



Journal of Tangail Medical College

Volume: 2

Number: 2

July, 2025

JTMC

**Official Journal of
Tangail Medical College, Tangail
<https://tmctangail.college.gov.bd>**

Journal of Tangail Medical College

Volume: 2

Number: 2

July, 2025

CONTENTS

EDITORIAL

- Pharmacogenomics: A Critical Step Toward Precision Therapy** 39-40
Alam AFMS

ORIGINAL ARTICLE

- Repair of Inguinal Hernia as A Day Case Surgery.** 41-46
Hossain MA, Rokonuzzaman SM, Hossain SZ, Singha SK, Yasmin S, Haque AKML

- Assessing the Effectiveness of Informed Consent Practices in Modern Medical Care: A Cross-Sectional Study in Bangladesh** 47-54
Uddin J, Khan RH, Islam RN, Kabir T, Akter A, Das MK

- Diagnostic Value Of Ascitic Fluid Adenosine Deaminase (ADA) In Abdominal Tuberculosis** 55-67
Dhar UC, Sarker B, Rahman AFSMS, Alam AFMS

- Outcomes of Dynamic Condylar Screw Fixation for The Treatment of Distal Femur Fractures** 68-74
Mohammed KH, Rokonuzzaman SM, Rahman MM, Singha SK, Pervin A, Yasmin S

- Association of Peri-tumoral Brain Edema in MRI of Brain with WHO grade in Intracranial meningioma** 75-90
Saha SK

REVIEW ARTICLE

- Review of New Treatments for Paucibacillary Leprosy** 91-94
Alam AFMS

CASE REPORT

- Molar Pregnancy with a Co-Occurring Normal Viable Foetus and a Successful Pregnancy Outcome: A Case Report** 95-99
Nahar NS, Reshma SA

Journal of Tangail Medical College

Volume 2, Number 2

July, 2025

Address of correspondence:

Editor

Journal of Tangail Medical College

Telephone: +880 1818074182, +880 1712683072

Office: 029977-14125

Email: tmctjournal@gmail.com

Website: <https://tmctangail.college.gov.bd>

Published biannually (January and July)

By the editorial board of Tangail Medical College, Tangail

JOURNAL OF TANGAIL MEDICAL COLLEGE

EDITORIAL BOARD

Chairman

Professor Dr. Md. Nurul Amin Miah.
Principal, Tangail Medical college

Editor in Chief:

Dr Abul Fazal Shah Muhammad Shazedur
Rahman.
Assistant Professor of Physiology

Executive Editors:

Dr Md. Fakhrul Amin Badal, Assistant professor of
Neonatology
Dr Md. Iqbal Hossain Talukder. Assistant
professor of Surgery
Dr Binoy Kumar Das, Associate Professor of oral
and Maxillo-Facial surgery.
Dr Mufazzal Hossain. Assistant Professor Of
Cardiology
Dr Md. Shajedur Rahman. Assistant Professor of
Biochemistry.
Dr. Ujjal Chandra Dhar. Assistant Professor of
Physiology.
Dr Md Ariful Islam, Curator of pathology.
Dr Md. Toufique Hasan Khan. Assistant Professor
of Anatomy.
Dr Abdul Wahed. Assistant Professor of
Pathology.
Dr Ataul Gani Usmani. Lecturer of Community
Medicine.

General Members:

Dr Md Rashedul Hasan. Assistant Professor of
Medicine..
Dr A. K M Habibullah Bahar. Assistant Professor
of Medicine.
Dr. Md. Samiul Islam. Assistant Professor of
Cardiology.
Dr Md Rokibul Alom. Assistant Professor of ENT.
Dr Rokibul Hasan Khan. Assistant Professor of
Forensic Medicine,
Dr Kamrun Nahar. Lecturer of Biochemistry.
Dr Shafia Mollah. Lecturer of Microbiology.
Dr Shah Abdullah Al Touhid. Lecturer of
Physiology

ADVISORY BOARD

Dr Md Abdul Kuddus. Director of Tangail
Medical college Hospital.Tangail.
Dr S M Rokunuzzaman. Associate Professor
of Orthopedics.
Professor Dr. Md. Touhidul Islam.
Department of Physiology.
Dr Mohammad Abu Hanif. Associate
Professor of Surgery.
Prof. Dr Md Mahbubur Rahman. Professor of
Surgery.
Dr Md. Anisur Rahman. Associate professor
of Nephrology.
Dr Md. Mokhlesur Rahman, Assistant
Professor Of Orthopedics.
Dr Md. Alauddin. Associate professor of
Respiratory Medicine.
Dr S. M. Rahat Hossain. Associate professor
microbiology.
Dr Rehana Pervin. Assistant professor of
gynae & Obs.
Dr. Mukti Rani Mitra. Associate professor of
Ophthalmology
Dr Mohammad Waliul Hasnat
Sajib.Associate Professor of Psychiatry
Dr Shilpi Choudhury. Assistant Professor of
Anatomy
Dr Sujit Kumar Sarker. Associate Professor
Pharmacology
Dr Md. Oyes Quroni. Assistant Professor of
Pathology

Associate Members:

Dr Zakaria Al Aziz. Associate Professor of
Medicine, DMCH. Member Secretary,
Society of Medicine. Bangladesh.
Dr. Md. Asjadur Rahman. Assistant
Professor Orthopedics, NITOR.
Dr A F Mohammad Shafiqul Alam. Associate
Professor of Pharmacology, DMC, Dhaka.

JOURNAL OF TANGAIL MEDICAL COLLEGE

PEER REVIEWERS PANEL

Name	Designation	Institute
Prof. Dr. Md. Touhidul Islam	Professor (Physiology)	Tangail Medical College
Prof. Dr. Anisur Rahman	Professor (Nephrology)	Tangail Medical College
Prof. Dr. Nadim Ahmed	Professor (Surgery)	Dhaka Medical College
Prof. Dr. Tabassum Gani	Professor (Gynae-obs)	Tangail Medical College
Prof. Dr. Md. Aslam Hossen	Professor (Surgery)	Shaheed Suhrawardy Medical College
Prof. Mir Mohammad Shoyeb Shahabuddin	Professor (Pharmacology)	Jamalpur Medical College
Prof. Dr. Richmond Ronald Gomes	Professor (Medicine)	Ad-Din Women's Medical College, Maghbazar, Dhaka
Prof. Afroza Sultana	Professor (Pharmacology)	Mugda Medical College
Dr. ABM Shakil Gani	Associate Professor (Hepatology)	Dhaka Medical College
Dr. Syed Atiqullah	Associate Professor (Medicine)	Dhaka Medical College
Dr. Md. Saiful Islam	Associate Professor (Community Medicine)	Sir Salimullah Medical College, Dhaka
Dr. A F Mohammed Shafiqul Alam	Associate Professor (Pharmacology)	Dhaka Medical College
Dr. Shakil Shams	Associate Professor (Anatomy)	Dhaka Medical College
Dr. S. M. Rahat Hossain	Associate Professor (Microbiology)	Tangail Medical College
Dr. Mohammad Saifuddin	Associate Professor (Endocrinology)	Dhaka Medical College

INFORMATION FOR CONTRIBUTORS

1. Manuscript Eligibility and Language Requirements

Manuscripts written in English on biomedical topics are eligible for publication if they have not been previously published and are not currently under consideration elsewhere. This ensures originality and exclusivity of the submitted work.

2. Manuscript Submission Requirements

Authors must retain one copy of their manuscript for personal reference. They are required to send three hard copies along with a soft copy (in MS Word format) to the managing editor. This protocol facilitates multiple levels of review and archiving.

3. Authorship Criteria

The primary author must explicitly state the relevance and contribution of all coauthors. Only individuals who have made significant contributions should be listed as coauthors. Irrelevant persons or those without contribution should not be included, maintaining ethical standards of authorship.

4. Types of Acceptable Manuscripts

The journal accepts a variety of submission types including original research, review articles, special articles, case reports, recent advances, new techniques, book reviews related to clinical or medical education, adverse drug reaction reports, and letters to the editor. This broad scope covers diverse biomedical literature formats.

5. Eligibility to Write Review Articles

An author may only submit a review article if they have previously published at least two original research articles and four case reports on the same topic. This criterion ensures that reviewers have sufficient expertise and experience in the subject area.

6. Manuscript Structure and Organization

Manuscripts must follow a structured format with each section starting on a new page and presented in this order:

- Title page
 - Abstract
 - Text (including Introduction, Materials & Methods, Results, Discussion)
 - References
 - Acknowledgements
- This organization facilitates clarity and uniformity in manuscript presentation.

7. Pagination Requirements

All pages must be numbered consecutively starting with the title page. The page number should be placed at the lower-right corner of each page, aiding in easy navigation and reference.

8. Font and Typography Specifications

The manuscript text must use the 'Times New Roman' font with specific sizes for different sections:

- Title: 16 pt
- Abstract: 10 pt
- Main text: 12 pt

9. Paper and Formatting Guidelines

Manuscripts should be typed or printed on white, ISO 'Letter' size paper with at least 25 mm margins, using only one side of the paper. Double spacing is mandatory throughout all parts of the manuscript, including the title page, abstract, text, acknowledgements, references, tables, and figures, facilitating easier reading and editing.

10. Column Layout

Text should be printed in two columns per page, except for the abstract. This layout optimizes space and readability.

11. Title Page Details

The title page must include:

- A concise, informative, and self-explanatory title
 - Names of all authors along with their departmental affiliations
 - Email addresses and phone numbers of all authors
 - Identification of the corresponding author for communication and reprint requests
 - Disclosure of any conflicts of interest or financial support received; if none, a statement declaring "no conflict of interest is declared" must be included
- These details ensure transparency and facilitate correspondence.

12. Abstract Format

The abstract must be structured and include:

- Introduction/Background
 - Aims/Objectives
 - Materials & Methods
 - Results
 - Conclusion
 - Key words (3 to 5)
- It should be concise, not exceeding 300 words, providing a brief yet comprehensive overview of the study.

13. Main Text Presentation

The main text should be divided into the following sections:

a. Introduction:

- Presents the purpose and rationale for the study

- Includes only strictly pertinent references
 - Avoids extensive literature reviews or presentation of data/conclusions from the reported work
- b. Materials & Methods:**
- Details study design and sampling methods
 - Documents consent obtained from participants
 - Precisely identifies all drugs and chemicals (generic names, doses, routes)
 - Uses SI units for quantitative measurements
- c. Results:**
- Presented logically through text, tables, and illustrations
 - Statistical analysis follows standard procedures and must be conducted by a qualified statistician or expert
- d. Discussion:**
- Authors analyze and interpret results, comparing with contemporary studies
 - Includes arguments and critical appraisal of similar work by others
 - Does not require a summary at the end, but brief acknowledgements may be included
- e. Tables:**
- Must be numbered and titled clearly
 - Authors are encouraged to limit tables to five per article to maintain conciseness
- f. Illustrations and Figures:**
- Source must be acknowledged
 - Figures should be submitted as high-resolution JPEG files
 - Recommended limit of five figures per article to ensure clarity
- g. Abbreviations and Symbols:**
- Only standard abbreviations should be used
 - Avoid abbreviations in the article title to maintain clarity

14. References

References must adhere strictly to the Vancouver style, with specific guidelines:

- Double-space references throughout
- Number references in the sequence they appear in the text and cite using superscript Arabic numerals
- Authors are responsible for accuracy and completeness
- For more than six authors, list first three followed by “et al.”
- Use Index Medicus abbreviations for journal titles
Examples include:
- Journal article: Author(s). Title. Journal. Year; volume:pages.
- Book: Author. Title. Place: Publisher; year:pages.
- Book chapter: Author(s). Chapter title. In: Editor, ed. Book title. Place: Publisher; year:pages.
This standardized referencing ensures consistency and easy verification.

15. Editorial Process

- Manuscripts will be reviewed by the editorial board and sent to external reviewers for evaluation
- Rejected manuscripts will not be returned
- Authors are encouraged to correct proofs promptly
- No reprints will be provided
- The editor reserves the right to modify style, shorten accepted material, and decide publication timing and priority
- The editor assumes honesty of the work but does not conduct scientific investigation
This process maintains quality and ethical standards in publication.

16. Submission Email

All manuscripts must be sent electronically to: tmctjournal@gmail.com for consideration.

EDITORIAL**Pharmacogenomics: A Critical Step Toward Precision Therapy***Alam AFMS*

Pharmacogenomics—the study of how genetic variation influences drug response—has become a cornerstone of modern precision medicine. Healthcare systems around the world are having a hard time with more drug-related illnesses, higher treatment costs, and more requests for personalized care. Adding pharmacogenomic data to everyday practice could be a game-changing solution.

Adverse drug reactions (ADRs) are still a big problem for public health around the world. They make up about 5–10% of all hospital admissions and put a lot of stress on both patients and healthcare resources.¹ Age, weight, organ function, and other health problems are the main things that doctors use to decide what to prescribe. But these factors alone don't always help us guess whether a treatment will work or cause harm. Pharmacogenomics provides a crucial dimension of understanding by pinpointing genetic variants that influence drug metabolism, transport, and response in patients.

Pharmacogenomic testing has already shown to be very useful in the clinic. For instance, differences in the CYP2C19 gene affect how well clopidogrel works, with poor metabolizers having less antiplatelet activity and a higher risk of cardiovascular events.² It is also very important to test for HLA-B*15:02 before giving carbamazepine to people of Asian descent to avoid dangerous reactions like Stevens–Johnson syndrome.³ These successes show that pharmacogenomics has the potential to save lives, lower healthcare costs, and make treatments more effective.

Despite its potential, the clinical integration of pharmacogenomics encounters numerous challenges. Clinicians don't know much about it, there aren't any standard guidelines, it's too expensive, and the lab infrastructure isn't good enough. These are all common problems, especially in low- and middle-income countries. Also, to gain the public's trust, ethical issues about the privacy of genetic data must be dealt with.

To get past these problems, national policies need to support building up laboratory capacity, adding clinical decision-support tools, and including pharmacogenomics in medical and pharmacy school programs. Collaborative initiatives, like the Clinical Pharmacogenetics Implementation Consortium (CPIC), give clear instructions that can help different types of healthcare settings adopt new ideas.⁴ As genomic testing gets faster and cheaper, it will become a normal part of patient care instead of just a specialized tool.

Pharmacogenomics signifies a scientific advancement and a transformative shift in medical philosophy. It is both necessary and unavoidable to move from reactive to predictive therapy. Healthcare systems can make sure that patients get safer, more effective, and fairer treatment in the future by using pharmacogenomics today.

Dr. A F Mohammed Shafiqul Alam

Associate Professor of Pharmacology
Dhaka Medical College, Dhaka
Phone: 01818074182

Received: 29th May, 2025

Accepted: 12th June, 2025

References:

1. Pirmohamed M, James S, Meakin S, Green C, Scott AK, Walley TJ, et al. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. *BMJ*. 2004;329(7456):15–9.
2. Scott SA, Sangkuhl K, Stein CM, Hulot JS, Mega JL, Roden DM, et al. Clinical Pharmacogenetics Implementation Consortium guidelines for CYP2C19 and clopidogrel therapy. *Clin Pharmacol Ther*. 2013;94(3):317–23.
3. Chung WH, Hung SI, Hong HS, Hsieh MS, Yang LC, Ho HC, et al. Medical genetics: a marker for Stevens–Johnson syndrome. *Nature*. 2004;428(6982):486.
4. Relling MV, Klein TE. CPIC: Clinical Pharmacogenetics Implementation Consortium of the Pharmacogenomics Research Network. *Clin Pharmacol Ther*. 2011;89(3):464–7.

ORIGINAL ARTICLE**Repair of Inguinal Hernia as A Day Case Surgery.****Hossain MA¹, Rokonzaman SM², Hossain SZ³, Singha SK⁴, Yasmin S⁵, Haque AKML⁶.****Abstract:**

Background: Inguinal hernias are common and inguinal hernia repair is one of the most common general surgical operations,

Objective: To see the outcome of day-case inguinal hernia repair for older patients (aged 50-70).

Method: This comparative study was conducted in Dhaka Medical College Hospital from January 2017 to December 2017 over a period of one year. One hundred patients with inguinal hernia were included in this study. Fifty patients age above 50 years underwent day care inguinal hernia repair (Group A) and in group B, 50 patients age below 50 years underwent Inpatient Elective Inguinal hernia repair. The collected data were entered and analyzed using SPSS-12. Numerical data was analyzed using student's test and categorical data was analyzed using Chi-square test. A p value 0.05 was considered as level of significance.

Result: Mean age of the patients was 59.16 ± 5.59 years and 56.62 ± 8.60 years in group A and group B respectively. In group A, all patients were male 50 (100%) but in group B, 48 (96.0%) were males and 2 (4.0%) were females. In group A, planned admission was 60% and unplanned admission was 40% but in group B, all of the cases were planned admission. In study group A, right sided inguinal hernia was 56.0%, left sided 30% and bilateral was 14% but in group B, 50% was right sided, 26% was in left sided and 24% was bilateral inguinal hernia. In group A, local complication developed in 5 patients (10%) but no general complication. In group B, local complication developed in 11 patients (22%) and general complication developed in 3 patients (6%). More patients were satisfied in group A (90.0%) than group B (80.0%).

Conclusion: Outcome of day care inguinal hernia repair in elderly patients and Inpatient Elective Inguinal hernia repair in young patients is almost similar. With good preoperative assessment and patient selection, elderly patients with inguinal hernia can be safely treated on a day-case basis. Outcome of day care inguinal hernia repair in elderly patients and Inpatient Elective Inguinal hernia repair in young patients is almost similar.

J. Tangail Medical College, 2025;2(2): 41-46

1. Dr. Md. Aslam Hossain, Associate professor (Surgery), Shaheed Suhrawardy Medical College, Dhaka Phone: 01711960678. (Correspondence)
2. Dr. S.M. Rokonzaman, Associate Professor, (Orthopaedics) Tangail Medical College, Tangail.
3. Dr. Syed Zakir Hossain, Assistant Professor (Orthopaedics), Dhaka Medical College & Hospital, Dhaka.
4. Dr. Sudhangsu Kumar Singha, Associate Professor (Orthopaedics), Tangail Medical College, Tangail
5. Dr. Sabina Yasmin, Lecturer, Community Medicine, Tangail Medical College, Tangail.
6. Dr. A K M Lutful Haque, Registrar, Surgery, Tangail Medical College Hospital, Tangail.

Received: 5th February, 2025

Accepted: 21st March, 2025

Introduction:

Abdominal wall hernias are common, with a prevalence of 1.7% for all ages and 4% for those aged over 45 years. Inguinal hernias account for 75% of abdominal wall hernias, with a lifetime risk of 27% in men and 3% in women.¹ Repair of inguinal hernia is one of the most common operations in general surgery.

