestinal tract with percussion or abdominal radiography reveals TEF. Direct visualization is possible by flexible oesophagoscopeor bronchoscope and to assess its exact location prior to surgery.4

Prenatal diagnosis :

Prenatal 3D ultrasounds after 24 weeks may reveal poly-hydramnios, absence of fluid-filled stomach, small stomach bubble and distended Oesophageal pouch [4]

Case Report :

A three days old male neonate, weight 2.8 kg, full term, delivered by Caesarean section admitted in a private hospital with the complaints of excessive salivation, unable to swallow, coughing & choking when he try to feed. We did X-ray-chest, Plain X-Ray abdomen in erect posture and contrast oesophagogram and diagnosed as a case of EA with distal TEF.



Patient was resuscitated by giving N-G suction, parenteral nutrition, broad spectrum antibiotics. All routine investigations were done and counseled with the parents about different aspects of operation.

Patient was operated on 07th day of life in a private hospital where NICU facilities are available. A standard right poster-lateral extra-pleural thoracotomy incision was made at the 4th inter-costal space with ligation of distal tracheo-Oesophageal fistula and end to end Oesophageal anastomosis was performed keeping a tube drain at the extra-pleural space.

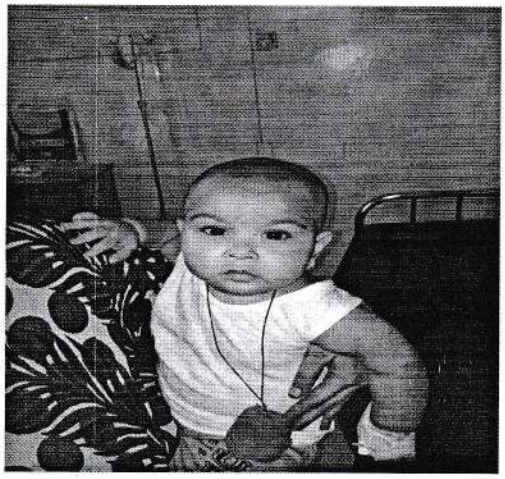
Postoperatively naso-gastric feeds was started on 6th POD and on 10th POD, N-G tube was removed and breast milk was allowed orally.

Patient was discharged on 14th POD and regularly followed up. Patient is gaining weight, he has no feeding difficulties, no regurgitation or respiratory problem.

Last follow-up:

Age: 09 months, weight: 10.5 kg,

No vomiting, no regurgitation, no gastro-oOesophageal reflux disease (GERD) and no respiratory problems noted.



Discussion

EA-TEF is a major congenital anomaly and a real challenge for paediatric surgeons. Till around 1970, the outlook of this condition was gloomy with extremely disappointing results.[5]

The first published report of a case of EA-TEF treated by fistula ligation and primary Oesophageal anastomosis was presented by Robert Shaw of Dallas in December 1939,but unfortunately patient died on 12th POD. [6]

The first successful primary repairof EA-TEF was done by Cameron Haight using a left extrapleural approach with fistula ligation and a single layered Oesophageal anastomosis on March 15, 1941. Haight later revised his procedure to a right extrapleural approach in 1943.

Emergent operation for EA with distal TEF is seldom necessary and a period of 24-48 hours between diagnosis and operation permits full assessment of the infant, treatment of pulmonary insufficiency including atelectasis and pneumonitis.

Thoracoscopic repair of EA-TEF is being adopted more widely.[7]This technique typically uses three 2.5-5 mm transpleural access trocars, an angled telescope, a video camera and small diameter working instruments.

Following Complications were reported by different authorities who performed repair operations of EA-TEF:

Early : anastomotic leak, anastomotic stricture, recurrent TEF,[8]

Late : GERD, Tracheomalacia, respiratory disease, disordered Oesophageal peristalsis.

Outcomes:

Survival rates for neonates who have EA with or without TEF have improved dramatically in the past 50 years. Recent reviews reported 85% -95% overall survival as compared with rates less than 40% before the 1950s.[9]

Waterston risk group and current survival figures :
Group Survival %Waterston classification

A 100%BW > 2500g and otherwise healthy

B 85% BW 2000-2500g and well or Higherwt with moderate associated anomalies.

C 65% BW < 2000g or higher with severe associated cardiac anomalies.

In conclusion, repair of EA-TEF is real challenge for paediatric surgeons but if it is done by skill hand in proper time in a well equipped hospital, then survival can be ensured.

To improve the ultimate survival of EA-TEF, there is a need of increase awareness, early referral, proper training and education of rural health physician through involvement of professional bodies like medical associations and conducting CME programs, updates etc.

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CASE REPORT

The Osmani Medical Teachers Association Journal Volume 14 Number 2

Gastrointestinal Foreign Bodies - AVariable Experience in Surgery

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Abstract

Gastrointestinal foreign bodies represent a significant clinical problem causing high degree of morbidity and mortality. A large variety of foreign bodies are ingested or inserted into the GIT in different age groups. Foreign body ingestion in adult is rare &occurs mostly in patients suffering from alcoholism and psychosis. However, in case of mentally stable adult, foreign body ingestion is mostly accidental. In majority of cases, GIT foreign bodies can be successfully managed conservatively or removal by endoscope. But few patients may need surgical intervention. We present two cases of GIT foreign bodies which needed surgical interventions after failure of endoscopic procedure.Specially the mode of entry and peculiarity of the foreign bodies and their presentation are evaluated. In first case, a male patient, 24 years of age, with history of right hemicolectomy 10 years back due to ileocaecal tuberculosis presented with abdominal pain and vomiting.Colonoscpy revealed a square shaped foreign body impacted in previous anastomotic site. After surgery, it was found that, it was amedication blister pack which was accidentally ingested. In Case 2,a 34 years male with history of gastrojejunostomy ,3½ years back presented with vomiting after taking meal and significant weight loss for last 2 years. Endoscopy reveals presence of impacted food bolus or phytobezoar obstructing the gastrojejunostomy stoma. After surgery and gastrotomy, it was found a surgical mop inside the stomach. We think it was probably a case of mop migration from peritoneal cavity which was left during initial operation.

[OMTAJ 2015; 14(2)]

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Introduction

Foreign body in GIT is a common surgical problem. Most of the objects ingested commonly pass through the pylorus of the stomach and then through the intestine and finally through the rectum[1]. Most of the cases present to surgeon without any obvious symptoms & signs and just for mental agony or fear, but few cases present with symptoms like vomiting, abdominal pain &features of intestinal obstruction. Foreign body ingestion is commonly seen in children under 5 years and mentally disturbed patients[2]. Coin, small toy, seeds, button-batteries, hairpin etc are commonly ingested foreign bodies but trichobezoar, Phytobezoar are other unusual foreign bodies that are found in mentally ill patients[2].

More than 80% of ingested foreign bodies pass without the need for intervention[2,3]. Objects longer than 6cm are likely to have difficulty passing the duodenum and should be removed; endoscopic intervention is required in up to 16%[4, 5]. Complications of foreign body ingestion or food impaction include ulcer formation, perforation, intestinal obstruction and fistula formation[6].Foreign body impaction, perforation or obstruction often occurs at GI angulations or narrowing[7]. Hence, patients with previous GI tract surgery or congenital gut malformation are at increased risk[8, 9]. Ingestion of sharp and pointed objects, animal or fish bones, bread bag clip & medication blister packs increase the risk of perforation[2, 4, 10,11].

Case report 1:

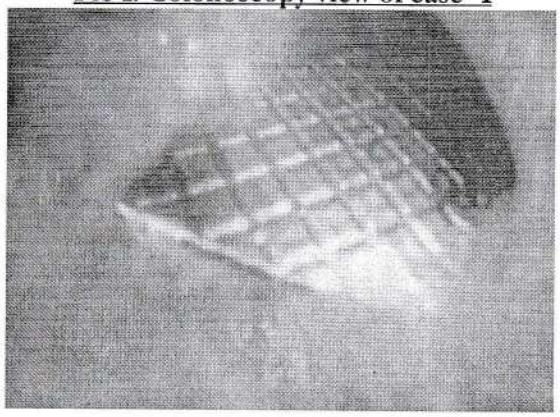
A 24 year male was admitted in Sylhet MAG Osmani Medical College Hospital in with complains of pain in lower abdomen for 1 day and vomiting for three times. He had a history of right hemicolectomy on 2003 for ileocecal tuberculosis with intestinal obstruction. He also gave history of taking Anti