Guidelines drawn up by the Royal College of Surgeons in the UK argue that day surgery is the ideal treatment approach from the point of view of patient care, efficiency, and patient satisfaction for numerous operations, and the best choice for 50% of patients having to undergo surgery.²

The advantages of inguinal hernia (IH) repair as a day surgery procedure, i.e. quicker mobilization, patient satisfaction and cost reduction, had been described in the literature already in 1955.³ Observational studies have quantified the cost savings achievable with this approach, showing that surgery for IH repair in patients staying in hospital costs 56% more than day surgery.^{4,5}

In our country Day Care Surgery is being practiced in a limited manner in the Department of Surgery, Dhaka Medical College Hospital, Dhaka. This approach is considered in wider scale as socio economic limitations put restraints on our existing surgical health care delivery systems.

Inguinal hernia repair is one of the most common operations performed on day case general surgery basis. Day surgery inguinal hernia repair has many advantages over in-

patient surgery, including avoidance of stress and inconvenience or hospitalization and reduction of the risk of contracting nosocomial infection. For the hospital it is a most effective means of providing patients care relieving in-patient beds and helping to shorten the waiting time for hernia repair with rapid expansion of day care surgery. It is being offered to higher risk groups, like elderly people, post operative adverse effects on the cardiac, pulmonary cerebral and urinary systems are less well tolerated by elderly surgical patients, because of lower physiological reserves and increased co-morbidity.

Day case inguinal hernia repair is now being more widely practiced in our country than the previous. Now-a-days even the older patients are also being included in our country. Careful literature search couldn't find any data regarding the outcome of day-case inguinal hernia repair in elderly patients of our country. So it is utmost necessary to find out the outcome for the older group in our country also. The objective of this study was to look at the outcome of day-case inguinal hernia repair for older patients (aged 50-70), in terms of unplanned admission, per operative and post-operative complications, morbidity, mortality, and patient satisfaction, in comparison with younger patients (aged below 50).

METHODS

This comparative study was conducted in Dhaka Medical College Hospital from January 2017 to December 2017 over a period of one year. One hundred patients

with inguinal hernia were included in this study. In this present study, 50 patients age above 50 years underwent day care inguinal hernia repair (Group A) and in group B, 50 patients age below 50 years underwent Inpatient Elective Inguinal hernia repair. Obstructed and strangulated inguinal hernia patients, other groin hernia e.g. Femoral, previous Trans urethral surgery e.g. prostatectomy or other urological surgery, malignancy other than prostate cancer, associated medical diseases e.g. uncontrolled diabetes mellitus, renal failure, chronic liver disease were excluded from this study. The collected data were entered and analyzed using SPSS-12. Numerical data was analyzed using student's test and categorical data was analyzed using Chi-square test. A p value 0.05 was considered as level of significance.

The operations were performed by a consultant or a Senior Surgical

Registrar/Asst. Registrar. After the operation, patients stayed in the recovery room for 1 hour or more for close follow up, when patients could void and walk, they were transferred to ward and subsequently referred them to home within 24 hours. Each patient was given written instructions, an explanation of the possibilities of bleeding and occasional ecchymosis or infection. Patients were also instructed to take antibiotics regularly for 7 days and analgesics tablets on arrival home whether pain free or not. Patients follow up was done over telephone and satisfaction with care were obtained by means of routine follow up and over telephone.

Results:

In this study, 50 patients age above 50 years underwent day care inguinal hernia repair (Group A) and in group B, 50 patients age below 50 years underwent Inpatient Elective Inguinal hernia repair.

Table- 1: Demographic profile of the study populations

	Group A (n=50)	Group B (n=50)	p-value
Age in year (mean±SD)	59.16 ± 5.59	36.62±8.60	<0.001
Gender			
Male	50 (100.0)	48 (96.0)	0.476
Female	0 (0.0)	2 (4.0)	

Mean age of the patients was 59.16 ± 5.59 years and 36.62±8.60 years in group A and group B respectively. In study group A, all

patients were male 50 (100%) but in group B 48 (96.0%) were males and 2 (4.0%) were females.

Table- 2: Site of inguinal hernia of the study populations

Admission criteria	Group A (n=50)	Group B (n=50)	p-value
Planned	30 (60.0)	50 (100.0)	<0.001
Unplanned	20 (40.0)	0 (0.0)	

In group A, planned admission was 60% and unplanned admission was 40% but in

group B, all of the cases were planned admission.

Table- 3: Site of inguinal hernia of the study populations

	Group A (n=50)	Group B (n=50)	p-value
Right	28 (56.0)	25 (50.0)	0.443
Left	15 (30.0)	13 (26.0)	
Bilateral	7 (14.0)	12 (24.0)	

In group A, right sided inguinal hernia was 56.0%, left sided 30% and bilateral was 14% but in group B, 50% was right sided,

26% was in left sided and 24% was bilateral inguinal hernia

Table- 4: Pattern of complications

Patten	Group A (n=50)	Group B (n=50)	p-value
Wound seroma	1 (2.0)	1 (2.0)	1.000
Wound hematoma	2 (4.0)	1 (2.0)	1.000
Wound infection	1 (2.0)	3 (6.0)	0.617
Scrotal haematoma	0 (0.0)	2 (4.0)	0.494
Urinary retention	1 (2.0)	4 (8.0)	0.362
Pulmonary complication	0 (0.0)	3 (6.0)	0.242

In group A, local complication developed in 5 patients (10%) but no general complication. In group B, local

complication developed in 11 patients (22%) and general complication developed in 3 patients (6%).

Table- 5: Patients satisfaction

	Group A (n=50)	Group B (n=50)	p-value
Satisfied	45 (90.0)	40 (80.0)	0.161
Unsatisfied	5 (10.0)	10 (20.0)	

More patients were satisfied in group A (90.0%) than group B(80.0%).

Discussion:

Although the overall outcomes of day care hernia repair have been reported^{6,7} less is known about the outcome of day care hernia repair for the elderly patients. Western people are working on this field, so it is utmost necessary to find out the outcome of day care inguinal hernia repair for older patients (aged 50-70 yrs) in-terms of unplanned admission, per operative and postoperative complications morbidity and mortality and patient satisfaction in comparison with a control group of younger patients (aged below 50 yrs).

44 patients (88%) left the hospital on same day and 6 patients (12%) could not left on the same day because of severe pain (one case), early complications (two case) patients preference (two cases) and long distance (one case). There was no mortality.

During observation period in recovery room and in the ward patients were observed for complication in both group. In group A, local complication developed in 5 patients (10%) but no general complication. In group B, local complication developed in 11 patients (22%) and general complication developed in 3 patients (6%). This study demonstrates that day care inguinal hernia repair can be safely offered to elderly

patients with no significant increase in complications compared with younger patients. This outcome was achieved despite higher percentage of ASA- II patients in the elderly group and is comparable with results from a recent study evaluating other day surgery outcome in ASA- III and ASA- IV patients.

A major indication of quality of care in day surgery in the incidence of unplanned admission after the procedure in other studies most of the patients in both group were successfully discharged. There were no significant difference between unplanned admission for the elderly (14%) and younger patient (12%) and these number are within the range of 2-15% reported by the commission for health audit in united kingdom⁸, post operative telephone follow up 24 hours after surgery showed that 3 patient (6%) in elderly group and 4 patient (8%) in younger group required medical help. None of these patients needed hospital admission.

Conclusion:

In this study, elderly and the younger patients undergoing day-case inguinal hernia repair experienced similar outcomes in respect of postoperative symptoms and satisfaction. With good preoperative

assessment and patient selection, elderly patients with inguinal hernia can be safely treated on a day-case basis.

London: Department of Health, NHS; 2002. p. 1-40.

References

1. Kingsnorth A, LeBlanc K. Hernias: inguinal and incisional. *Lancet*. 2003;362(9395):1561-71.
2. The Royal College of Surgeons of England. Guidelines for day case surgery. London: RCSENG - Professional Standards and Regulation; 1992.
3. Farquharson EL. Early ambulation; with special reference to herniorrhaphy as an outpatient procedure. *Lancet*. 1955;266(6873):517-9.
4. Mitchell JB, Harrow B. Costs and outcomes of inpatient versus outpatient hernia repair. *Health Policy*. 1994;28(2):143-52.
5. Weyhe D, Winnemoeller C, Hellwig A, Meurer K, Plugge H, Kasoly K, et al. §115 b SGB V threatens outpatient treatment for inguinal hernia: analysis of outcome and economics. *Chirurg*. 2006;77(9):844-55.
6. Lau H, Lee F. An audit of the early outcomes of ambulatory inguinal hernia repair at a surgical day-care centre. *Hong Kong Med J*. 2000 Jun;6(2):218-20.
7. Farrakha M, Shyam V, Bebars G, Yacoub M, Bindu K, Kolli S. Ambulatory inguinal hernia repair with prolene hernia system (PHS). *Hernia*. 2006 Mar;10(1):2-6.
8. Darzi A. Day surgery: operational guide. Waiting, booking and choice.

ORIGINAL ARTICLE

Assessing the Effectiveness of Informed Consent Practices in Modern Medical Care: A Cross-Sectional Study in Bangladesh

Uddin J¹, Khan RH², Islam RN³, Kabir T⁴, Akter A⁵, Das MK⁶

ABSTRACT

Introduction: Informed consent is a cornerstone of the ethics of modern medical care. In an ideal world, informed consent is a process of education – a conversation between a surgeon and a patient or family that allows the patient or family to make the best possible decision regarding care.

Objective: To assess the informed consent of modern medical care.

Material and methods: This study is a cross sectional study using in depth interviews to assess the information given to patient and to assess how efficiently forms consent were filled, preoperatively. The study was carried out in Dept. Of Forensic Medicine, Dhaka Medical College Hospital, Bangladesh from January to December 2022. All interviews were carried out in privacy and both patients and their relatives were assured of confidentiality. Patients related data of name, age, sex, education, monthly income and admission date, surgery date and diagnosis were recorded from medical sheet. Then structured interview was conducted which was based on fourteen points in the checklist and marked as yes or no according to responses given by patients.

Observation: This study assessed the level of information provided to 200 patients before undergoing surgery using a validated checklist. Each patient's responses were categorized as "Yes" or "No" based on whether specific information was shared. Average "Yes" responses were analyzed across various demographic and clinical categories, including age, sex, educational status, economic status, and type of surgery (emergency or elective). Graphical representations highlighted the following key findings: Patients younger than 60 years (n=168) were better informed than those over 60 (n=32), with average "Yes" responses of 11 and 8, respectively. Male and female patients had similar levels of information, with averages of 10.2 and 10.9, respectively. A direct correlation was observed, with higher educational levels linked to better information provision. Graduates received the most comprehensive information. Patients with higher economic status were more informed compared to other categories. Elective surgery patients were better informed than emergency cases. Checklist data revealed high compliance (84–100%) with basic procedural information but significant gaps in explaining risks (34%), alternatives (26%), and the risks and benefits of alternatives (24%). Post-operative care was addressed for 94% of patients, but only 70% had discussions summarized, and 60% were informed about resuming work. The informed consent forms met most legal and procedural requirements but showed deficiencies in documenting practitioners' roles (0%) and date/time of consent (42%). These findings underline the need for enhanced patient education, particularly for those in vulnerable demographics, and more comprehensive documentation practices.

Conclusion: To improve the process of informed consent creating awareness among doctors, taking consent is critical. In general, all doctors are aware about the process and importance of consent taking but certain fine details such as what all components have to be informed to the patient have to be made clear. Such practices cannot be removed by introducing rules and regulation rather creating awareness of the necessity and legal implication of informed consent would improve the process of consent taking.

Keywords: Informed, Informed Consent, Modern Medical Care.

J. Tangail Medical College, 2025;2(2): 47-54

Received: 27th February, 2025

Accepted: 3rd April, 2025

1. Dr. Jasim Uddin, Associate Professor, Department of Forensic Medicine and Toxicology, Ashiyan Medical College, Bangladesh. Phone: 01309155188. (Correspondence)
2. Dr. Rakibul Hasan Khan, Assistant Professor, Department of Forensic Medicine and Toxicology, Tangail Medical College, Bangladesh.
3. Dr. Rifat Naoreen Islam, Professor (CC), Department of Forensic Medicine and Toxicology, Medical College for Women and Hospital, Bangladesh

4. Dr. Towhidul Kabir, Assistant Professor, Department of Forensic Medicine and Toxicology, United Medical College & Hospital, Bangladesh
 5. Dr. Afroza akter, Lecturer, Department of Physiology, Ashiyan Medical College, Bangladesh
 6. Dr. Malay Kumar Das, Assistant Professor, Department of Forensic Medicine and Toxicology, Army medical college, Bogura, Bangladesh
-

INTRODUCTION

Informed consent is a cornerstone of the ethics of modern medical care. In an ideal world, informed consent is a process of education – a conversation between a surgeon and a patient or family that allows the patient or family to make the best possible decision regarding care. The consent form was designed to serve as documentation of this conversation. However, in recent times, the consent form itself has become a medico legal necessity. (1) Informed consent is an established ethical and legal requirement for surgical treatment. It has important roots in Anglo-American political theory and has been articulated in the law in a series of judicial decisions (2,3). Informed consent also forms the ethical foundation for the modern practices of shared decision making and patient-centered care (4). Informed consent has increasingly become a major topic of discussion and debate. While the need for client participation in healthcare decision making has been acknowledged, its implementation has been varied and individualistic. Studies from developing countries show that patients view written consent as ritualistic and bureaucratic. Some feel frightened or pressured to give consent (5,6). Considering the above, researchers in India are beginning to recognize the limitations of standard informed consent

Sampling method and size: The convenient sampling method was used. Sample size of 200 was calculated using statistical software by using sample size of previous related studies and taking degree of freedom as 5.

forms. For non-literate and semi-literate persons, this document is viewed with suspicion and one to which they are reluctant to affix their signatures or thumb impressions. In order instances, the informed consent process has become a mere formality with subject/patients simply acquiescing to whatever is required of them.

MATERIAL AND METHODS

Study design: This study is a cross sectional study using in depth interviews to assess the information given to patient and to assess how efficiently forms consent were filled, preoperatively.

Study setting: The study was carried out in department Of Forensic Medicine, Dhaka Medical College Hospital, Bangladesh from January to December, 2022.

Study duration: The study was conducted over a period of 12 weeks as per the following schedule:-

- I. Defining scope of study- 2 weeks
- II. Selection of validated checklist- 2 weeks
- III. Data collection- 4 weeks
- IV. Analysis of data- 2 weeks
- V. Final writes up- 2 weeks

Exclusion criteria

All patients who have been operated in any other hospital and have been admitted here for further treatment have been excluded from the study.

Inclusion criteria

All patients who had undergone surgery and signed written consent form preoperatively of General Surgery, Neurosurgery, Plastic Surgery, Urology and Obstetrics and Gynaecology ward, within the study time period, were included in the study.

METHODOLOGY

This is a prospective study with a view to assess the information given to patient before signing the consent form and to assess efficiency in filling up the consent form. We studied numerous literatures and articles regarding informed consent in relevant journals. Validated checklist was taken from WHO website and incorporated in the study. Checklists are attached as Appx A & Appx B. Multiple visits were done to various wards and patients were identified who have undergone surgery. Only those patients who were physically fit enough to participate in interview and have given written consent were included. A team of 04 members conducted interview in Bangla/ local language and the results were transcribed in English for analysis. A frame work analytical approach was used for data analysis which involves categorical analysis of data on following 5 parameters pertaining to patients who had undergone surgery. All interviews were carried out in privacy and both patients and their relatives were assured of confidentiality. Patients related data of name, age, sex, education, monthly income and admission date, surgery date and diagnosis were recorded from medical sheet. Then structured interview was conducted which was based on fourteen points in the checklist and marked as yes or no according to responses given by patients. These responses were calculated for each patient and

inference was withdrawn from graphs, plotted for five parameters i.e., age, sex, education, type of patient and type of surgery whether elective or emergency, by using computer software Minitab. Another checklist of eight points was employed for the assessment of efficiency in filling up of informed consent forms. The responses were undertaken as Yes and No, directly from filled consent forms. These responses were calculated and inference was withdrawn. The photographs of these forms were taken for future references.

OBSERVATION & DISCUSSION

200 patients were interviewed to assess how much information was provided to them before undergoing the surgery. To put the data in quantifiable term a validated checklist was used when the patient mentioned that particular information was provided it was taken as a “Yes” response and if patient mentioned that particular information was not provided it was taken as a “No” response. Using the checklist, average Yes responses were calculated for each patient, patients were then categorized based on their age, sex, educational status, economic status, economic status of the patient and type of surgery whether emergency or elective. Graphical representation of the data is shown in the Fig (1,2,3,4, & 5) The graph has been plotted using category of patients on X axis and average number of “Yes” responses in the checklist on Y axis.