tubercular drugs for 1 year. On examination patient showed mild tenderness in right iliac fossa but abdomen was soft and no other abnormality was found. USG of whole abdomen & plain X-ray of abdomen showed no abnormality. The patient was given conservative treatment and he was discharged on 3nd day. A week later, the patient visited to outpatient department with complain of repeated colicky pain in lower abdomen and occasional vomiting. Physical examination of the patient was normal. No clinical or radiological evidence of intestinal obstruction was found, blood count was in normal range. So the patient was advised for colonoscopy. On colonoscopy, the lumen was patent on previous anastomotic site, but there was a small ulceration present in ileal part. A square shaped plastic foreign body was seen at the ileal lumen proximal to the site of anastomosis. An attempt to remove it by endoscopy was done, but failed due to impaction of sharp edges. Then patient was admitted for surgery. Laparotomy was done under general anesthesia. A square shaped foreign body was found in ileum proximal to previous anastomotic site. Enterotomy was done to remove the foreign body. It was a blister pack with a tablet inside (Tab- Visral with its blister). After ensuring patency of stoma,Enterotomy was closed & abdomen was closed in layers. Patient was discharged on the 7th post operative day. Follow up was done after 6 weeks and he was found symptoms free.

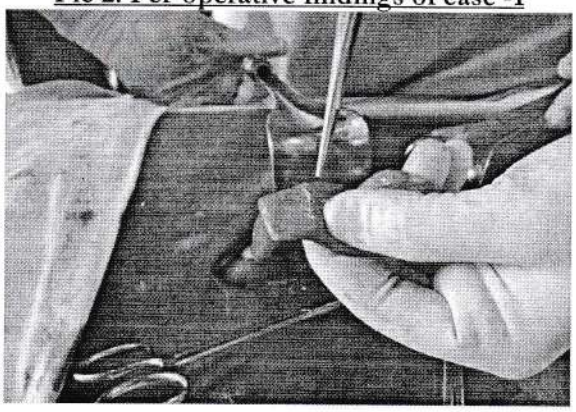
Case report 2:

A 34 year old male was admitted to SOMCH on with complains of vomiting after taking food and significant weight loss for 2 years. The patient gave history of vagotomy with gastro-jejunostomy 3½ years back. On examination,the patient was dehydrated with poor nutritional status. His abdomen was scaphoid in shape and a palpable lump was found in epigastric region. USG could not clearly describe about the lump and endoscopy revealed impacted food bolus in gastrojejunostomy stoma& possibility of gastrojejunocolic fistula. After 3 days of stomach preparation, repeat endoscopy was done and it commented about the presence of a phytobezoar. So, after preparation,the patient underwent Laparotomy. Huge adhesions were found and after careful separation, a firm mass was palpated inside the stomach. It was a suspected food bolus or phytobezoar impacted in gastrojejunostomy stoma. By careful manipulation, disimpaction was done from the gastrojejunostomy stoma. Gastrotomy was done and it was found that a large surgical mop was inside of the stomach which was mixed with food fibers and looked like a semisolid mass.The size of the mop was 22cmx20cm. After removal of the mop, proper wash was done with normal saline, gastrotomy was closed & abdomen was closed in layers. The patient was discharged on 8th post operative day. He came for follow up after 3 months and was free of symptoms.

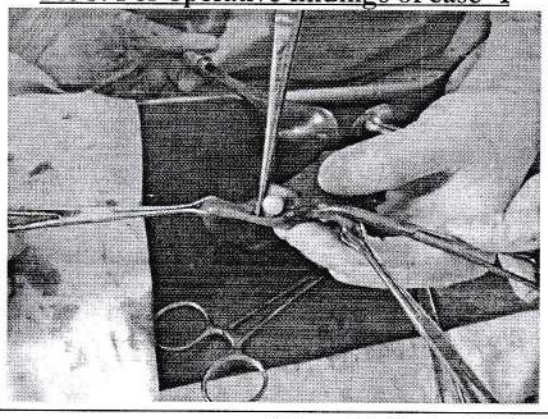
Pic 1: Colonoscopy view of case -1



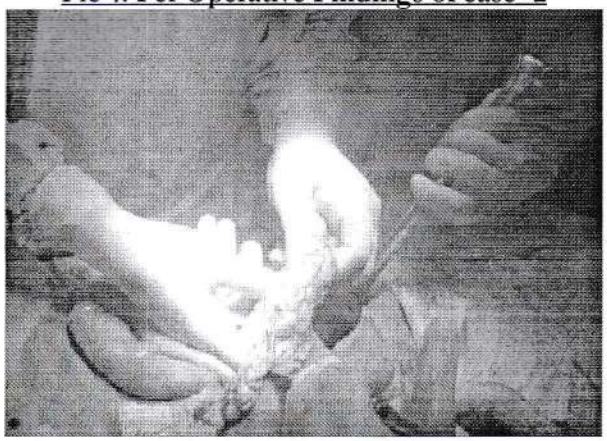
Pic 2: Per-operative findings of case -1



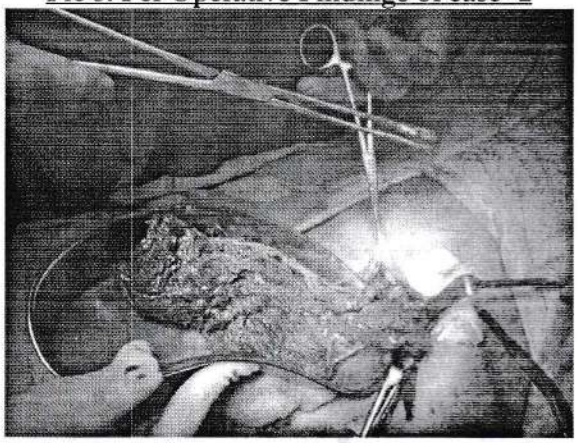
Pic 3: Per-operative findings of case -1



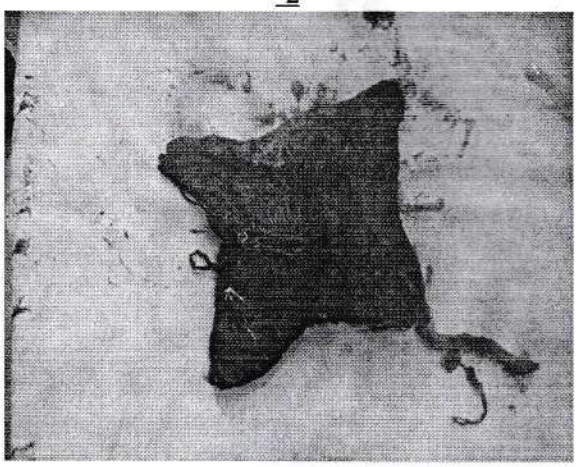
Pic 4: Per Operative Findings of case -2



Pic 5: Per Operative Findings of case -2



Pic 6: Post Operative picture of mop found in case -2



Discussion

Foreign body ingestion and impaction in GIT occurs commonly. The majority of ingested foreign bodies will pass spontaneously[12]. But foreign body with sharp edge has more chance of impaction in anywhere in GIT and have more risk in patients with previous GIT surgery.[8,9]Foreign bodiesof more than 6cm size usually remain in stomach & should be removed endoscopicaly[12].

Accidental ingestion of medication blister is less common. Few are reported with blister containing narcotic packets in GIT used for internal concealment in drug trafficking[13]. ChanEk et al reported a case of 'blister pack' induced gastro intestinal hemorrhage[11]. In our hospital, most patients are taking medications by their own or by the attendant.Injectable drugs are provided by nursing stuffs or paramedics and most of the oral medication of individual dose is supplied by the nurses to patients or attendants. And this a common practice of our health care stuffs to make blister medications as small pieces and supply to patients without adequate instructions about how to take medicine.

Accidental presence of mop inside peritoneal cavity is not very uncommon in medical practice. But large mop inside GIT is unusual. Few cases are reported of mop or surgical sponge migration from peritoneal cavity to intestine, colon, urinary bladder.[14,15] Spontaneous transmural migration of mop into the intestinal lumen is rare but still has been reported.[16]

In 2003,Gawandi and Colleagues[17] describe the most common risk factors associated with retained foreign bodies are emergency operation, unplanned change of operative procedure and higher body mass index of operating patients. The prevention of these conditions can be achieved by meticulous count of surgical materials at the conclusion of operations and also by routine use of surgical textile materials impregnated with radio opaque marker that can be easily detected by intra operative screening when count is suspicious.