(a) Age of the patient. Patients age more than 60 years (n= 32) showed an average of 8 “Yes” responses and patients below 60 years of age (n= 168) had an average of 11. In the present study it was found that patients age less than 60 years were better informed

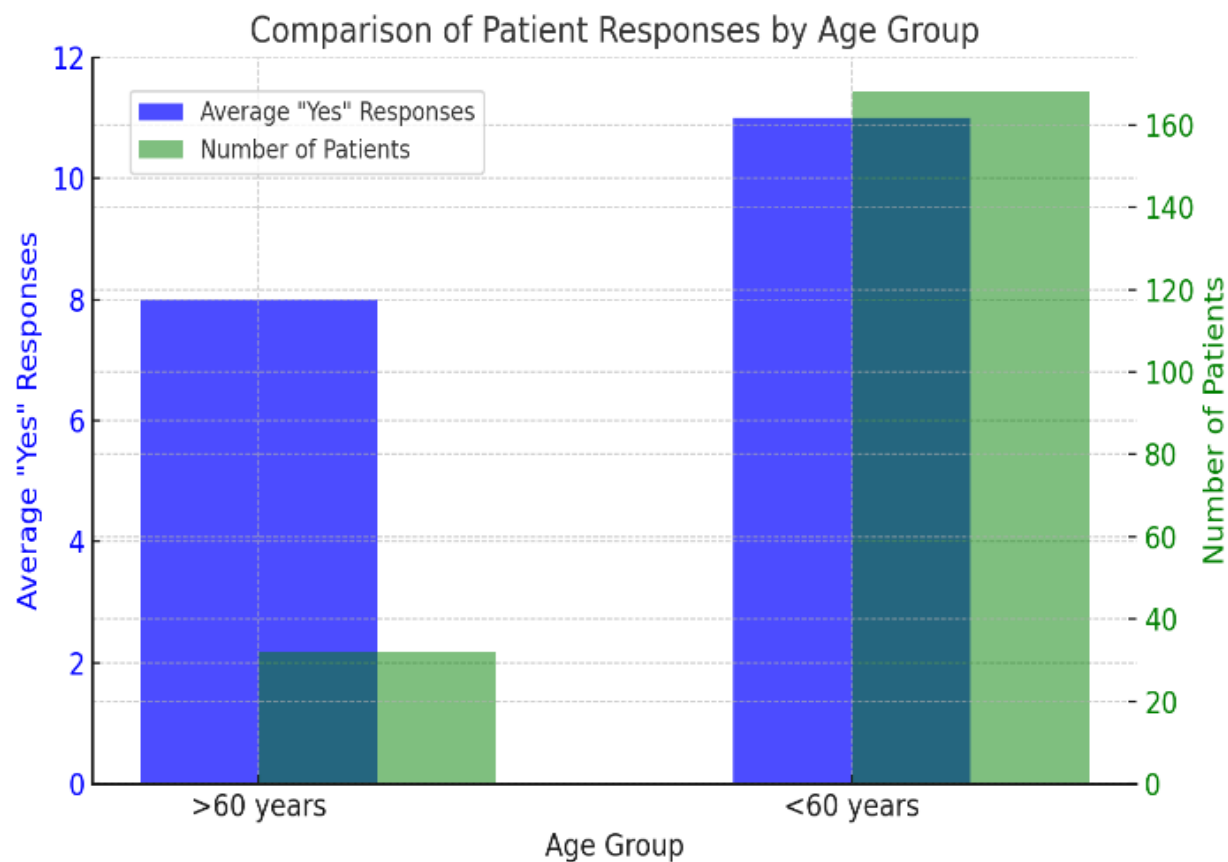


Figure 1: Comparison of patient response by age group

(b) Sex of the patient. Average “Yes” responses of male & female patients were 10.2 & 10.9 respectively. The mean scores

did not differ significantly according to sex at any point of time.

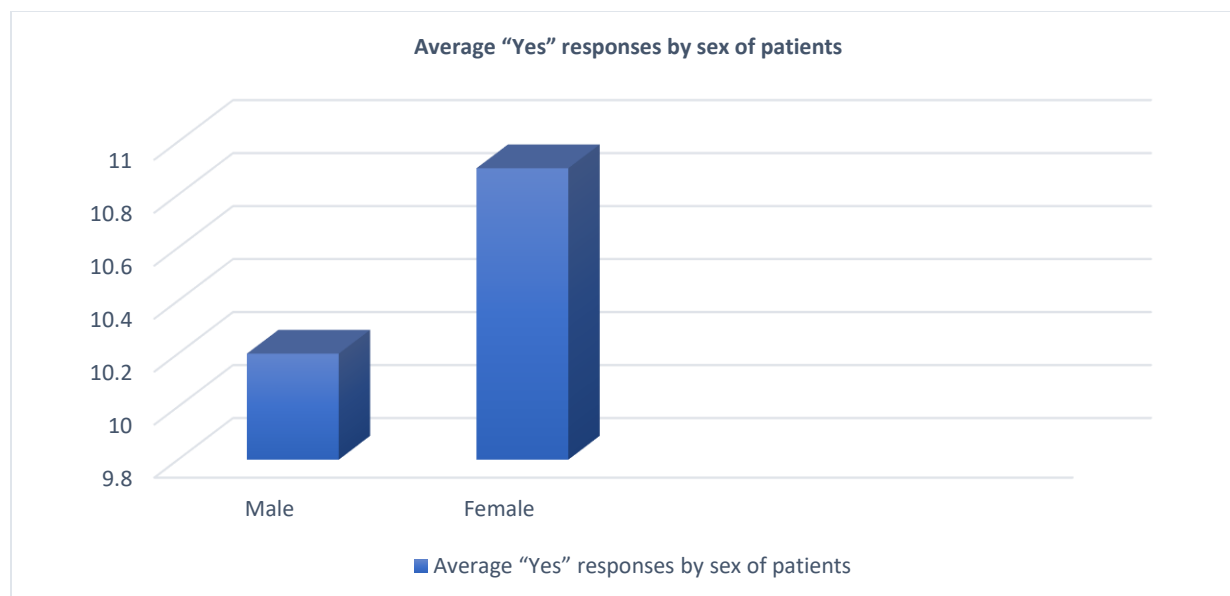


Figure 2: Average "Yes" responses by sex of patients.

(c) The education level of patients was classified as uneducated & educated. Educated category was further divided into patients with a graduate degree and patients with education of 12th standard and below.

Inference: In the present study we found a direct correlation between the educational status and information provided to the patient. Better the educational status better was the information provided to him/her.

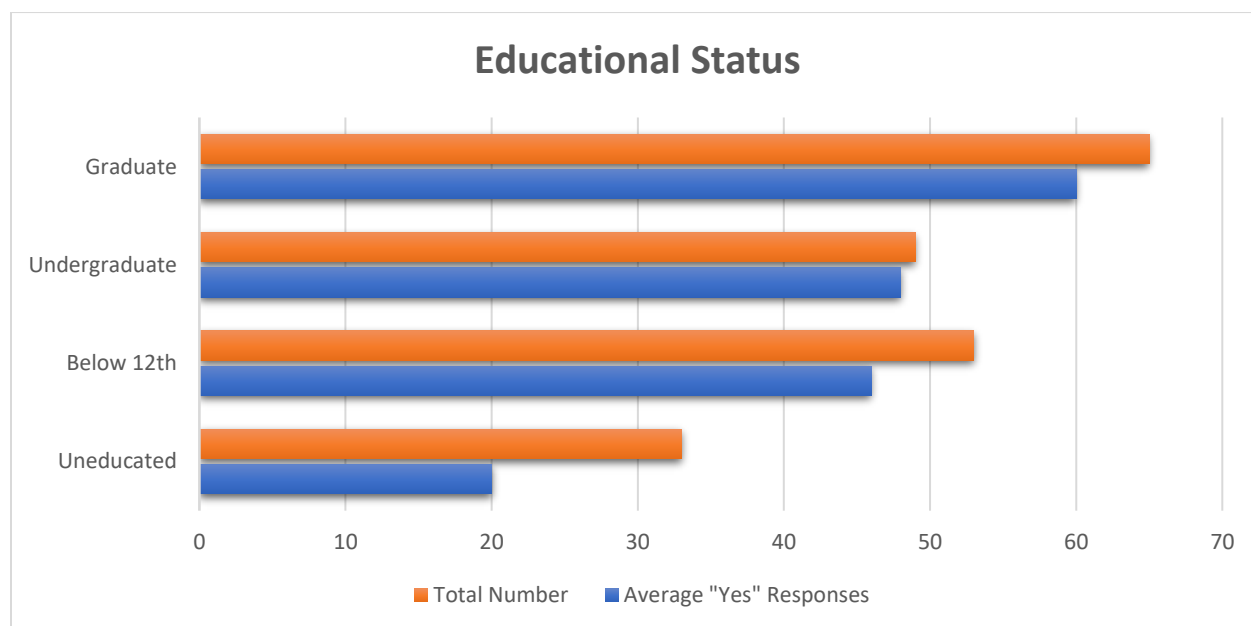


Figure 3: Average "Yes" responses by educational status of patients

(d) Type of patients. Patients of the hospital were categorized based on economic status. Results obtained are shown in the fig 4.

Inference. It was found that patients with higher economic status category were better informed compared to other categories.



Figure 4: Average "Yes" responses by economic status of patients.

(e) Type of surgery. Based on clinical condition the patients were categorized into emergency cases and elective surgery

patients. The data obtained is graphically depicted in Fig 5.

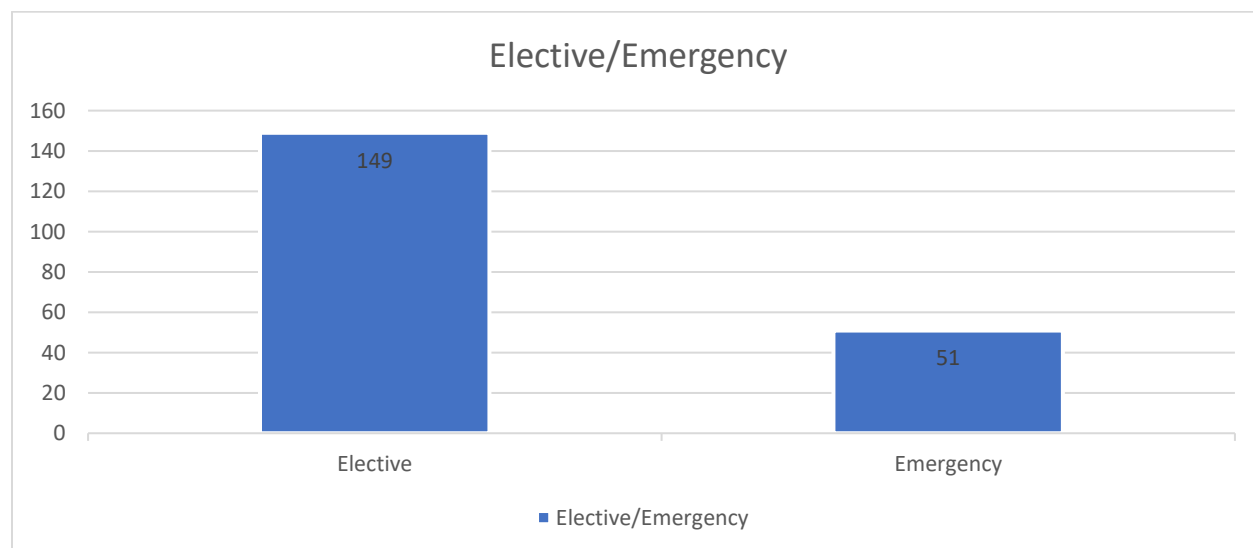


Figure 5: Type of surgery

The percentage of patients informed pertaining to the points in the check list are shown in table 1.

SN		Remark
1.	Discussed the patient's current clinical situation or problem	100% were informed
2.	Discussed the indication for the proposed procedure	98 % were informed
3.	Discussed the purpose of a proposed treatment or procedure	96 % were informed
4.	Explained the actual procedure of the patient	84 % were informed
5.	Explained the risks involved	34 % were informed
6.	Explained the benefits of the procedure	90 % were informed
7.	Informed about the alternative options available to the patient	26 % were informed
8.	The risks and benefits of alternatives	24 % were informed
9.	Asked whether patient had any queries	94 % were informed
10.	Told the patient when he/she can resume work	60 % were informed
11.	Informed briefly about post operative care patient has to take	94 % were informed
12.	Addressed all queries of the patient	84 % were informed
13.	Summarized the discussion	70 % were informed
14.	Rechecked that the patient was willingly giving consent	98 % were informed

The report of the assessment of informed consent forms is shown in table 2.

SN		Remark
1.	Name and signature of the patient, or if appropriate, legal guardian	98 % complied with
2.	Name of the hospital	98 % complied with
3.	Name of all practitioners performing the procedure and individual significant task if more than one practitioner	0 % complied with
4.	Date and time consent is obtained	42 % complied with
5.	Statement that procedure was explained to patient or guardian	100% complied with
6.	Name of the procedure	86 % complied with
7.	Signature of professional person witnessing the consent;	54 % complied with
8.	Name and signature of person who explained the procedure to the patient or guardian.	90 % complied with

Perception of patients on Informed consent

Many of the patients interviewed in the study were not aware of the importance of Informed consent, few patients mentioned that they signed the paper just because doctor had asked them to sign it without even going

through the content in the consent form. Few of the patients considered signing a consent form as a formality which they had to do before undergoing the surgery.

Why patients didn't ask queries before signing consent

During the interview we were given many reasons why patients didn't ask queries regarding the surgery or their clinical condition, all the reasons given by patients could be summarized in one word i.e., TRUST. Many patients had the belief that Doctor knows the best. This behavior was predominantly seen in patients of lower socioeconomic status and uneducated patients.

CONCLUSION & RECOMMENDATIONS

To improve the process of informed consent creating awareness among doctors, taking consent is critical. In general, all doctors are aware about the process and importance of consent taking but certain fine details such as what all components have to be informed to the patient have to be made clear. It was found that many a times patient was just asked to sign the consent form before the surgery and patient having faith and respect towards the doctor just signed the consent form without asking any questions. Such practices cannot be removed by introducing rules and regulation rather creating awareness of the necessity and legal implication of informed consent would improve the process of consent taking

Doctors due to factors such as shortage of time may not be able to cater to the requirements of patients in facilitating decision making during such time availability of medico social worker would be helpful. Medico social worker along with this can cater to the emotional requirements of patients. Maintaining data base of patients who have undergone surgery in the hospital.

Old patients of the hospital with their consent can be used to provide guidance to the patients. They would act as a peer group to the patients. Success stories of previous patients can guide patients in making decision.

REFERENCES

1. Allison DC, et al. Perspective evaluation of patient comprehension of informed consent. *J Bone Joint Surg Am*. 2011;93(21):e114(1-7).
2. Berg JW, Appelbaum PJ. Informed consent: legal theory and clinical practice. 2nd ed. New York: Oxford University Press; 2001.
3. Faden RR, Beauchamp TL, King NMP. A history and theory of informed consent. New York: Oxford University Press; 1986.
4. Laine C, Davidoff F. Patient-centered medicine: a professional evolution. *JAMA*. 1996;275(2):152-6.
5. Pérez-Moreno JA, et al. Preoperative information and informed consent in surgically treated patients. *Rev Esp Anestesiol Reanim*. 1998;45(4):130-5.
6. Akkad A, Jackson C, et al. Informed consent for elective and emergency surgery in obstetrics and gynaecology: a questionnaire study. *BJOG*. 2004;111(10):1133-8.

ORIGINAL ARTICLE**Diagnostic Value of Ascitic Fluid Adenosine Deaminase (ADA) In Abdominal Tuberculosis****Dhar UC¹, Sarker B², Rahman AFSMS³, Alam AFMS⁴****Abstract**

Background and objective: Tuberculosis, one of the oldest diseases known to affect human, is a major cause of death worldwide. This disease which is caused by bacteria of the Mycobacterium tuberculosis complex, usually affects the lungs, although other organs are involved in up to one third of cases. Abdominal tuberculosis is very common in Bangladesh. It has some diagnostic problems. In some cases, laparoscopy may require to diagnose it but it is costly & an invasive procedure. So scientists are trying to discover some biochemical markers to overcome the diagnostic difficulties. There is no study on adenosine deaminase in ascitic fluid as a diagnostic tool of abdominal tuberculosis in our population. For this reasons I have evaluated ascitic fluid adenosine deaminase as a diagnostic tool for abdominal tuberculosis.

Methods: This Cross-sectional study was done in Department of gastroenterology and medicine in SSMC & MH from January 2010 to June 2010. All the patients admitted during this study period in the Department of gastroenterology and medicine was included, unless having exclusion criteria. (Nonrandom purposive sampling). The inclusion criteria are 1) Diagnosed abdominal tuberculosis with ascites for group-A 2) Ascites due to nontubercular cause for group-B and the exclusion criteria are 1) Abdominal tuberculosis with other intra-abdominal pathology. 2) Patient unwilling to give informed consent. 3) Patient without ascites.

Results: In abdominal tuberculosis group ADA positive in 28 cases and the range is 24-80 u/l (mean=54 u/l) & negative in 2 cases and the range is 1-23 u/l (mean=9 u/l) In Nontubercular group ADA is positive in 3 cases and the range is 24-60 (mean 38.3 u/l) & negative in 27 cases and the range is 1-23 u/l (mean=9.9 u/l). Ascitic fluid ADA level estimation offers high degree of sensitivity and specificity of about 93.3% and 90% respectively.

Conclusion: ADA was found positive with a mean value of 54 U/L in tubercular ascites with sensitivity and specificity of 93.3% & 90% respectively and cut off value of 24 U/L. It can be concluded that, due to the high sensitivity and specificity of the test, the determination of ADA in ascitic fluid should be used as a screening test, especially in countries where tuberculosis is endemic.

Keywords: Adenosine deaminase, Ascitic fluid, Tuberculosis

J. Tangail Medical College, 2025;2(2): 55-67

1. Dr. Ujjal Chandra Dhar, Assistant Professor (C.C), Department of Physiology, Tangail Medical College, Tangail. Email: ucdharsuhc@gmail.com, Mobile No: 01712543808 (Correspondence)

2. Dr. Beethi Sarker, Assistant Register, National Gastro-liver Institute & Hospital, Mohakhali, Dhaka.

3. Dr. AFSM Shazedur Rahman, Assistant Professor, Department of Physiology, Tangail Medical College, Tangail.

4. Dr. A F Mohammed Shafiqul Alam, Associate Professor, Department of Pharmacology, Dhaka Medical College, Dhaka.

Received: 10th March, 2025

Accepted: 21st April, 2025

Introduction:

Abdominal Tuberculosis accounts for nearly 2% of tuberculosis worldwide. According to WHO, the annual incidence of TB is nearly eight million with two million deaths world wide.¹ There is an increase in number of patients with typical as well as atypical extra-pulmonary presentations. Extra-pulmonary involvement of TB is reported to be 10-15% not infected with HIV, whereas the frequency is about 50-70% in patients with HIV infection.²

Gastrointestinal involvement has been reported to be 55-90% in patients with active pulmonary TB before the advent of specific anti-TB drugs which has been regressed to 25% after the development of specific drugs.³ Abdominal TB has an insidious course like any other chronic infectious disease without any specific laboratory, radiological or clinical findings making great difficulties in its early diagnosis. Various methods of investigations have been reported as the gold standard in the diagnosis of abdominal TB; however there are great difficulties in their application in clinical practice. So, to make a diagnosis of abdominal TB, it is still a challenge to the physicians. In most cases, a working diagnosis has to be made on strong clinical suspicion and supportive investigation data.⁴ Case-definition for abdominal TB was defined as tuberculosis affecting the gastrointestinal tract, peritoneum, abdominal lymph nodes momentum, liver, spleen. A definite diagnosis of abdominal TB was made by identification of *Mycobacterium tuberculosis* on the sputum/smear from

tissue and/or by demonstrating caseating granulomas at histopathology. Since abdominal TB is paucibacillary, the yield of organisms is low therefore the characteristic histologic changes were taken as diagnostic wherever tissue sample was possible. Laparoscopic findings consistent with TB for a presumptive diagnosis were the presence of tubercles, fibro adhesive peritonitis or caseating lymphadenopathy.⁵

Adenosine deaminase is an enzyme involved in purine catabolism and is responsible for the conversion of adenosine to inosine and ammonia, It is also involved in proliferation and differentiation of lymphocytes, particularly T subtypes, There are several isoforms of ADA, but the prominent ones are ADA-1 and ADA-2, which are located on different gene loci.⁶ and have different optimal pH, Michaelis constants and relative substrate specificity pattern, ADA-1 isoenzyme is found in all cells, with highest concentration in lymphocytes and monocytes, whereas ADA-2 isoenzyme appears to be found only in monocyte.⁷

ADA analysis is simple and inexpensive colorimetric test that can be performed on body fluids. Increased ADA activity may be found in effusions due to a number of causes, including tuberculosis, bacterial infections, rheumatological disease and lymphoproliferative disorders.⁸ Determination of the individual ADA isoenzymes could help in distinguishing between the increased activity in effusions especially between tuberculosis and parainfective causes.⁹ Numerous studies have suggested the diagnostic significance

of increased adenosine deaminase (ADA) levels in different body fluids i.e. serum, pericardial fluid, cerebrospinal fluid, pleural fluid and ascitic fluid for different conditions of tuberculosis, Tuberculous peritonitis is a significant problem in the countries with high incidence of tuberculosis. Peritoneal involvement in tuberculous infection is frequently associated with cirrhosis and immunodeficient states.^{10,11,12,13,14} The available diagnostic tests for tuberculous peritonitis include paracentesis with acid-fast smears and culture, laparoscopy with directed biopsy, blind percutaneous peritoneal biopsy and diagnostic laparotomy. However, laparoscopy is invasive, expensive and associated with complications. It may also be used up to 3% of patients.¹⁵ A new test measuring adenosine deaminase activity in the ascitic fluid has been used with promising results.¹⁶

In the developing countries where TB is endemic; an ideal test for abdominal tuberculosis should be economic, minimally invasive, of high accuracy and quick to perform. In 1993, the WHO declared TB as a global emergency. In many countries, also in India, several studies were conducted to establish the ADA activity as a sensitive and specific marker of abdominal tuberculosis which lacks in Bangladesh. In these studies, ADA activity appears as a sensitivity and specific marker for abdominal tuberculosis. For this reasons necessity to establish ADA as a diagnostic tool compelled me to carry out this study. This study may help to establish a relatively cheap but effective marker,

ADA activity level, for early diagnosis of abdominal tuberculosis and will reduce mortality and morbidity.

Materials and methods:

This cross sectional study was carried out in the department of medicine and Gastroenterology in Sir Salimullah Medical College & Mitford Hospital, Dhaka during the period of January 2010 to June 2010. The non-random purposive sampling technique was applied to enroll the study. All the patients admitted during this study period in the department of gastroenterology and medicine was included in this study unless having exclusion criteria. A total number of 60 (30+30) patients, who will fulfill the diagnostic criteria of abdominal tuberculosis (30 Cases) and other (ascites due to nontubercular cause) 30 as control, was included consecutively in this study.

Inclusion Criteria:

- 1) Diagnosed abdominal tuberculosis with ascites for .group-A
- 2) Ascites due to nontubercular cause for group-B

Exclusion Criteria:

- 1) Abdominal tuberculosis with other intra-abdominal pathology.
- 2) Patient unwilling to give informed consent.
- 3) Patient without ascites.

Variables:

Age, Sex, Abdominal swelling, Weakness, Vomiting, Visual disturbance, Anorexia, Anemia, Jaundice, Leg swelling,

generalized swelling, pulse, blood pressure, body temperature, body weight, manifestations of TB anywhere in the body.

Study procedure:

After taking the detail history and physical examination a total 60 patients were included in the study group whom met the inclusion and exclusion criteria. Ascitic fluid aspiration was done in both groups. All of them were investigated for CBC, ESR, RBS, ascitic fluid cell count, ascitic fluid protein, ascitic fluid sugar, ascitic fluid Strain (Gram/AFB), ascitic fluid Culture (Bacterial/AFB), ascitic fluid ADA level, MT Test, Chest X-ray, Ultrasonogram of whole abdomen.

Data analysis:

Among the abdominal tubercular patients' group were considered as cases and non-tubercular group were considered as control, ascitic fluid ADA level were compared between cases & controls. Data were processed and analyzed using SPSS (Statistical Package for Social Science) 15.0. Results will be presented by choosing of variables in the form of tables, graph, percentage, chart etc. Chi-square (χ^2) Test was employed to analyse the data. P-value <0.05 was considered statistically significant.

Table 2 shows that among the study subjects 78.3% had normal chest X-ray and 21.7% had abnormal finding. Around 3.3% showed positive gram stain and

Sensitivity (SEN) = $TP \times 100\% / (TP + FN)$. Specificity (SPE) = $TN \times 100\% / (TN + FP)$.

Where TP= True positive, TN= True negative, FN= False Negative, FP= False positive.

Results:

Sixty patients were enrolled in the study, of which, 30 (50%) were of abdominal tuberculosis with ascites. The remaining 30 (50%) had ascites due to other causes.

In abdominal tuberculosis, 25 cases were clinically suspected abdominal tuberculosis, 5 cases confirmed by AFB staining. Among tubercular ascites patients, 12 presented acutely and 18 presented insidiously. However, in our study the patients were mainly of chronic group.

Table 1 shows in tubercular group sugar level in ascitic fluid decreasing (1.9 ± 1.2 mmol/L), protein level is increasing (60 ± 5 mg/dl) & cells count is increasing (650 ± 70 /mm³) predominantly lymphocyte (90 ± 8 %). But in non-tubercular group sugar level is normal or decreasing (2.1 ± 1.3 mmol/L), protein level is normal or decreasing (20 ± 6 mg/dl) & cells count is increasing (750 ± 50 /mm³) predominately neutrophil (80 ± 8 %).

43.3% showed MT over 10 mm. 30 subjects did not undergo MT as they were not the suspected abdominal tubercular cases.

Table 1: Biochemical & cytological parameters of ascitic fluid in both Tubercular & Nontubercular group

	Tubercular (30 patients)		Nontubercular (30 patients)	
	Mean $\pm$ SD	Normal Reference Range	Mean $\pm$ SD	Normal Reference Range
Sugar	1.9 $\pm$ 1.2	2.2-3.8 mmol/L	2.1 $\pm$ 1.3	2.2-3.8 mmol/L
Protein	60 $\pm$ 5	15-50 mg/dl	20 $\pm$ 6	15-50 mg/dl
TC	650 $\pm$ 70	0 – 300/mm ³	750 $\pm$ 50	0 – 300/mm ³
DC				
Polymorph	20 $\pm$ 10	30-50 %	80 $\pm$ 8	30-50%
Lymphocyte	90 $\pm$ 8	60-70 %	30 $\pm$ 6	60-70%

Among chest x ray finding 13 patients (21.7%) had got abnormal chest x-ray, among them only 2 cases belongs to nontuberculous with cardiomegaly and rest 11 cases had abnormality in the form of cavity lesion, patchy opacity, pleural

Table 3 shows that among the study subjects 8.3% showed positive AFB stain and 51.7% showed ADA > 24U/L. ADA

effusion etc. that was in favour of pulmonary TB. So Clinical abdominal tuberculosis patient got chest x ray evidence of Pulmonary TB. Similarly MT test shows higher rate of positivity in tubercular ascitic patients.

was done in all the 60 patients and it was positive in 31 patients(51.7%) and negative in 29 patients(48.3%).

Table 2: Distribution of the Laboratory findings

	No of patient	Percentage (%)
Chest X-ray (n=60)		
Normal	47	78.3
Abnormal	13	21.7
Gram Staining of ascitic fluid (n=60)		
Positive	2	3.3
Negative	58	96.7
MT (n=30)		
< 10 mm	17	56.7
> = 10 mm	13	43.3
Not Done MT (n=30)	0	0

Table 3: Distribution of the participants by AFB stain and ADA level in ascitic fluid.

	No of patient	Percentage (%)
AFB stain		
Positive	5	8.3
Negative	55	91.7
ADA level		
ADA > 24 U/L	31	51.7
ADA < 24 U/L	29	48.3

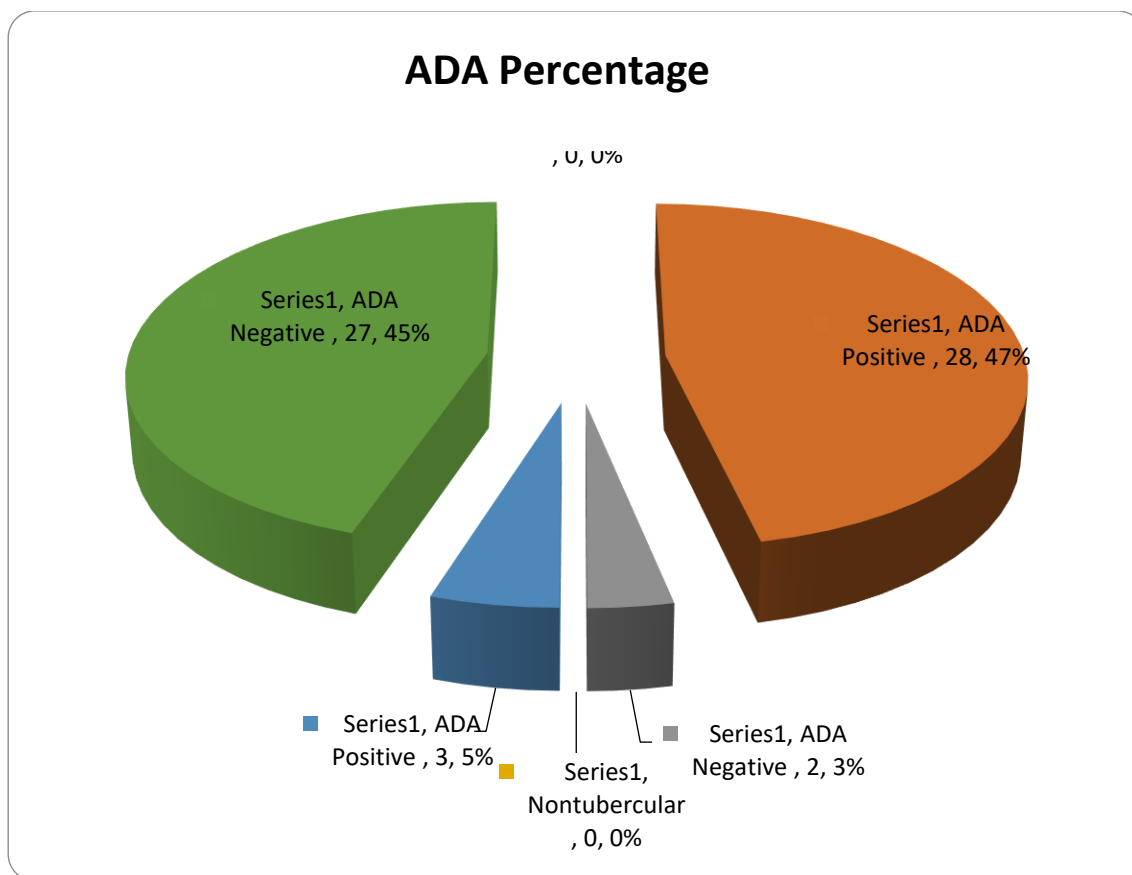


Figure: 1 Distribution of the study subjects by ADA Percentage.

Figure-1 shows out of 30 abdominal tuberculolosis cases, ADA was positive in 28 cases (46.7%) and was negative in 2 cases (3.3%). On the other hand, out of 30 nontubercular cases ADA was positive in 3 cases (5%) and negative in 27 cases (45%).

Figure-2 shows out of 30 tubercular group 2 patients ADA level < 24 U/L, 8 patients ADA level is 24-40 U/L, 17 patients ADA level is 41-60 U/L & 3 patients ADA level is >60 U/L. Out of 30 non tubercular group 27 patients ADA level is <24U/L, 2 patients ADA level is 24-40 U/L & 1 patient ADA level is 41-60 U/L. There is statistically

In abdominal tuberculolosis, 5 cases were confirmed and 25 were probable cases..In nontubercular, 18 were chronic liver disease and 9 were chronic kidney disease,3 were of other cases such as lymphoma & Uterine neoplasia.

significant association (p-value=0.01) between tubercular and nontubercular ascites.

In abdominal tuberculolosis ADA positive in 28 cases and the range 24-80 u/l (mean=54u/l), ADA negative in 2 cases and the range 1-23u/l (mean=9 u/l).

In Nontubercular cases ADA positive in 3 cases and the range is 24-60 (mean 38.3u/l),

ADA negative in 27 cases and the range is 1-23 u/l (mean=9.9 u/l).

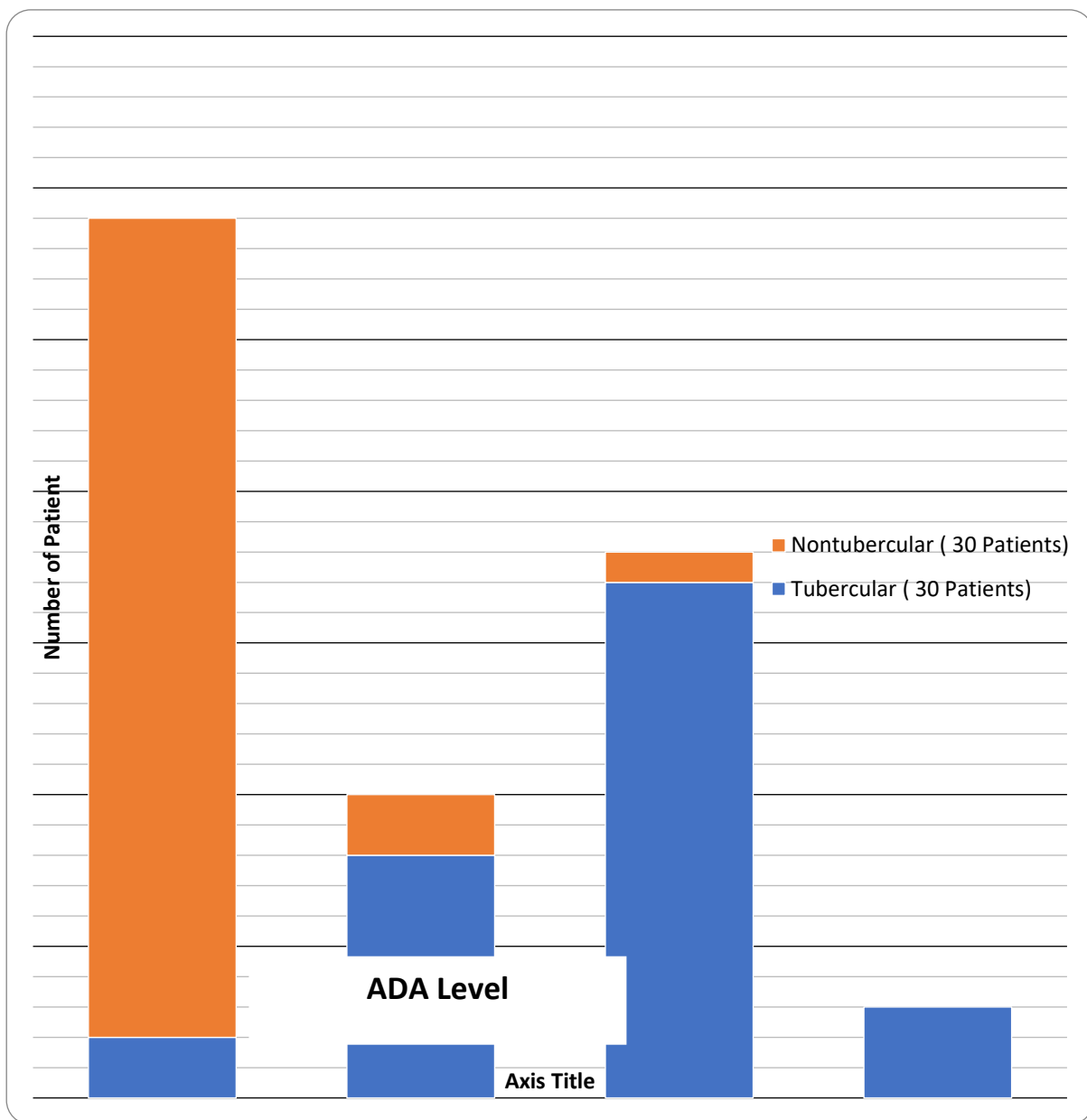


Figure 2: Distribution of the study subjects by ADA Level in both groups.

Table 4: Classification of sensitivity and specificity

ADA category	positive	Negative	Total
ADA > 24 U/L	28 (93.3%) (True Positive)	3(10%) (False Positive)	31(51.7%) (ADA positive)
ADA < 24 U/L	2(6.7%) (False Negative)	27(90%) (True Negative)	29(48.3%) (ADA negative)

Table 4 shows ADA has 93.3% sensitivity and 90% specificity.

Table 5: Illustrations of the sensitivity & specificity

Parameter	Result
Sensitivity(SEN)	93.3%
Specificity(SPE)	90%

Discussion

Diagnosis of abdominal TB currently depends on invasive techniques such as

laparoscopic biopsy, or cultures that, in addition to having a low sensitivity

(approximately 20%), require long incubation periods. It has been clearly established that a delayed diagnosis, such as waiting for cultures, is associated with an increased Mortality¹⁷ Abdominal TB could have a poor prognosis even with appropriate treatment due to a delay in starting specific antituberculous therapy and mortality over 50% have been reported¹⁷ Our systematic review on the usefulness of a noninvasive, fast method like ADA for the diagnosis of abdominal TB might help clinicians to decide whether to treat or not for TB in patients with ascites.

Out of 30 abdominal tuberculosis cases Chest X-ray shows abnormality in 11(36.7%) cases either in miliary TB form or active cavitation or in pleural effusion, however out of 30 nontubercular group 2(6.7%) cases are cardiomegaly & others are normal findings. So among the 60 cases the percentage of abnormal Chest Xray is 21.7%. MT (Monteux Test) was done in 30 cases of abdominal Tuberculosis and >10mm in 72 hours among 13(43.3%) cases. It was not possible to do MT in nontubercular group because most of them response to treatment within 48 hours and left the hospital within period of 5-7 days as well as there was no strong history and background to suspect abdominal tuberculosis.

Out of 60 patients, thirty patients (50.0%) having fulfilled the clinical criteria were labelled as tuberculous, while the other 30 (50.0%) were labelled as non-tuberculous (cirrhotic and others). Only five (8.3%) patients in 30 tubercular had evidence of presence of *Mycobacterium*

(*Mycobacterium tubercle* were isolated in ascitic fluid by AFB stain).