Conclusion:

In our daily clinical practice, Doctors, Nurses and other health care stuffs must take care to give proper instructions about how to take medications and avoid making harmful pieces of small blister medications. Presence of foreign bodies like surgical mops as well as the transmural migration of mop from peritoneal cavity to GI tract should be considered in differential diagnosis of abdominal symptoms of patients who had previous history of Laparotomy. Every Surgeon &

OT staff must take adequate preventive measures to avoid these unwanted disasters.

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CASE REPORT

The Osmani Medical Teachers Association Journal Volume 14 Number 2

Stiff person syndrome – A Case Report

Mostafa Hosen[1], Matiur Rahman.[2]

Abstract

A 14 year old girl presented with stiffness of the whole body for five months and Unable to walk for last two months. The stiffness was initially intermittent, and then gradually involved all four limbs including trunks and abdominal musculature. Besides generalized stiffness there were no abnormality in n–eurological examination and her other systemic– examination wa–s normal. Her investigations findings revealed no abnormality. She was diagnosed as stiff- person syndrome and treated acordingly. She was reviewed three weeks later, and showed significant clinical improvemen–t.

[OMTAJ 2015; 14(2)]

Case Report:

A fourteen year old, Bangladeshi, right handed young girl presented with a five months history of stiffness of the whole body that was started from the neck and was associated with slight pain. Then she gradually developed stiffness of both the upper limbs. The stiffness was progressive in nature and subsequently involved the trunk muscles and lower limbs that made her unable to walk and she became bedridden and could not move side to side. The stiffness had no waxing and waning, no twisting movement and no history of changing pattern with sleep. And the stiffness showed no aggravation with noise or any sensory stimuli. She gave no history of difficulty in deglutition, disarthria, deafness, tinnitus, vertigo, visual impairment, palpitation, urinary frequency; and gave no history of fever, unconsciousness or trauma prior to the onset of the stiffness. Her menstrual periods were normal. She had no history of drugs or toxin exposure. None of her family members were affected by such kind of illness and she gave no history of parental consanguinity.

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On examination, she looked ill with normal general examination parameters. She had rock like immobility and stiffness when both upper and lower extremities was attempted to move passively at the day of examination. She was fully conscious and oriented with normal speech. All her cranial nerves were intact including fundoscopy. Motor and sensory functions were normal. Cerebellar functions could not be assessed due to generalized stiffness. All modalities of sensation were intact. Gait was not possible to assess as she could not stand. That is Neurological examination findings revealed no abnormality except generalized stiffness. And other system examination revealed no abnormality.

Laboratory analysis revealed -Haemoglobin – 11.0gm/dl, ESR- 20 mm in 1st hour, blood glucose (random)- 5 mmol/l, ECG- Normal, Chest radiography- normal, Serum Calcium- 9.31 mg/dl, Thyroid function was normal. Ultrasonography whole abdomen was normal. MRI of Cervical Spine with screening of the whole spine showed no abnormality.

She was clinically diagnosed as stiff person syndrome and treatment started with oral Diazepam 10mg/day with oral Baclofen 20mg/day. Doses of both Diazepam & Baclofen were gradually increased. She adjusted both drugs with no side effects. When she was reviewed 3 weeks later, she showed significant clinical improvement with Diazepam 55mg/day with Baclofen 45mg/day.

Discussion

Stiff-person syndrome (SPS) was first described in 1956 by Moersch and Woltman after a review of 14 patients over 27 years. It is an extremely rare neuro-immunologic disorder characterized by progressive muscle rigidity and stiffness with concurrent painful spasms of the axial muscles[1,2]

The exact prevalence of SPS is unknown; however it may be as rare as 1 per 1,000,000(million) person. There is no racial or ethnic predisposition. It affects more females than males, and the age of onset is in the third to sixth decade of life.

SPS may be associated with autoimmune diseases such as type 1 diabetes mellitus, thyroiditis, and pernicious anemia. Paraneoplastic manifestation of SPS may occur with neoplasms in 5% of cases. Anti–glutamic acid decarboxylase antibodies are associated with several autoimmune diseases and detected in 60% of patients with this syndrome.[3,] In some cases of SPS associated with neoplasms such as breast cancer anti-amphiphysin antibodies are detected.[4]

. GABAergic pathways serve as one of the types of inhibitory pathways by which spinal interneurons coordinate motor function by inhibiting spontaneous discharges from spinal motor neurons. Impairment of the GABAergic pathways with deficiency in brain GABA leads to continuous firing of the spinal motor neurons, with resultant stiffness and spasms, which are the hallmark of SPS. [5] It has been demonstrated that antibodies to GABAA receptor–associated (GABARAP) inhibit GABAA receptor expression, leading to GABA receptor instability. This may play a role in SPS pathogenesis.[6]

–

SPS begins insidiously, as rigidity and stiffness in the axial muscles manifesting as achiness of the back in early stages. Over time, rigidity and stiffness progress to involve the proximal limbs. Additionally, concurrent episodic painful spasms are a feature of SPS. These spasms are precipitated by noise, touch, sudden movement, or emotional upset. Hypertonia and superimposed spasms lead to loss of postural reflexes, resulting in falls, with increased risk of fractures. Lumbar or cervical lordosis is a prominent finding in these patients.

As SPS progresses and activities of daily living become difficult, there is the need for use of assist devices for ambulation. Paroxysmal autonomic dysfunction, including diaphoresis, papillary dilatation, tachypnea, tachycardia, hypertension, and hyperpyrexia, has been reported in SPS and may result in sudden death.[7] Dysphagia from Oesophageal dysmotility may occur, leading to aspiration. Anxiety, phobias, and depression are prevalent in SPS patients. Seizures have also been reported.[8]

SPS is a diagnosis of exclusion. Before the diagnosis of SPS can be made, other diagnoses that must be considered in early stage are: Tetanus, Strychnine poisoning and later stage are :
Hereditary spastic paraplegia, Progressive multiple sclerosis, Neuromyotonia, Congenital myopathies, Startle disease, Cervical myelopathy, Metabolic myopathies, Paraneoplastic myelitis.
Workup for SPS includes basic laboratory studies, including complete blood count for anemia, complete metabolic panel, thyrotropin. Antibody testing is useful in the diagnosis of SPS. Anti–glutamic acid decarboxylase antibodies are detected in 60% of patients and are strongly supportive of SPS. Absence of anti–glutamic acid decarboxylase antibodies does not rule out a diagnosis of SPS. Antiamphiphysin antibodies are detected when SPS is associated with malignancy.[4]
Electromyography is a very important diagnostic tool and reveals continuous motor unit activity simultaneously in agonist and antagonist muscles. This motor activity is abolished by diazepam, sleep, or general anesthesia.
Benzodiazepines are generally considered an effective initial therapy for SPS.[8] Diazepam is the benzodiazepine commonly used. Intrathecal or oral baclofen has been used in SPS unresponsive to diazepam.
This particular case of SPS was diagnosed on the basis of clinical ground. Our case responded to Diazepam 55mg/day and Baclofen 45mg/day, with significant clinical improvement but it was not possible to achieve complete remission as she got only 3 weeks therapy. She was advised for weekly follow-up, so that the doses of both drugs can be increased.
In conclusion, we describe a patient with SPS in this report. It is rather unique among neurologic diagnoses because of its lack of significant similarity to any other neurologic disease. Although rare, once observed it is quite unforgettable. Treatment with diazepam and baclofen, resulted in significant clinical improvement in her functional status. Increased awareness of this disease entity is necessary to prevent delay in diagnosis. Early recognition and prompt institution of treatment is paramount to prevent long-term disability. Physicians should be cognizant of the association of SPS with autoimmune diseases and/or malignancy.