In our study, thirty one (51.7%) patients had high ADA level (>24 U/L) and low ADA (<24 U/L) were in 48.3%. Out of the 30 tuberculous patients, 28(93.3%) patients having ascitic fluid ADA at or above the cut off value (>24 U/L) and 2 (6.7%) patients below cut of value. On the other hand 30 non-tuberculous patients, 27(90%) patients were found to be having ascitic fluid ADA below the cut off value. This study is similar to the previous study, Cesar Q.BRANT et al 1995¹⁸ were cut of value >31u/l.

In the present study ascitic fluid - ADA level 24 U/L as a cut-off value differentiate tuberculous from non-tuberculous ascitis. We have observed a highly statistically significant ($P < 0.01$) difference in the ascitic fluid ADA levels due to tuberculosis and non-tuberculous etiology. Results of our study indicate that ADA levels in ascetic fluid are of considerable value in diagnosis of abdominal tuberculosis and in differentiating this disease from others because a cut-off ascitic fluid - ADA level of 24 U/L exhibited fairly high accuracy with sensitivity of 93.3%, specificity 90% for the diagnosis of abdominal tuberculosis. In cases where there is a dilemma in confirming the etiology, ascitic fluid ADA levels help in reaching out to a conclusion, and depending upon the values of ADA, patient may be diagnosed and treated.

In our study in abdominal tuberculosis ADA positive in 28 cases and the range 24-80. u/l (mean=54u/l), ADA negative in 2 cases and the range 1-23u/l (mean=9 u/l). In

Nontubercular cases ADA positive in 3 cases and the range is 24-60 (mean 38.3u/l), ADA negative in 27 cases and the range is 1-23 u/l (mean=9.9 u/l). A few publications shown that patients HIV positive with abdominal TB could have lower ADA levels in comparison with patients HIV negative with abdominal TB, explained by a low lymphocyte activity due to the CD4 lymphocyte compromise in HIV. In relation to the same issue,¹⁹ shown no significant differences in the ADA activity levels of patients with abdominal TB with or without HIV.

The outcome of abdominal tuberculosis is influenced by the stage of disease at the start of treatment. Initiation of antituberculous therapy is often delayed because of late diagnosis. Management of patients suspected for abdominal tuberculosis is clearly influenced by the development of an accurate, reliable and rapid diagnostic test, particularly if it could be applied in settings with poor resources.

The diagnosis of abdominal tuberculosis remains a challenge. Acid fast bacilli are typically identified by microscopy in less than a quarter of patients and mycobacterial culture, the present "gold standard" for diagnosis is positive in 45%-90% of cases and may take up to 6 weeks to yield results. Recent advances in rapid automated liquid culture may reduce culture time. The use of the polymerase chain reaction (PCR) to detect mycobacterium tuberculosis specific DNA may be of potential value; however, problems with its specificity have been encountered.

False positive results have been reported with lymphomatous ascitis. Variable results on sensitivity and specificity of ADA in ascitic may be explained by different disease profiles, times of presentation, and ages of patients, as children with abdominal tuberculosis have a lower ADA values.

Measurement of ADA level in ascitic fluid is a fast and accurate test for diagnosing abdominal TB. It has enough discriminatory power to either confirm or rule out the diagnosis of abdominal TB in most cases. The beginning of empirical treatment when a patient has a high ADA value in ascitic fluid seems to be a good approach while waiting for the results of mycobacterial cultures or biopsies.

Conclusion

The study found the sensitivity of the test to be 93.3%; specificity 90% and so it can be concluded that ADA estimation in ascitic is not only simple, inexpensive and rapid but also fairly specific method for making a diagnosis of tuberculous etiology in abdominal tuberculosis, especially when there is a dilemma of differentiating the tuberculous etiology from non-tuberculous. For this reason ascitic fluid ADA estimation in abdominal tuberculosis may find a place as a routine investigation. ADA is highly sensitive and specific test for diagnosis of abdominal tuberculosis.

Recommendation

Multicentre study recruiting a large sample size is needed to yield the best outcome. The study involves a considerable number of serological, hematological, microbiological and imaging studies which

require a huge financial support and good number of skilled manpower. So, if those are meeting in future a more sound study may be performed.

References

1. Dye C, Scheele S, Dolin P, Pathania V, Ravigliione MC. Global burden of tuberculosis: estimated incidence, prevalence and mortality by country. WHO global surveillance and monitoring project. JAMA. 1999;282(7):677-86.
2. Runyon BA. Textbook of Gastroenterology. 2nd ed. Philadelphia: Lippincott; 1995. p. 928.
3. Haddad FS, Ghossain A, Sawaya E, Nelson AR. Abdominal tuberculosis. Dis Colon Rectum. 1987;30(9):724-35.
4. Basu S, Ganguly S, Chandra PK, Basu S. Clinical profile and outcome of abdominal tuberculosis in Indian children. Singapore Med J. 2007;48(10):900-5.
5. Miah AR, Sharma YR, Rahman MT, Raihan A, Roy PK, Hasan M. Clinicopathological profile of patients with abdominal tuberculosis. J Nepal Health Res Counc. 2011 Oct;9(19):169-75.
6. Hirschhorn R, Rattazzi MC, Scandalios JG, Witt GS. Isozymes of adenosine deaminase. In: Rattazzi MC, Scandalios JG, Witt GS, editors. Isoenzymes: current topics in biological and medical research. Vol. 4. New York: Liss; 1980. p. 130-57.
7. Ungerer JPJ, Oosthuizen HM, Bissbort SH, Vermaak WJ. Serum adenosine deaminase: isoenzymes and diagnostic application. Clin Chem. 1992;38(7):1322-6.
8. Pettersson T, Ojala K, Weber TH. Adenosine deaminase in the diagnosis of pleural effusion. Acta Med Scand. 1984;215(4):299-304.
9. Ungerer JPJ, Oosthuizen HM, Bissbort SH, Vermaak WJ. Serum adenosine deaminase: isoenzymes and diagnostic application. Clin Chem. 1992;38(7):1322-6.
10. Alvarez S, McCabe WR. Extrapulmonary tuberculosis revisited: a review of experience at Boston City and other hospitals. Medicine (Baltimore). 1984;63(1):25-55.
11. Burack WR, Hollister RM. Tuberculous peritonitis: a study of 47 proved cases encountered by a general medicine unit in twenty-five years. Am J Med. 1960;28:510-23.
12. Karmy WW, O'Donoghue JM, Ostrow JH. The spectrum of tuberculous peritonitis. Chest. 1977;72(3):310-5.
13. Borhanmanesh F, Hekmat K, Vaezzadeh K, Rezai HR. Tuberculous peritonitis: prospective study of 32 cases in Iran. Ann Intern Med. 1986;76(4):567-72.
14. Gilinsky NH, Marks IN, Kottler RE, Price SK. Abdominal tuberculosis: a 10-year review. S Afr Med J. 1983;64(23):849-57.
15. Lado-Lado FL, Cabana-Gonzalez B, Ferreira-Regueiro MJ, Cabacros-Ortiz-de-Barron A, Donado-Budiño E. Tuberculous peritonitis. An Med Interna. 2002;19(6):296-8.
16. Dwivedi M, Misra SP, Misra V, Kumar R. Value of adenosine deaminase

- estimation in the diagnosis of tuberculous ascites. *Am J Gastroenterol.* 1990;85(9):1123-5.
17. Chow KM, Chow VC, Hung LC, Wong SM, Szeto CC. Tuberculous peritonitis-associated mortality is high among patients waiting for the results of mycobacterial cultures of ascitic fluid samples. *Clin Infect Dis.* 2002;35(4):409-13.
18. Brant CQ, Silva MR. The value of adenosine deaminase determination in the diagnosis of tuberculous ascites. *Rev Inst Med Trop Sao Paulo.* 1995;37(5):449-53.
19. Sathar MA, Ungerer JPJ, Lockhat F, Govender D, Omar MA. Elevated adenosine deaminase activity in patients with HIV and tuberculous peritonitis. *Eur J Gastroenterol Hepatol.* 1999;11(3):337-41.

ORIGINAL ARTICLE

Outcomes of Dynamic Condylar Screw Fixation for The Treatment of Distal Femur Fractures

Mohammed KH¹, Rokonuzzaman SM², Rahman MM³, Singha SK⁴, Pervin A⁵, Yasmin S⁶

Abstract

Background: The Dynamic condylar screw plate is an angular stable fixation (95°) for distal femur fractures that allows compression across the femoral condyle. The aim of this study is to examine the findings of dynamic condylar screw fixation for the treatment of distal femur fractures.

Study design: Prospective study

Methods : In this study total 26 patients of genders who have radiographically diagnosed to have distal femur fractures were included in Orthopaedic department of 250 bedded General Hospital , Tangail during the period from January 2022 to December 2022 . Patients age ranging from 20 to 65 years .All the confirmed cases were treated by Dynamic Condylar Screw under General / Spinal anesthesia. All fractures were closed and none was pathological. Clinico-radiological progression of fracture union as well as the functional outcome was studied.

Results : There were 20 (76.92%) male patients while rest 23.08% were females. 11 (42.3%) patients were ages between 20 to 40 years ,12 (46.15%)patients had ages 41 to 60 years and 3 (11.54%) patients were ages > 60 years .The mean operating time was 78 ± 6.15 minutes . Mean hospital stay was 8.50 ± 2.50 days .There were 1 non-union , 2 infections and 1 had implant failure . According to Neer's criteria final outcome was recorded and overall union was 94.84% and the motion ranges at 1 year was 10 – 130° .

Conclusion: Our study conclusively establishes that excellent functional outcome can be achieved with dynamic condylar screw with skilled surgical technique in distal femoral fracture with lesser complication and less hospital stay . This technique had better results with respect to union of bone and range of motion of knee

Keyword: Distal Femur Fracture, Dynamic Condylar Screw, Union of bone, Range of motion.

J. Tangail Medical College, 2025;2(2): 68-74

1. Dr. Khandaker Haris Mohammed, Junior Consultant of Orthopaedics, 250 Bedded General Hospital, Tangail. E-mail: khandaker.md.1319@gmail.com, Phone- 01771715345 (Correspondence)
2. Dr. S.M Rokonuzzaman, Associate Professor of Orthopaedics , Tangail Medical College, Tangail.
3. Dr. Md. Mokhlesur Rahman, Assistant Professor of Orthopaedics , Tangail Medical College, Tangail.
4. Dr. Sudhangsu Kumar Singha, Associate Professor of Orthopaedics , Tangail Medical College, Tangail.
5. Dr. Amina pervin , Lecturer of Pathology , Mugda Medical College, Dhaka.
6. Dr. Sabina Yasmin , Lecturer of Community Medicine .Tangail Medical College, Tangail

Received: 22nd April, 2025

Accepted: 28th Amy, 2025

Introduction:

Around 3 to 6% of Femoral fractures and less than 1% of all fractures occur to the

distal part of the femur¹ . These injuries have a bi-modal distribution , a high energy

distal femur fracture occur in males between 15 and 50 years while most low energy fracture occur in osteoporotic women above 50 years². Road traffic accident is the most common cause of high energy distal femur fractures. The treatment of distal femur fracture remain a significant surgical challenge³. They are usually managed by open reduction and internal fixations achieving anatomical reconstruction by restoring articular congruity, limb alignment, length, rotation by using a rigid fixation method is essential for allowing early motion and adequate bone healing. Multiple options exist for the definitive treatment of distal femur fracture and includes screw fixation, fixed angle device (95° dynamic condylar screw (DCS), 95° angle blade plate, intramedullary nail, pre-contoured locking plate, external fixation.

The goals of operative treatment are anatomical reduction, stable fixation, early mobilization and early functional rehabilitation of the knee^{4,5,6}. Dynamic condylar screw (DCS) is a better implant to achieve these goals. Other advantages include its ability to apply interfragmentary compression across the femoral condyles better purchase in osteoporotic bone.

The aim of this study was to evaluate the outcome of dynamic condylar screw fixation for distal femoral fractures and give the long term outcome.

Methods:

The prospective was conducted at the department of Orthopaedic and Traumatology, 250 bedded General

hospital, Tangail during the period from January 2022 to December 2022. A total 26 patients of both genders whom were radiologically diagnosed to have distal femur fracture were included. Patients ages ranging from 20 to 65 years. Patients detailed medical history, includes age, sex and causes of fracture were examined after taking informed consent from all the patients. All the confirmed cases were treated by dynamic condylar screw fixation. Children and those below 20 years excluded from this study. All fractures were closed none was pathological. All were operated under general / spinal anesthesia and dynamic condylar screw fixation as per standard protocol.

Surgical technique:

The patients were given general or spinal anesthesia. All the surgeries were performed under tourniquet in supine position on a radiolucent table. A lateral approach to the distal femur was used. At first the articular surface was reduced by clamping, then K-wires were used to provide temporary stabilization before being sequentially replaced by one or two 6.5 mm cancellous screws. Then C-Arm guided placement of the central guide wire in parallel to the knee joint axis. The DCS triple reamer was used to simultaneously drill for the lag screw. The DCS lag screw was inserted and the appropriate DCS plate was slid on to the lag screw assembly, proximally the plate was fixed to the femur by at least three bi-cortical 4.5 mm screws. The wound was closed and all patients had a negative suction drain inserted, which was removed 48 hours post-operatively.

Post operate care:

Long leg back slab were applied three week in all patients. Allowed Isometric quadriceps strengthening exercise on first post operative day and passive range of motion after three weeks . The weight bearing time was defined according to the stability of fracture fixation .

Method of assessment:

The follow up evaluation included clinical and radiological assessments. All patients were followed up every month until the fracture union. The clinical functional assessment included the knee society score (KSS) , the lysholm knee scoring score , the range of motion (ROM) and the stability of the knee joint .The radiographic assessment included an evaluation of the fracture reduction and fracture union .

Results:



Figure 1 : Pre-operative A-P and Lateral radiographes showing distal femur fractures

Out of 26 patients , 20 (76.92%) patients were male while rest 23.08% patients were female.11 (42.3%)patients were aged between 20 to 40 years , 12 (46.15%) patients had ages between 41 to 60 years and 3(11.54%) were ages > 60 years . 15 (57.69%) cases had right sided fractures while 11 (42.3%) had left side (Table-1) .

Causes of fractures were noted road traffic accident, fall from height and others in 20 (76.92%) , 4 (15.38%) and 2 (7.69%) patients respectively (Table- 2) .The mean operative time was 78 ± 6 minutes .Mean hospital stay was 8.50 ± 2.50 days . There were 1 nonunion , 2 infections and 1 had implant failure . Final outcome was recorded using Neer's criteria and the overall union was 94.84% the range of motion at 1 year was 10 to 130 degree (Table -3 to



Figure 2 : A-P and Lateral radiographes showing good callus formation at the end of four months.

Table 1: Demographic information of the patients

Variable	No	%
Sex		
Male	20	76.92
Female	6	23.08
Ages (years)		
20-40	11	42.3
41-60	12	46.15
> 60	3	11.54
Effective side		
Right	15	57.69
Left	11	42.3

Table 2: Causes of fractures

Causes	No	%
Road accident	20	76.92
Fall from height	4	15.38
Others	2	7.69

Table 3: Complications

Complications	No	%
Non union	1	3.35
Infections	2	6.68
Implant failure	1	3.35

Table 4: Final outcome according to Neer criteria

Outcome	No	%
Excellent	16	61.54
Good	6	23.07
Fair	3	11.54
Poor	1	3.85

Table 5: Overall findings according to union and range of motion

Variable	Findings
Union of bone	94.84%
Motion range in degree	10 to 130

Discussion:

Distal femur fractures are defined as fractures that affect the lower 9 to 15 centimeters of the femur, down to the articular surface of the knee⁷. The management of distal femur fracture can be non operative and operative⁸. non operative management provides satisfactory results in only 56% of patients while operative management provides satisfactory results in 70-80% of patients⁹.

In this study, we found that patients with ages 35 to 60 years were most common. A study conducted by Sandeepetal¹⁰ regarding fracture of distal femur reported that 78 % of patients were ages 21 to 60 years.

In our study, road traffic accidents was the most common cause of fracture 76.92% and fall from height was 15.38 % . Many of

studies regarding distal femur fracture reported road traffic accidents was the most common cause of fracture 55 to 75%^{11,12}. in this study mean hospital stay was 8.50 ± 2.50 days . There were non union 1 , 2 infections and 1 had implant failure .

The management of distal femur fractures is still controversial. For several authors, the surgical treatment is the better choice in order to obtain a reduction and stable alignment and to prevent the complications¹³. There are different operating methods: Dynamic condylar screw plate, angle blade plate, Intramedullary nail, pre contoured plate and external fixation . Now a days, various studies consider plating superior to intramedullary nailing and it remains the preferred technique in the fractures of the distal femur¹⁴.

In this study the final outcome observed that after 1 year of surgery according to the Neer's criteria was excellent , good ,fair and poor as 61.54% , 23.07% , 11.54% and 3.85% respectively and the overall outcome according to union of bone was 94.84% and motion range was 10-130⁰ .These results shows similarity to some other studies in which the overall union of bone after surgery of distal femur fractures was 85 to 95% and the motion range reported 105 to 130⁰ after union of bone^{15,16} .

This study evaluate clinical and radiographic outcomes of dynamic condylar screw fixation for distal femur fractures.

Conclusion:

Distal femur fractures are one of the most common injuries found in orthopaedic department .Our study conclusively establishes that excellent functional outcome can be achieved with dynamic condylar screw fixation for distal femur fracture with lesser complication and better union of bone and range of motion .

Reference:

1. Martinet O, Cordey J, Harder Y, Maier A, Bualer M, Barraud GE. The epidemiology of fractures of the distal femur. *Injury* 2000;31(Suppl 3):C62-C63.
2. Martinet O, Cordey J, Harder Y, Maier A, Bühler M, Barraud GE. The epidemiology of fractures of Gwathmey Jr FW, Jones-Quaidoo SM, Kahler D, Hurwitz S, Cui Q. Distal femoral fractures: current concepts. *J Am Acad Orthop Surg* 2010 Oct;18(10): 597-607. PubMed| Google Scholar
3. The distal femur. *Injury*. 2000 Sep;31 Suppl 3: C62-3. PubMed| Google Scholar
4. Batchelor E, Heal C, Haladyn JK, Drobetz H. Treatment of distal femur fractures in a regional Australian hospital. *World J Orthop*. 2014 Jul 18;5(3): 379-85. PubMed| Google Scholar
5. Sié EJB, Mobiot CA, Traoré A, Lambin Y. Distal femoral fractures treated with condylar buttress plate in a West African hospital. *J Clin Orthop Trauma*. 2012 Dec;3(2): 98-102. PubMed| Google Scholar
6. Lupescu O, Nagea M, Patru C, Vasilache C, Popescu GI. Treatment Options for Distal Femoral Fractures. *Maedica (Buchar)*. 2015 Jun;10(2): 117-122. PubMed| Google Scholar
7. Stover M. Distal femoral fractures: current treatment, results and problems. *Injury*. 2001 Dec;32 Suppl 3: SC3-13. PubMed| Google Scholar Khan AM, Tang QO, Spicer D. The Epidemiology of Adult Distal Femoral Shaft Fractures in a Central London Major Trauma Centre Over Five Years. *Open Orthop J*. 2017 Nov 13;11: 1277-1291. PubMed| Google Scholar
8. AnyaehieUE, Ejimofor OC, Akpuaka FC, Nwadinigwe C U. Pattern of femoral fractures and associated injuries in a Nigerian tertiary trauma centre. *Niger J ClinPract* 2015;18(4):462–6.