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CASE REPORT

The Osmani Medical Teachers Association Journal Volume 14 Number 2

Chronic Ectopic Pregnancy – A Case of Diagnostic Dilemma

Samira Haque[1],Fayeza Karim[1],Farida Yeasmin[2], MA Hannan[3]

Abstract

Preoperative diagnosis of chronic ectopic pregnancy is often difficult and dilemma because of the high incidence of negativeresults on pregnancy tests as a consequence of the very small amount of live villi, with absent or subtle symptoms, and thepoor specificity of ultrasonographic patterns. Tubal or ovarian pregnancy usually ends with rupture. We report the unruptured chronic tuboovarain pregnancy that was initially diagnosed as adnexal tumour. A 30-year woman was attended in a private clinic for evaluation of lower abdominal pain and a 4.9X3.3 cm mass in the right adnexal area with mild ascites. Transvaginal ultrasonography was not available in that area. Repeated USG showed only mild ascites. Right ovarian neoplasm was suspected but other investigations were not favour of pregnancy or malignancy.When a patient experiences lower abdominal pain during a menstrual period, the possibility of ectopic pregnancy should be considered in addition to possible endometriosis.

[OMTAJ 2015; 14(2)]

Case Report

A 30year-old woman,para 2, presented toa private clinic in rural area with complaints oflower abdominal pain and distention, per vaginal irregular but moderate bleeding for 2 month She had no gastrointestinal symptoms, her appetite was normaland her body-weight had not changed. On gynecological examination, a fist-sized, immobile, tender, elastic hard mass was detected in the right side of thecul-de-sac, and no abnormal finding was shown inthe left adnexal area. First ultrasonography revealed ascites but no mass. (Fig. 1). There was no abnormal finding in the uterusor the left ovary, and free fluid was not observed. Second ultrasonography revealed right tubo-ovarian mass of 4.9x3.3cm with ascites (Fig-2). Tests for both human chorionic gonadotropin (HCG) and CA 125 were negative. Although the patient had a regular menstrual cycle of 28 days before 2 month, she could not mention about amenorrhea but irregular p/v bleeding for two month. Taking these findings into consideration, we diagnosed themass as an ovarian neoplasm, however, we still couldn't exclude the possibility of a chronic ectopic pregnancy with just these serological tests and images, in this context, with a thorough informed consent, and we performed laparotomy in orderto make a pathological diagnosis. A 5-cm mass was noted in the ampullary portion of the right tube. Filmy adhesion between the mass and the right ovary, surrounding mesenteries and with the posterior broad ligament, was found. The mass was filled with brownish fluid, containing highly necrotic changes. Histological evaluation confirmed a diagnosis of chronic right tubal pregnancy.

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2. Assistant professor, Obstetrics and Gynaecology, Tairunnessa memorial medical college
3. Junior consultant, Gowainghat upazila health complex, Sylhet

Discussion

Chronic ectopic pregnancy is a tubal gestation that has undergone abortion or repeated minor bleeding episodes, in which the hemodynamic insult is subclinical and self-limiting.[1] Preoperative diagnosis is often difficult because of the high incidence of negative pregnancy

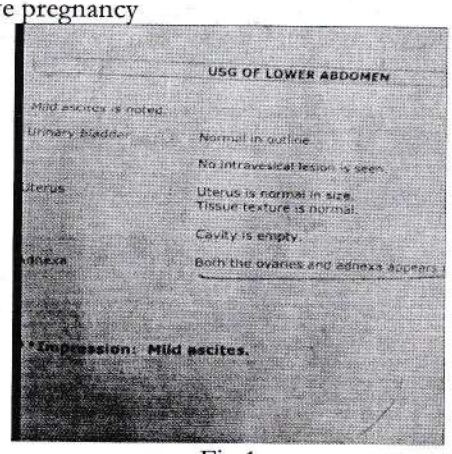
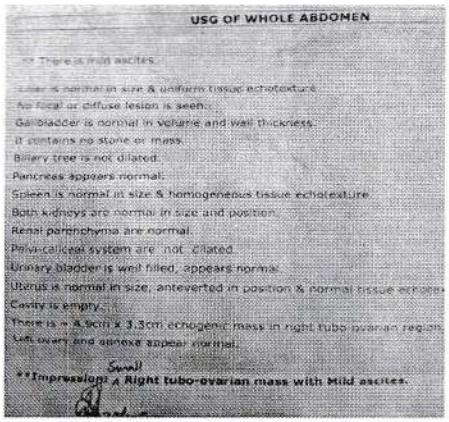


Fig 1


USG OF WHOLE ABDOMEN

There is mild ascites.

Liver is normal in size & uniform tissue echotexture.
No focal or diffuse lesion is seen.
Gallbladder is normal in volume and wall thickness.
It contains no stone or mass.
Biliary tree is not dilated.
Pancreas appears normal.
Spleen is normal in size & homogeneous tissue echotexture.
Both kidneys are normal in size and position.
Renal parenchyma are normal.
Pelvi-caliceal system are not dilated.
Urinary bladder is well filled, appears normal.
Uterus is normal in size, anteverted in position & normal tissue echogen
Cavity is empty.
There is a 4.9cm x 3.3cm echogenic mass in right tubo-ovarian region.
Left ovary and adnexa appear normal.
Small
**Impression: a Right tubo-ovarian mass with Mild ascites.

Fig 2

tests as a result of a very small amount of live villi, subtle symptoms, and the poorspecificity of ultrasonographic patterns.[2] Because HCG levels cannot reliably eliminate the risk of tubal rupture in the case of chronic ectopic pregnancy, it should be considered in the differential diagnosis of patients with an adnexal mass even with low HCG levels and regular menses.[3,4] Curry *et al.* reported thecase of chronic ectopic pregnancy, diagnosed using hysterosalpingography, as a rare case.[5] It was reported that an adnexal mass of chronic ectopic pregnancy, which was adherent to omentum, was demonstrated with extensive external vascularization, but with no internal blood flow on Doppler ultrasonography.[6] In our case, there was only filmy adhesion around the right adnexal mass, indicating that ultrasonography might not give us useful information for diagnosis. The mass that occurs as the final form of chronic ectopic pregnancy is usually a conglomeration produced by adhesion between the inflamed tube after degeneration of the conceptus and surrounding structures, often containing blood and necrotic debris.[7,8] In most cases, it occupies one adnexa and the cul-de-sac, yielding the heterogenous echopattern. Some cases, around 10% of the cases Turan*et al.* examined, revealed a predominantly solid pattern.[7] Another ultrasonographic finding that may help diagnosis is simple fluid collection in the pelvic cavity resulting from old blood, although a big difference inits incidence has been seen depending on the report. In summary, the sonographic pattern of ectopic pregnancy is very similar to that of pelvic inflammatory diseases and ovarian neoplasm without any specific feature. That is why there are few papers reporting that ultrasound plays a key role in its diagnosis. Accordingly, the differentiation of chronic ectopic pregnancy without positive pregnancy tests from those other pelvic pathologies can only rely on a history of amenorrhea. Consequently, in almost all cases, diagnosis is possible only after pathological examination. In our case, however, the mass consistedonly of the conceptus and a thick capsule, accompaniedby infiltration of blood cells, fibrin deposition, and fibrotic change. We speculate that, if the natural course had been observed, it would have resulted infindings identical to those of other cases reported previously. This case was intriguing and novel because chronic ectopic pregnancy was detected at an early stage before absorption of the conceptus occurred, which coincidentally is an appropriate time for morphological diagnosis.

Conclusion

When a patient experiences low abdominal pain during a menstrual period, the possibility of ectopic pregnancy should be considered in addition to possible endometriosis. Ovarian or other abdominal pregnancies, even unruptured, may be discriminated from other lesions in cases of abdominal pain by appropriate technology if available.

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Letters about potentially acceptable manuscripts will be sent to the corresponding author after the review process is complete.

[1] Recommendation for the conduct, Reporting, Editing and Publication of Scholarly work in Medical Journals (ICMJE Recommendations). International Committee of Medical Journal Editors. Available at www.icmje.org/icmje-recommendations

[2] Additional information regarding manuscript reparation and relevant editorial policy is available in the editorial office

Covering letter to the Editor for submission of manuscripts

To
The Editor
The OMTAJ
Sylhet MAG Osmani Medical College,
Sylhet-3100

Subject: Submission of manuscript

Dear Sir,

I/we am/ are submitting along with a manuscript for Original Article/ Case Report/ Review Article/ Medical Progress/ Occasional Note/ Others, having title:----------
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---------- for publication in the OMTAJ.

I/we mention that the manuscript had not been **submitted to,** or **accepted for publication,** or **published** in any form, in any other journal partially, or completely.

We also agree with the following orders of authorship to the manuscript, and we also certify that the authorship will not be contested by anyone whose name is not listed here.

Authors chronology	Signature
1.	
2.	
3.	
4.	
5.	

Corresponding Author: ----------Signature:----------

Address:----------