9. Anyaehie UE, Ejimofor OC, Akpuaka FC, Nwadinigwe C U. Pattern of femoral fractures and associated injuries in a Nigerian tertiary trauma centre. *Niger J Clin Pract* 2015;18(4):462–6.
10. Sandeep Kumar Mishra, Deepak C. E., Kushal Goari, Shurendra Shukla. Study internal fixation of subtrochanteric fracture of femur with dynamic hip screw, dynamic condylar screw and proximal femoral nail. *Int J Res Med Sci* 2018;6(3):1011-1016 Shankar PR, Kumar BP, Babu GRS, Sagar SRV. A comparative study of fixation of distal end fracture of femur by supracondylar nail and dynamic condylar screw, *J Evid Based Med* 2015;(2)4:380–8.
11. Shankar PR, Kumar BP, Babu GRS, Sagar SRV. A comparative study of fixation of distal end fracture of femur by supracondylar nail and dynamic condylar screw, *J Evid Based Med* 2015;(2)4:380–8
12. Singh AK, Rastogi A, Singh V. Biomechanical comparison of dynamic condylar screw and locking compression plate fixation in unstable distal femoral fractures: An in vitro study. *Indian J Orthop* 2013;47(6):615–20
13. Lupescu O, Nagea M, Patru C, Vasilache C, Popescu GI. Treatment Options for Distal Femoral Fractures. *Maedica (Buchar)*. 2015 Jun;10(2): 117-122. PubMed| Google Scholar
14. Virk JS, Garg SK, Gupta P, Jangira V, Singh J, Rana S. Distal Femur Locking Plate: The Answer to All Distal Femoral Fractures. *J Clin Diagn Res*. 2016 Oct;10(10): RC01-RC05. PubMed| Google Scholar
15. Razaq MN, Muhammad T, Ahmed A, Ahmad S, Ahmad S, Sultan S. Outcomes of distal femur fracture treated with dynamic condylar screw. *J Ayub Med Coll Abbottabad* 2016;28(2)
16. Malik I, Khan R, Khurana R, Sharma S. Comparative study of management of distal femoral fractures managed by dynamic condylar screw and distal femoral locking compression plate. *Webmed Central Orthop* 2015;6(9):WMC004976

ORIGINAL ARTICLE**Association of Peri-tumoral Brain Edema in MRI of Brain with WHO grade in Intracranial meningioma****Saha SK¹****Abstract:**

Background: Peritumoral Brain Edema (PTBE) is common in intracranial meningioma which increases mass effect and considered as a prognostic factor for the complexity of surgical resection and may affect surgical outcome. **Objectives:** To evaluate the association of peritumoral brain edema in preoperative MRI of Brain with postoperative histological grades (WHO Grade) in intracranial meningioma. **Study design:** Prospective cross sectional observational study. **Study place and period:** From June 2023 to May 2025 at NINS&H, Dhaka. **Methods:** 40 patients were selected with inclusion and exclusion criteria. Ethical approval was obtained from the NINS&H ethical review board. All collected questionnaire checked very carefully. Data was processed and analyzed with the help of computer program SPSS 27 and Microsoft excel. Quantitative data expressed as mean and standard deviation and qualitative data as frequency and percentage. Comparison was done by tabulation and graphical presentation in the form of tables, pie chart, graphs, bar diagrams etc. Association was analyzed by relevant analyzing tools (Chi-square test) and Pearson's correlation test was done to assess the significance. P-value<0.05 considered as statistically significant. Logistic regressions were used to predict the association between different variables with higher grades of meningioma and estimation of PTBE done by edema index through odds ratio occurrence in patients according to several predictive factors. **Result:** Mean age was 46.68 ± 12.28 years (min-max: 27-70). Meningioma was more common in female patient 28(70%) and female were more susceptible to be Grade I and male were Grade III. Peritumoral brain edema were more common in higher grade and edema volume was corresponds with higher grade of meningioma which was statistically significant (P-value=0.001). Association of marginal irregularity (P-value=0.015), pial invasion (P-value=0.012), central necrosis (P-value=0.011) of tumor was strongly significant with higher WHO Grade of meningioma. Among intervening variables, heterogenous contrast uptake, size and volume of the tumor failed to show any significant association. **Conclusion:** Imaging features of intracranial meningiomas like peritumoral brain edema, edema volume, marginal irregularity, central necrosis and pial invasion in preoperative MRI of brain is associated with histological WHO Grade. Assumption of tumor grades may help us in making surgical planning and asses' prognosis of the disease.

Keywords: Peritumoral Brain Edema, MRI, WHO, meningioma*J. Tangail Medical College, 2025;2(2): 75-90*

1. Dr. Sanjoy Kumar Saha, Assistant Professor (Surgery), Tangail Medical college, Tangail, Phone: 01716313646, email: sahasanjay433@gmail.com. (Correspondence)

Received: 20th May, 2025**Accepted:** 24th June, 2025**Introduction:**

Meningiomas are neoplasms that are derived from the arachnoids cap (meningothelial cells) of brain and spinal cord meningeal coverings. Meningiomas

can occur all along the cranio-spinal axis¹. In the cranial cavity, meningiomas occur most frequently along the cerebral convexity, olfactory groove and

sphenoid ridges. Less common sites include intraventricular and epidural region. Atypical and anaplastic meningiomas occur in non-skull base sites^{2,8}

Morphologically, meningiomas are heterogeneous and several histological grade which corresponds to the benign/aggressive nature of the tumor. Atypical meningioma is an intermediate grade tumor between benign and malignant forms. Its diagnosis is based on increased mitotic activity, brain invasion or at least 3 of the 5 histological features (increased cellularity, small cell changes, sheeting, prominent nucleoli and foci of spontaneous necrosis). However, in the absence of other histomorphologic features, their recognition plays a major role in accurate grading of meningiomas^{3,11,13}.

Peritumoral brain edema (PTBE) increases the mass effect and causes more elevated intracranial pressure and as a consequence it may lead to eventual cerebral herniation^{6,13}. It is also considered a prognostic factor for the complexity of surgical resection and may affect surgical outcome. For anatomical delineation and surgical planning, MRI of brain with contrast is routinely done. PTBE is best visualized

on T2W or FLAIR MRI images and correlates with size, rapid growth, location and invasion in the case of malignant meningiomas^{4,12}. Postoperative higher grades can be associated with some preoperative imaging characteristics of meningioma like tumor volume, central necrosis, peritumoral brain edema, tumor margin and pial invasion^{5,10,15}.

Very few studies have investigated preoperative risk factors for meningioma especially tumor location, volume, margin and peritumoral edema. Information regarding potential tumor higher grade from preoperative imaging may be useful for surgeons during operation as they frequently face decisions regarding the risks and benefits of more aggressive surgical resection of tumor like Simpson Grade 1 or 0^{7,8,9}.

This prospective study will analyze association of preoperative PTBE from MRI of brain with contrast with morphological characteristics, intra operative findings, post operative histopathological sub type of meningioma and to help all neurosurgeons to predict tumor characteristics, planning of surgery and counsel the patient preoperatively.

Objectives:

General objective:

To detect association between PTBE (Peritumoral brain edema) in pre-operative MRI of brain with postoperative histological subtypes

(WHO Grade) in case of intracranial meningioma.

Specific objectives:

1. To measure tumor size, volume, margin, central necrosis, pial

invasion from MRI of brain with contrast.

2. To analyse the size, volume and effects of brain edema from FLAIR image of MRI of brain.
3. To analyse the histopathological analysis of resected specimen by histopathologist.

HYPOTHESIS:

There is a relationship between Peritumoral brain edema in preoperative MRI of brain and post-operative histological subtypes (WHO Grade) in case of intracranial meningioma

RATIONALE OF THE STUDY

Peritumoral edema in intracranial meningiomas occurs frequently and obviously impacts the morbidity and mortality of these predominantly benign neoplasms by increasing brain shift and intracranial pressure making the surgical removal challenging and it is also a predisposing factor to peri-operative seizures. PTBE has been associated with higher risk of postoperative intracranial haematoma. PTBE play role in the recurrence potential of the tumor. As a consequence, it is reasonable to consider the presence of edema as a factor to be taken into account when mapping out strategies for the treatment of meningiomas. Most of the meningiomas are benign and slow growing. But atypical or anaplastic varieties are aggressive. They expand in relatively shorter period of time resulting in irregular in outline and central cystic

necrosis. Their large size or uneven margin may cause arachnoids breach causing pial /cortical invasion leading to peritumoral vasogenic edema. Very few studies have investigated the relationship between tumor characteristics in preoperative imaging and post-operative WHO grade in case of meningioma especially in our settings. Preoperative assumption of higher tumor grade from MRI of brain may guide us to ensure radical surgical excision including removal involved dura, bone or dural venous sinuses. It may need preparation for duroplasty, cranioplasty or venous sinus reconstruction. This preoperative assumption helps us to counsel patient/party regarding surgical planning, possible outcome and necessity of post-operative adjuvant therapy as well. The purpose of the study will provide a foundation for preoperative evaluation of meningiomas and prospective research on prognosis. This study also helps to investigate the association between tumor location, volume and margin, peritumoral brain edema with WHO grade of meningioma and predict the nature of tumor, counseling to patient or attendance about outcome as well as helps surgeons to planning their surgical resections and combat post-operative complications to minimize the mortality and morbidity of patient.

MATERIALS AND METHODS:

Study design:

Prospective cross sectional
Observational study.

Place of study:

This study was conducted in Department of Clinical Neurosurgery at National Institute of Neurosciences & Hospital, Dhaka.

Study periods:

Study was carried from June 2023 to May 2025.

Study Population:

All the patients with any sort of symptom due to intracranial meningioma got admitted in clinical neurosurgery department of NINS&H for surgical removal of tumor.

Sample size and its determination: 40 (forty)

Sampling technique:

Convenient purposive sampling

Selection criteria:**Inclusion criteria:**

1. All adult patients & sex clinically and radiologically suspected as
 - a. intracranial meningioma.
2. Patients having radiologically (MRI of Brain) proven meningioma and
 - a. supra-tentorial in location.
3. Patients who gave consent to be included in the study.

Exclusion criteria:

1. Patients with intraorbital meningioma.
2. Patients with multiple intracranial meningiomas.

3. Patients with recurrent meningiomas.
4. Patients who received previous radiation treatment.
5. MRI features were suggestive of meningioma but histological report
6. was not consistent with meningioma.
7. Patients who refused to be included in the study.

Procedure of data collection:

All the information recorded in questionnaire. Patient data such as age, sex, clinical presentation, etc. were noted. This questionnaire was used for collection of information by interviewing patients. MRI of brain with contrast of the entire patient prior to surgery was checked and radiological data included tumor size and peritumoral brain edema was measured. After surgery, histological analysis was performed. We examined the association between PTBE and gender, tumor volume, the shape of tumor margin, pial invasion, the signal intensity of tumor in T2WI, WHO histological classifications.

Tumor volume (V_{tumor}) and oedema (V_{edema}) volume were measured from the MRI. The longest diameter and the vertical diameter (radii a & b) of the tumor were measured from the axial image. The axial diameter of the image was measured from the coronal image (radius c) of MRI of brain. These three measurements were multiplied to calculate the volume of the tumor ($\text{Volume of spheroid} = 4/3\pi \times a \times b \times c$) PTBE volume was measured in a similar manner by measuring the high signal intensity (SI) region in T2WI that was

clearly distinguished from normal tissues including tumor. Edema index was calculated by dividing the PTBE

volume by tumor volume $(V_{Tumor} + V_{edema}) / (V_{Tumor})$. The edema index represents the degree of PTBE,

compared to tumor volume, with an index of 1.0 indicating no PTBE.

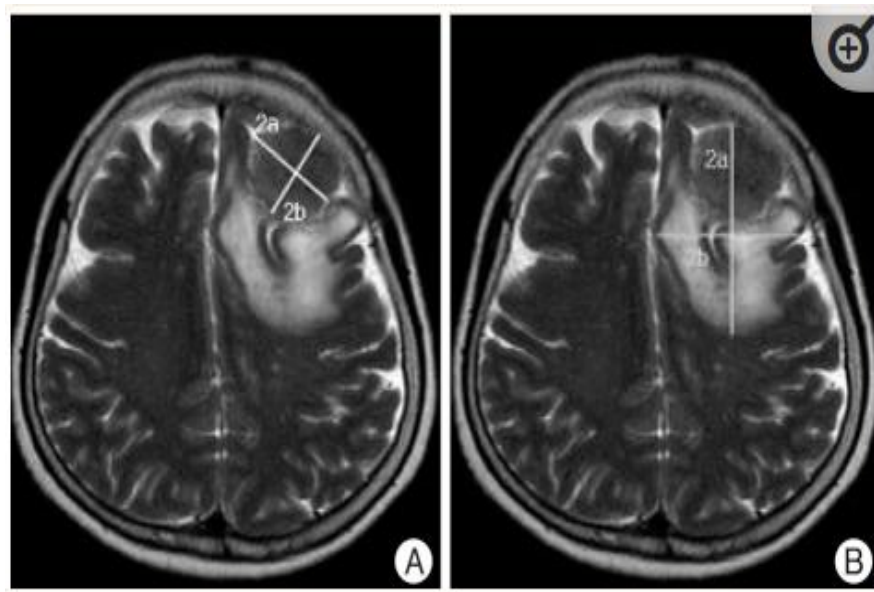


Fig 1.A: Tumor volume (V_{Tumor}) is measured from MR image, that is, from maximal perpendicular diameters (radii a and b) of the tumor. Coronal diameter of the tumor is approximated by coronal section images showing tumor tissue (radius c, not shown here). B: Volume of tumor and edema ($V_{Tumor} + V_{edema}$) is measured with same method. The resulting of volume is then approximated using the formula for a spheroid: $Volume = 4/3 \times \pi \times abc$. Edema Index = $(V_{Tumor} + V_{edema}) / (V_{Tumor})$. (Byung-won Kim, M.D., et. al 2011)

All the collected data, questionnaires were checked very carefully to identify errors. Data processing work consisted of registration of schedules, editing, coding and computerization, preparation of dummy tables, analysis and matching data. Categorical variables were summarized as percentages. Quantitative variables were summarized as mean standard deviation after editing and coding, the coded data directly entered into the computer by using SPSS version 27. Data cleaning validation and analysis was performed using the SPSS/PC

software and graph and chart by MS excel.. Test for association between groups and categorical variables was performed using chi-square test. For quantitative variable means will compare by student t test. $P < 0.05$ was accepted as statistical significance.

Variables:

Outcome variables:

1. Demographic variables:

- I. Age of patient
- II. Sex of patient

2. Independent variables:

- I. Size of tumour
- II. Margin of tumour
- III. Tumour volume

3. Dependent variables:

- I. WHO G-I: Typical or benign
- II. WHO G-II: Atypical
- III. WHO G -III: Anaplastic or malignant.

4. Intervening/Intermediate**Variables:****Results:**

Followings are acted on by independent variables and then act themselves on dependent variables—

- I. Volume of peritumoral brain oedema
- II. Oedema index
- III. Pial invasion
- IV. Central necrosis
- V. Contrast enhancement of MRI
- VI. Signal intensity in MRI

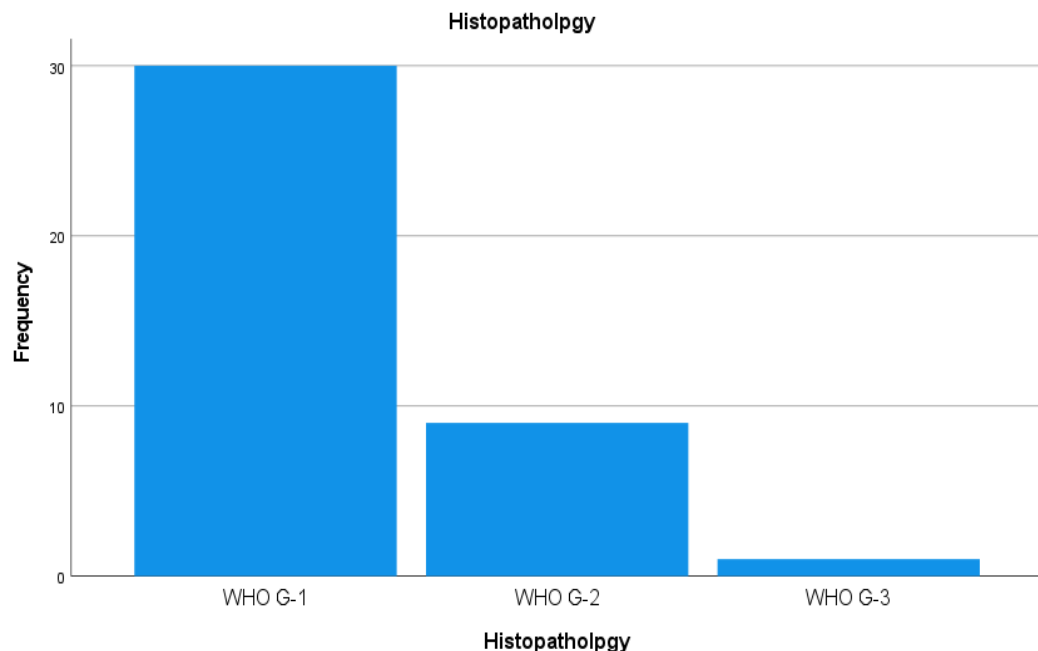


Figure 2: Distribution of the study population according to WHO grade (n=40)

According to WHO grading of meningioma, 30(75%) cases of the meningiomas was confirmed as WHO Grade I, 9(22.5%) cases were Grade II and 1(2.5%) case was Grade III.

Age of the patients was distributed in 3 categories according to decades of age. Study demonstrated that maximum number of patients 16(40%) were between 27-55 years of age group.

Mean age of the patient was 46.68 ± 12.28 years (min-max=27-70 year). No patient in 1st and 2nd decade and lowest in 7th (20%) decade. Here, P value was not significant, so higher grades did not correspond with increasing age. Out of 40 cases, 28 (70%) of cases were female and 12 (30%) were male. Male to female ratio was 1:2.34. In case of G-I female was 24 out of 30(75%), male 6(25%) and in Grade II & G-III female and male

were 5(57.1%), 4(42.9%) & 0(0%), 1(100%) respectively. Here P-value was 0.038 which was statistically significant. So male patient have strong predictor of higher grade. Common manifestations were headache 29(72.5%) and convulsion 7(17.5%) in case of WHO G-I(P value was 0.030 & 0.040 respectively) but disorientation was also included in case of Grade-III which was statistically significant(P=0.001). According to neurological findings the highest 08(20%) cases had cranial nerves impairment including fundus followed by motor weakness and gait disturbances in 10(25%) cases respectively. Outer radiological margin of tumor was regular in 30(75%) cases

where 10(25%) cases had irregular/lobulated margin and/or mushrooming. After contrast, meningioma took homogeneously in 17(42.5%) and heterogeneously in 23(57.5%) cases. Central necrosis was present in only 13(32.5%) cases where it was absent in most of the cases 27(67.5%). Pial invasion was also present in most of the cases 23(57.5%) where it was absent in 17(42.5%) cases. Among the subtype of meningioma after Histopathology, meningothelial meningioma was most commonly found about 13 (32.5 %) cases, angiomatous, transitional and papillary variety was 3 (7.5%) but chordoid and clear cell variety was 4(10%) and 5(12.5%) accordingly.

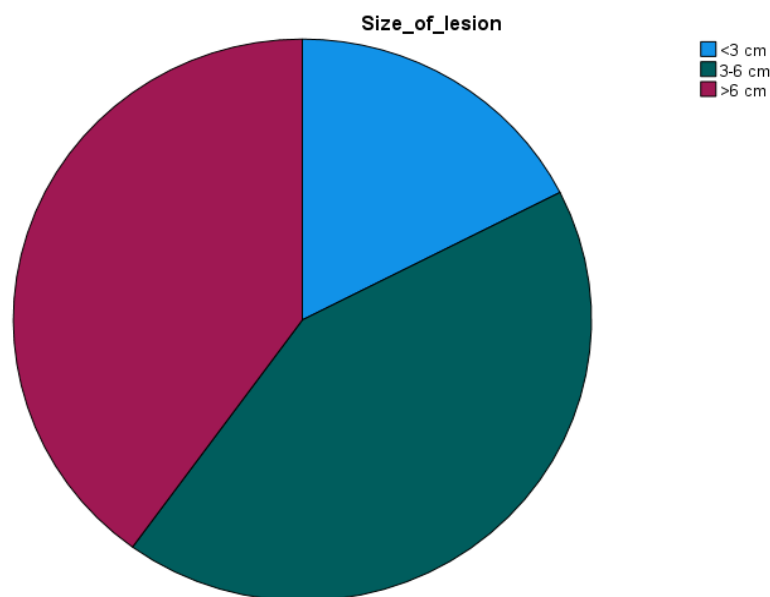


Fig: 3: Distribution of the patients according to radiological size of tumor (N=40).

From this Pie chart, most of the tumor size within 3-6 cm in 18(45%) cases, 15(37.5%) was more than 6 cm and 7(17.5%) cases were less than 3 cm. In case of Grade-I tumor mean size $\pm$ SD

was 2.12 ± 0.723 , it was 2.57 ± 0.723 & 2.00 ± 0.723 in Grade-II & Grade-III respectively with p- value was 0.246 which was not statistically significant.

So, size of the tumor did not correspond to tumor higher grade.

There was no association between T2 weighted MRI image of brain with higher grade of tumor ($P=0.95$). In terms of contrast uptake, Grade I homogenous hyper uptake was 24(60%) and moderate uptake was 5(12.5%), on the other hand they were 7(17.5%) and 2(5%) and 1(2.5%) & 0 in Grade II& III respectively with P-value was 0.953 which was not significant.

In case of Grade I meningioma tumor with regular margin was 25(10%) and with irregular margin were 5(2%). On the other hand they were 0(%) and 9(3.6%) and 0(%) & 1(0.4%) in Grade II & Grade III respectively. P value is 0.001 which was statistically significant which indicates that to be higher grade was more if tumor margin is irregular/lobulated and/or mushrooming.

Table-1: Association between different edema of meningioma and WHO grade of meningioma (N=40)

Variable	WHO G -I	WHO G- II	WHO G- III	P- Value
Peritumoral edema	30	9	1	0.001 ^s
Edema volume	284	346	375	0.002 ^s
Volume of lesion	174.36±SD(114.84cc ³)			0.296 ^{ns}

Chi-square test was performed to see the level of significance

s-statistically significant ns-statistically non-significant

From the table it showed peritumoral brain edema were almost always present in higher grade. In case of Grade-III 1(100%) and edema volume was

corresponds with higher grade of meningioma which was statistically significant ($p=0.012$).

Table-2: Analysis of histological grade of tumor with edema index (N=40)

Tumor Grade	n	Mean	SD	SE	95% CI		P-value 0.008 ^s
					Lower limit	Upper limit	
WHO G-I	30	3.755	3.517	0.603	2.57	4.93	
WHO G-II	9	14	3.033	1.238	7.57	12.42	
WHO G-III	1	12					

SD=standerd deviation

SE=standerd error

CI= confidence interval

s-statistically significant

ns-statistically non-significant

From the study, mean edema index was 4.87(>1) with 95% CI (3.58-6.15) which represents the degree of edema compared to tumor volume. Here

comparison of histological grade of tumors with edema index done and found statistical significance ($p=0.008$). So in case of WHO G II & III edema index was higher.

Table-3: Association of central necrosis of tumor with histopathological grade of meningioma (N=40).

Histopathology	Central necrosis present	P-value
WHO G -I	6(15%)	0.011^s
WHO G-II	9(22.5%)	
WHO G-III	1(2.5%)	

Chi-square test was performed to see the level of significance

s-statistically significant ns-statistically non-significant

In case of Grade I tumor central necrosis was present in 6(15%) cases & absent in 24(55%) cases. On the other hand, it was 9(22.5%) and 1(2.5%) in Grade II & III

respectively with a P value was 0.011 which was significant. so central necrosis of tumor is associated with higher grade of tumor.

Table-4: Association of pial invasion of tumor with histopathological grade of meningioma (N=40).

Histopathology	Pial invasion	P-value
WHO G -I	9(22.5%)	0.012^s
WHO G -II	14(35%)	
WHO G -III	1(2.5%)	

*Chi-square test was performed to see the level of significance

s-statistically significant ns-statistically non-significant

In case of Grade-I tumor, pial invasion was present in 9(22.5%) & absent in 21(50%) but in case of Grade II & III

tumor it was 9(22.5%) & 1(2.5%) respectively with P value was 0.012 which was significant. So pial invasion

is common in high grade tumor. According to subtype of meningioma, meningotheelial variety was more common among Grade-I tumor and but

papillary variety was significantly correspond with Grade-III and clear cell variety with G-II ($p=0.001$).

Table-5 : Univariate logistic regression for predictors of WHO Grade II & III type of meningioma (n=40)

Variables	Crude OR	95% CI	P-value
Age			0.762 ^{ns}
Gender			
Male	5.42	1.262-2.595	0.023 ^s
Female	1		
Tumor size	1.841	3.281-3.699	0.246 ^{ns}
Tumor margin			
Regular	1		
Irregular	10.51	4.136-2.330	0.006 ^s
Peritumoral edema			
present	8.288	1.575-43.616	0.013 ^s
Absent	1		
Central Necrosis			
Present	3.467	6.246-8.447	0.011 ^s
Absent	1		
Pial invasion			
Present	11.433	6.231-1.852	0.012 ^s
Absent	1		

OR= odds ratio s-statistically significant ns- statistically non significant

According to this table, age was not a significant predictor of high grade($p=0.762$). Male sex was also

associated with higher grade meningioma like WHO G-II and G-III (OR-5.42, 95%CI 1.27-23.26, P

value=0.023). Tumor size was not significant for higher tumor grade (OR-1.85, 95% CI-0.973, P value-0.060). Irregular tumor outline was strongly associated with high grade meningioma (OR-5.42, 95% CI-1.27--23.26, P value-0.023) compared to regular margin in univariate logistic regression. Heterogeneous gadolinium contrast uptake was also associated with

high grade tumor (OR 8.67, 95% CI 1.90-39.69, P value 0.05). Pial invasion was closely associated with atypical/anaplastic meningioma with (OR 3.47, 95% CI 0.808-14.882, P value 0.04). Central necrosis had significant P value with (OR 11.44, 95% CI 2.15-61.02, P value-0.094) and considered for predictor of higher grade of meningioma.

Table-6: Multivariate logistic regression for predictors of WHO Grade II & III type of meningioma (n=40).

Variable	Adjusted OR	95% CI	P value
Sex	21.056	1.350-328.354	0.030 ^s
Tumor size	0.942	0.384-2.310	0.896 ^{ns}
Tumor margin	14.181	0.921-218.305	0.047 ^s
Contrast enhancement	7.645	0.536-108.954	0.133 ^{ns}
Central necrosis	0.028	0.01-0.774	0.035 ^s
Pial invasion	18.307	0.647-517.749	0.012 ^s

s-statistically significant

ns- statistically non-significant

According to multivariate analysis, sex, marginal irregularity and central necrosis and pial invasion obtained significant p value but tumor size, heterogeneous contrast uptake became insignificant in multivariate analysis. Male sex was an independent risk factor for atypical meningioma or high Grade.

Discussion:

In our study we found that, most of the patients were between 27 years to 70 years of age (42.5 %), with mean age of 46.68 ± 12.18 years that is most common in 4th decade. But Bhat et al. & Moradi et al. found this tumor was more

common in 5th decade^{13,17}. This variation may be due to different geographic, genetic and racial distributions. Association between age and tumor grade is not statistically significant in our study which corresponds with the findings of S.T Magill et al. they showed that age was not a significant predictor of higher tumor grade¹⁵.

In this study the majority of the patients are female and male female ratio is 1:2.34. Among the 51 patients, Smita et al. found 67% was female and 33% was male with male to female ratio being 1:2¹⁸. Alexiou et al. also found similar 1:2 male female ratio in their study¹⁹. Moradi et al. mention the female outnumbers males by a ratio of 1.7:1.¹⁷

We found Male sex have a strong predictor for higher grade (Grade-III, Male 1(100%). This finding was consistent with S.T Magill et al. where they found that male sex was more susceptible to be grade II or grade III tumor.¹⁵

Our study shows that most of the cases have headache 36 (90%) followed by vomiting 19 (47.5%) & visual disturbances 8(20%). Moradi et al. in their large series of 4885 patients find that the most common presenting complaints were headache / vertigo (66.7%), epilepsy (28.5%), motor deficit (30%)¹⁷. Similarly, Prabu et al. found that the most common presenting symptoms were headache (45.7%) followed by seizure (25.7%), vision change(20%), weakness in limbs (8.5%).²⁰

Our series shows that majority of meningioma belongs to WHO grade I are 30(75%) where WHO grade II are 9(22.5%) & WHO grade III are 1(2.5%). Bhat et al, 2014 found benign WHO grade I meningiomas occurred in 89.30% cases, WHO grade II in 4.8 % and WHO III in 5.71%. S. T Magill et al. conduct a retrospective study from 1985 to 2016 at the university of California , San Francisco, over 1113 patients found that the majority (81%) of patients had WHO grade I tumor and 19% were WHO G-II¹⁵. Park et al. had mentioned in their study that WHO Grade I tumors were 91.8%, WHO grade II were 6.8% and WHO grade III are 1.4%²⁰. Smita shah et al. found in their study of 51 patients, 47 cases were WHO grade I followed by WHO grade II and WHO grade III were 8% and 0% respectively¹⁸. All these data are similar to our results. In case of grade II & III findings of our study & some of previous studies are difference may be due to different geographic distribution in our setting in comparison to western countries.

We have found Meningothelial 13 (32.5%), Transitional 4 (10%) 12.5%, Angiomatous 4 (10%), Fibroblastic 10 (25%), Chordoid 4 (10%), Clear cell 5 (12.5%), Papillary 1 (2.5%) subtype of WHO grade of meningioma. Smita Shah et al. found in their study of 51 cases meningothelial 37%, psammomatous 19% and fibroblastic 16% of cases¹⁸. Bhat et al 2014 found that among 729 cases there are 57.75% meningothelial, 11.11% transitional, 3.43% atypical, 1.37% anaplastic meningioma. Similarly,

Moradi et al. found meningothelial 33.7%, transitional 32.7%, fibroblastic 13%, anaplastic 0.8%¹⁷. All these studies have some similarity with our study.

Mean size ($\pm$ SD) is 4.53($\pm$ 1.26) cm with size range from 1.9 to 7 cm. In our series larger tumor size is not a risk factor for high grade meningioma. Our observations are similar to SA Utomo et al, they showed that tumor size/volume did not always correlate with meningioma grade²¹. In their samples they found size of grade I tumor was usually small or average with some larger sizes and atypical meningioma was large with some small tumor. Our finding is different from S.T. Magill et al. in which they had showed that larger meningiomas were more likely to be grade II tumors¹⁵. This disparity may be due to lack of awareness and late presentation of patients to physician or surgeon or financial constraints. Besides, geographical variations, racial & ethnic differences, genetic causes and different lifestyle may be responsible.

In our series, P-values of tumor margin in relation to tumor grades are significant in all three analyzing tools. It indicates chance to be higher grade is more if tumor margin is irregular /lobulated/ and /or mushrooming. Similarly, Nakasu et al. found mushroomed and lobulated meningiomas were more likely to recur than round ones due to higher grades¹². Byung-Won Kim, MD et al. found an irregular margin was more likely to accompany peritumoral edema which was a risk factor of high-grade tumor⁵.

We have found that meningiomas are mostly isointense to hypointense in T1, iso to hyperintense in T2 sequences. This signal intensity has no significant association with tumor grades. In terms of heterogeneous contrast uptake, P-value is not significant. Yosuke Kawahara et al. found that heterogeneous enhancement was also strongly associated with increased risk of high-grade meningioma²³. But Schov et al found that it was not a significant factor for tumor grade.

P values of central necrosis in relation to higher histological grade of are significant at different tools. So it is a strong predictor of high-grade tumor. Similarly, Andrew T Hale et al. & SA Utomo et al. had observed that presence of tumor necrosis found on MRI is associated with an increased risk for atypical meningioma^{7,21}.

Pial invasion is associated with grade II & III tumors. Our findings are similar with Yosuke Kawahara et al. where they had found that unclear tumor brain interface (TBI) or pial invasion contributed to high-grade meningioma²³. But Lin et al (2014) have mentioned that unclear tumor brain interface was not a predictor of high grade.

Peritumoral edema is significantly associated with high grade meningioma in our observation. Our findings are not contradictory to previous literature like Andrew T Hale et al. they had stated that peritumoral edema was also predictive of atypical meningioma in their cohort (p

= .001)⁷. But according to Byung-Won Kim, M.D et al. this type of association of edema with tumor grades was not significant⁵.

In our study, the mean tumor volume was 174cc³ ±SD 114.84 without significance differences between males and females. Dolecek TA et,al. found no statistically significant association between tumor volume and PTBE²⁵. But Tamiya. T. et al. report on strong correlation between tumor volume and PTBE²². Some tumors caused significant venous compression and ischemic stroke and significant brain edema. In our study, there was no statistically significant correlation between tumor volume and PTBE.

Conclusion:

Imaging feature of intracranial meningioma like marginal irregularity, central necrosis, peritumoral brain edema and pial invasion in preoperative MRI of brain is associated with histological Grades. Assumption of tumor grades may help us in making surgical planning accordingly. Although not statistically significant, we believe that our findings may suggest that PTBE occurs more frequently in older meningioma patients than it does in younger patients. We expect our findings may enhance understanding of the association between peritumoral brain edema and histological WHO grade of meningioma. This study concluded that peritumoral brain edema of meningioma was significantly associated with WHO Grade. The findings of this study should

be incorporated as a factor in future prognostic model.

Limitations:

1. Randomization of the sample was not done, so there may be sampling bias.
2. This was a single center study and duration of study was short, so, results may not reflect the exact picture of the country.
3. All the histopathological tests were not done by same pathologist. Doubtful specimen could not be re-evaluated by 2nd or 3rd pathologist due to financial constraint. Interpretation of histopathological grading of meningiomas may vary among the pathologists and different centers.
4. Postoperative immune histochemistry tests were not done due to financial constraints.

Recommendations:

1. To reduce subjective variation in descriptions of MRI we should go for advanced MRI such as DWI & perfusion imaging for quantification of predictors.
2. The imaging features of meningioma in MRI of brain should be collected from the same MRI console.
3. Postoperative histopathology test should be done in same center with expert pathologist; doubtful specimen could be re-evaluated by 2nd or 3rd pathologist.

4. Long study period with larger sample size should be included.
5. Randomization of the sample should be done to exclude sampling biasness.

References:

1. Girish Solanke, Vidya Monappa, Ranjini Kudva, Histopathological Spectrum of Meningiomas with Emphasis on Prognostic Role of Ki67 Labelling Index, Iranian Journal of Pathology Summer 2020; Vol.15, No.3.
2. Perry A. Brat, Daniel J, Practical Surgical Neuropathology: A diagnostic Approach, Churchill livingstone Elsevier 2010; p:185-217.
3. Louis DN et.al, World Health Organization Classification of Tumors of the central nervous system; a summary: acta Neuropathology 2016;131:803-20.
4. Imam, N, Elghriany, A, Elshanawany, A and Elhakeem, A, Ki 67 Proliferative Index and Peritumoral brain edema in Meningiomas; Do they Correlate? A clinical study of 56 patients, Open journal of Modern Neurosurgery 2019;9,461-471
5. Byung-Won K, Min-Su K, Sang-Woo K, Chul-Hoon C, Oh-Lyong K, Peritumoral brain edema, in meningiomas; correlation of radiological and pathologic features, J Korean Neurosurg Soc 2011;49;26-63.
6. Liang et.al, The potential risk factors for atypical and anaplastic meningiomas; clinical series of 1239 cases, 15 dec, 2014;7(12):5696-5700.
7. Andrew T Hale et. Al, Differentiating meningiomas grade by imaging features on magnetic resonance imaging, Journal of clinical Neurosciences, 15 November, 2017.
8. Markovic M, Antunovic V, Milenkovic, Zikovic N, Prognostic value of peritumoral brain edema and angiogenesis in intracranial meningioma surgery. JBUON, 2013;18(2);430-6.
9. Ketter R, Rahnenfuhrer J, Henn W, Yoo-jin K, Feiden W, Wolf-Ingo S, Zang K D, Urbach S :.Correspondence of tumor localization with tumor recurrence and cytogenic progression in meningiomas. Neurosurgery. 2008;62:6170, doi:10.1227/01.NEU.0000311062.72626.D6
10. Mattei TA, M23attei JA, Ramina R, Aguiar PH, Plese JP, Marino P, Edema and malignancy in meningiomas. clinics, 2005;60:201-6.
11. Nassehi D. Intracranial meningiomas, the VEGF-A Pathway and peritumoral brain edema. Dan Med J. 2013;60;b4626
12. Nowak A, Dziedzic T, Krych P, Czernicki T, Kunert P, Marchel A; Benign versus atypical meningiomas: risk factors predicting recurrence; Neurol Neurochir Pol 49:1-10, 2015
13. Bitzer M, Wockel L, Morgalla M, Keller C, Friese S, Heiss E, et al: Peritumoral brain oedema in intracranial meningiomas: influence of tumor size, location and histology. Acta Neurochir (Wien) 1997;139:1136-1142.
14. Nowak A, Dziedzic T, Krych P, Czernicki T, Kunert P, Marchel A; Benign versus atypical meningiomas: risk factors predicting

- recurrence; *Neurol Neurochhir Pol* 2015;49:1-10.
15. Gurkanlar D, Er U, Sanli M, Ozkan M, Sekerci Z. Peritumoral brain edema in intracranial meningiomas. *J ClinNeurosci*; 2005;12:750-3.
 16. Stephen T Magill et al, Relationship between tumor location, size and WHO Grade in meningioma, Department of Neurological surgery, University of California, Sanfrancisco, California, January 8, 2018
 17. Hakija Beculic, Rosim Skomorac, Aldin Jusic et, al.2019; correlation of peritumoral brain edema with morphological characteristics and ki 67 proliferative index in resected intracranial meningiomas, *Acta Clin Croat* ;58:42-45.
 18. Moradi, A, Semnani, V, Djam, H, Tajodini, A, Zali, AR, Ghaemie, K, Nikzad, N and Madani-Civi, M 2008, 'Pathodiagnostic parameters for meningioma grading', *Journal of Clinical Neuroscience*, vol. 15, pp. 1370-1375
 19. Smita shah, KA, Leever, JD, Hylton, PD, Camarata, PJ and Chamoun, RB 2013, Histopathological study of meningioma in civil hospital,Ahmedabad,International journal of current research and review, *Journal of Neurosurgery*, pp. 1-7.
 20. Alexiou, G.A., Gogou, P., Markoula, S. and Kyritsis, A.P., 2010. Management of meningiomas. *Clinical neurology and neurosurgery*, 112(3), pp.177-182.
 21. Prabhu et al.2014, Intracranial meniniomas in individuals under the age of 30; Analysis of risk factors, histopathology and recurrence rate ,*Neuroscience discovery*.
 22. Tamiya T, Ono Y, Matsumoto K, Ohomoto T; Peritumoral brain edema in intracranial meningiomas; effect of radiological and histological factors ,*Neurosurgery*,2001;49;1046-52
 23. Utomo, S.A. and Andriani, F.R., 2019. Does tumor size, peritumoral edema, location and necrosis can be used to predict grading of meningioma. *Int J Radiol Radiat Ther*, 6(6), pp.195-198
 24. Yosuke Kawahara , Nakada M, Hayashi Y, Kai Y, Uchiyama N, Nakamura H, Kuratsu JI and Hamada JI ,2012;Prediction of high grade meningioma by pre operative MRI assessment .*Journal of neurooncology*,108(1),pp.147-152..
 25. Dolecek TA, Dressier EV, Thakkar JP, Liu M, Al –Qaisi A, Villano JL,2015,Epidemiology of meningiomas post public law 107-206:The Benign Brain Tumor; Cancer registries Amendment act cancer;121;2400-10, doi;1002/cncr29379.

REVIEW ARTICLE**Review of New Treatments for Paucibacillary Leprosy***Alam AFMS¹***Abstract**

Paucibacillary leprosy (PB) has undergone significant changes in recent years, with a shift from the traditional two-drug regimen to a three-drug regimen in some guidelines. The World Health Organization (WHO) has recommended a six-month course of multidrug therapy (MDT) consisting of Rifampicin: 600 mg once a month (supervised) and Dapsone: 100 mg daily (unsupervised). This regimen, introduced in 1982, has been highly successful in curing millions of patients with a low risk of relapse. However, challenges such as patient classification, persistent active lesions, and the potential for drug resistance have led to a re-evaluation of treatment strategies.

In 2018, the WHO released new guidelines that included a conditional recommendation for a "uniform MDT" regimen, advocating for all leprosy patients, regardless of their PB or multibacillary (MB) classification, to be treated with a three-drug combination. For PB leprosy, this would mean adding a third drug, particularly clofazimine, to the traditional regimen. The duration of treatment for PB cases remains six months.

The primary motivations for the change to a uniform three-drug regimen for PB leprosy are to address classification difficulties, improve clinical outcomes, prevent drug resistance, and reduce the incidence and severity of leprosy reactions. However, the shift to a uniform MDT has been met with considerable debate and criticism from the medical and scientific communities. Key points of contention include the lack of high-quality evidence, the "Do No Harm" principle, the success of the traditional two-drug PB-MDT regimen, and the cost-effectiveness of introducing a third drug for a large number of patients who do not require it.

Key words: Leprosy, paucibacillary, new regimen, WHO

J. Tangail Medical College, 2025;2(2): 91-94

1. Dr. A F Mohammed Shafiqul Alam, Associate Professor, Department of Pharmacology, Dhaka medical college, Dhaka. Phone: 01818074182. E-mail: munnak56@gmail.com

Received: 11th June, 2025

Accepted: 28th June, 2025

The treatment of paucibacillary (PB) leprosy has undergone significant changes in recent years, with a shift from the traditional two-drug regimen to a three-drug regimen in some guidelines. This review examines the rationale, evidence, and controversies surrounding these new treatment approaches, with a focus on the World Health

Organization (WHO) guidelines and related research.

The Traditional Regimen and Recent Changes:

For decades, the standard treatment for PB leprosy, as recommended by the WHO, has been a six-month course of multidrug therapy (MDT) consisting of:

- **Rifampicin:** 600 mg once a month (supervised)
- **Dapsone:** 100 mg daily (unsupervised)

This regimen, introduced in 1982, has been highly successful in curing millions of patients with a low risk of relapse. However, challenges such as patient classification, persistent active lesions, and the potential for drug resistance have led to a re-evaluation of treatment strategies. In 2018, the WHO released new guidelines that included a conditional recommendation for a "uniform MDT" regimen. This new approach advocates for all leprosy patients, regardless of their PB or multibacillary (MB) classification, to be treated with a three-drug combination. For PB leprosy, this would mean adding a third drug to the traditional regimen:

- **Rifampicin:** 600 mg once a month (supervised)
- **Dapsone:** 100 mg daily (unsupervised)
- **Clofazimine:** 50 mg daily and 300 mg once a month (unsupervised and supervised, respectively)

The duration of treatment for PB cases remains six months.

Rationale for the New Approach

The primary motivations for the change to a uniform three-drug regimen for PB leprosy are:

1. **Addressing Classification Difficulties:** The distinction between PB and MB leprosy can be challenging, especially in resource-limited settings where

laboratory tests (like slit-skin smears) are not readily available. Using a single, standardized regimen for all patients simplifies diagnosis and treatment at the primary healthcare level, reducing the risk of misclassification and undertreatment of borderline cases.

2. **Improved Clinical Outcomes:** Some studies, though often with methodological limitations, have suggested that the addition of clofazimine to the PB regimen leads to better clinical and histological outcomes, such as a faster resolution of skin lesions and a lower incidence of persistent activity.
3. **Prevention of Drug Resistance:** Adding a third drug, particularly clofazimine which has a long half-life and bactericidal activity, is seen as a precautionary measure to prevent the development of drug resistance, especially in cases with a higher bacterial load that may have been misclassified as PB.
4. **Anti-inflammatory Effects:** Clofazimine possesses anti-inflammatory properties, which may help to reduce the incidence and severity of leprosy reactions, which can lead to irreversible nerve damage.

Controversies and Critiques

The shift to a uniform MDT has been met with considerable debate and criticism from the medical and scientific communities. Key points of contention include:

- **Lack of High-Quality Evidence:** Critics argue that the recommendation for a three-drug regimen for PB leprosy is based on "very low-quality evidence."

The studies cited by the WHO often have small sample sizes, are not blinded, and use unvalidated outcome measures, making it difficult to draw definitive conclusions.

- **"Do No Harm" Principle:** The addition of clofazimine introduces potential side effects that were previously not a concern for PB patients. The most common adverse effect is skin pigmentation, which can be distressing for patients and potentially lead to stigma and poor treatment adherence. Other side effects, such as xerosis (dry skin) and gastrointestinal issues, have also been reported.
- **Successful Long-Standing Regimen:** The traditional two-drug PB-MDT has been highly effective for nearly four decades. The relapse rates have been exceptionally low, well within acceptable limits. There is a strong argument that a successful and safe regimen should not be altered without compelling evidence of a superior alternative.
- **Cost-Effectiveness:** Introducing a third drug for a large number of patients who do not require it raises questions about cost-effectiveness, especially in countries with high leprosy endemicity.

Alternative and Emerging Regimens

While the uniform MDT is a major topic of discussion, other new and alternative regimens have been explored:

- **ROM Regimen:** For single-lesion PB leprosy, a single dose of a combination of **Rifampicin, Ofloxacin, and Minocycline (ROM)** has been studied.

Research has shown that ROM can be as effective as the traditional six-month PB-MDT regimen, with similar cure and relapse rates. This approach has the advantage of being a single, supervised dose, which greatly improves patient compliance.

- **RMM Regimen:** A monthly regimen of **Rifampicin, Moxifloxacin, and Minocycline (RMM)** has been proposed as a potential alternative, particularly for its improved safety profile and absence of side effects like skin hyperpigmentation associated with clofazimine. Case series have shown promising results in terms of treatment adherence and rapid clinical improvement.

Conclusion

The objective of streamlining treatment plans and enhancing worldwide disease control is driving changes in the paucibacillary leprosy treatment landscape. A major change in policy is the WHO's conditional recommendation for a standard three-drug MDT for all leprosy cases, including PB. This strategy may simplify treatment and solve misclassification problems, but it is also very contentious because there is little proof that it is better than the conventional two-drug regimen and because of the ethical and practical issues surrounding needless drug exposure and adverse effects.

To conclusively assess the efficacy, safety, and cost-effectiveness of these novel regimens, more thorough, high-quality evidence from carefully planned clinical trials will be required in future studies. Meanwhile, the discussion emphasizes how

important it is to strike a balance between individual patient treatment and public health policy in the continuous fight to eradicate leprosy.

Bibliography

1. Grijzen ML, Nguyen TH, Pinheiro RO, et al. Leprosy. *Nat Rev Dis Primers*. 2025; 10:90. doi:10.1038/s41572-024-00575-1.
2. World Health Organization. Leprosy [Internet]. Geneva: WHO; 2025 Jan 24 [cited 2025 Aug 18]. Available from: <https://www.who.int/news-room/fact-sheets/detail/leprosy>
3. Montezuma T, Vernal S, Andrade EN, Brandão JG, de Oliveira GLA, Gomes CM. Effectiveness and safety of multidrug therapy containing clofazimine for paucibacillary leprosy and clarithromycin for rifampicin-resistant leprosy: a systematic review and meta-analysis. *Front Med (Lausanne)*. 2023 May 10;10:1139304. doi:10.3389/fmed.2023.1139304. PMID: 37234244; PMCID: PMC10206035.
4. Lazo-Porras M, Prutsky GJ, Barrionuevo P, et al. World Health Organization (WHO) antibiotic regimen against other regimens for the treatment of leprosy: a systematic review and meta-analysis. *BMC Infect Dis*. 2020;20:62. doi:10.1186/s12879-019-4665-0.
5. Liu H, Wang Z, Bao F, Wang C, Sun L, Zhang H, Yu G, Mi Z, Li J, Li L, Zhao Q, Yue Z, Zhao W, Yu W, Cao J, Xiong F, Wang Y, Chai Z, Cheng X, Zhang Y, Fu F, Lang X, Wang X, Irwanto A, Krismawati H, Fu X, Sun Y, You J, Liu J, Pan Q, Chu T, Liu D, Chen S, Shen J, Yan L, Zhang G, Liu J, Zhang F, Xiong

L, Yang J, Li J, Ke W, Li M, Ning Y, Xiong J, Li M, Xiong M, Yang B, Duan Q, Wang H, Li W, Kuang Y, Li J, Wang L, Cao Q, Xiao P, Xiao B, Zhang L, Lin Z, Wang Y, Shen Y, Yan L, Wu W, Zheng H, Zhan X, Li W, Shang X, Xu Y, Liu Q. Evaluation of prospective HLA-B*13:01 screening to prevent dapsone hypersensitivity syndrome in patients with leprosy. *JAMA Dermatol*. 2019 Jun 1;155(6):666-72. doi:10.1001/jamadermatol.2018.5360. PMID: 30916737; PMCID: PMC656354

CASE REPORT

Molar Pregnancy with a Co-Occurring Normal Viable Foetus and a Successful Pregnancy Outcome: A Case Report

Nahar NS¹, Reshma SA²

Abstract

Background: Molar pregnancy with a coexisting viable fetus is a rare and high-risk condition, often associated with maternal complications such as preeclampsia, hyperthyroidism, hemorrhage, and progression to gestational trophoblastic neoplasia (GTN). Fetal survival rates are generally poor.

Case Presentation: We report the case of Mrs. Sanjida, a 26-year-old woman, para-1(c/s), gravida-2nd, who presented at 36 weeks of gestation with USG report showing normal viable fetus and molar change in the placenta. At 36 weeks, an elective cesarean section was performed as scar tenderness developed, resulting in the delivery of a healthy male neonate with a normal placenta, along with a second placenta showing molar changes.

Outcome: Postoperatively, the patient had no complications. Serum β -hCG at day 7 was 13,000 IU/L, and levels normalized within 2 months. The patient was followed up for 6 months with no evidence of persistent GTN.

Conclusion: This case demonstrates that with careful monitoring, timely delivery, and vigilant postpartum follow-up, pregnancies complicated by coexisting molar tissue and a viable fetus can result in favorable maternal and neonatal outcomes.

Keywords: Molar pregnancy, coexisting viable fetus, hydatidiform mole, β -hCG, gestational trophoblastic disease

J. Tangail Medical College, 2025;2(2): 95-99

1. Dr. Nafisa Shamsun Nahar, Junior consultant, Gynae & Obs, Dhaka Medical College Hospital, Dhaka
Phone- 01712088023, e-mail- nsnrumpa@gmail.com
2. Dr. Sabrina Akter Reshma, Indoor medical officer, Dhaka Medical College Hospital, Dhaka

Received: 29th June, 2025

Accepted: 12th July, 2025

Introduction

Hydatidiform mole with a coexisting viable fetus is a rare obstetric condition, estimated to occur in 1 in 22,000–100,000 pregnancies. It usually presents as a dizygotic twin gestation with one normal fetus and placenta, and another molar pregnancy. Such cases pose significant risks, including preeclampsia, hyperthyroidism, hemorrhage, and progression to persistent gestational trophoblastic neoplasia (GTN). Maternal

and fetal outcomes are often poor but successful continuation to term with delivery of a healthy neonate has been documented. We report a case of complete molar pregnancy with a co-existing viable fetus, resulting in favorable maternal and neonatal outcomes.

Case Report

Patient Profile:

Sanjida, a 26-year-old woman, para-1(c/s)+0, gravida-2nd, presented at 36 weeks of gestation.

Clinical Course:

She was not on regular antenatal checkup. She was referred with an USG report showing normal viable fetus with molar change in the placenta

- During pregnancy, her serum **β -hCG** was elevated at **1,96,690 IU/L**.
- No clinical complications such as hypertension, hyperthyroidism, or vaginal bleeding were reported during the antenatal period
- Patient was discussed about the risk and complications

Delivery:

- At 36 weeks, an elective **cesarean section** was performed as scar tenderness developed.
- A **healthy male neonate** with normal birth weight and good Apgar scores was delivered.
- Intraoperatively, two placental tissues were observed:
 - A **normal placenta** associated with the live fetus.

- A separate placental mass with **vesicular, grape-like structures**, consistent with molar change.

Postpartum Course:

- No intraoperative or postoperative complications were noted.
- Placenta was sent for histopathological exam and report showed one normal placenta and complete mole in another placenta
- Serum **β -hCG** measured on day 7 postpartum was **13,000 IU/L**.
- Serial monitoring showed normalization of β -hCG within **2 months**.
- The patient was followed for **6 months**, with no evidence of persistent trophoblastic disease or recurrence.
- According to the statement of the mother, development of the baby was normal up to 6 months of age.

Figures & Diagrams

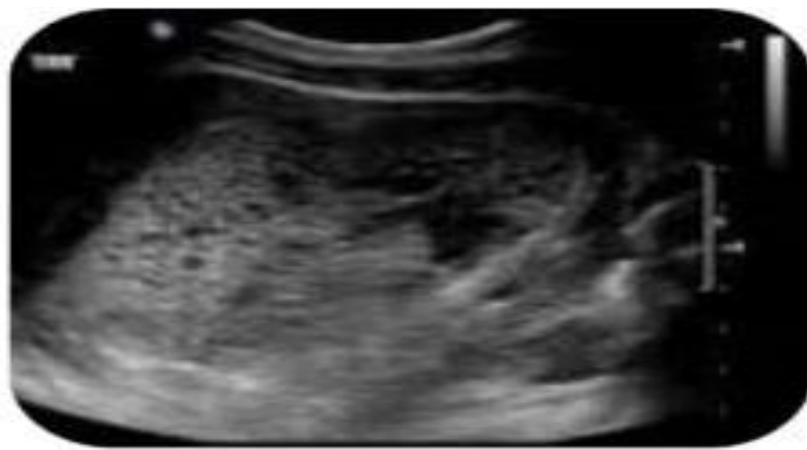


Figure 1: Ultrasound image of the pregnancy showing a normal live fetus with a separate heterogeneous cystic mass suggestive of molar changes.

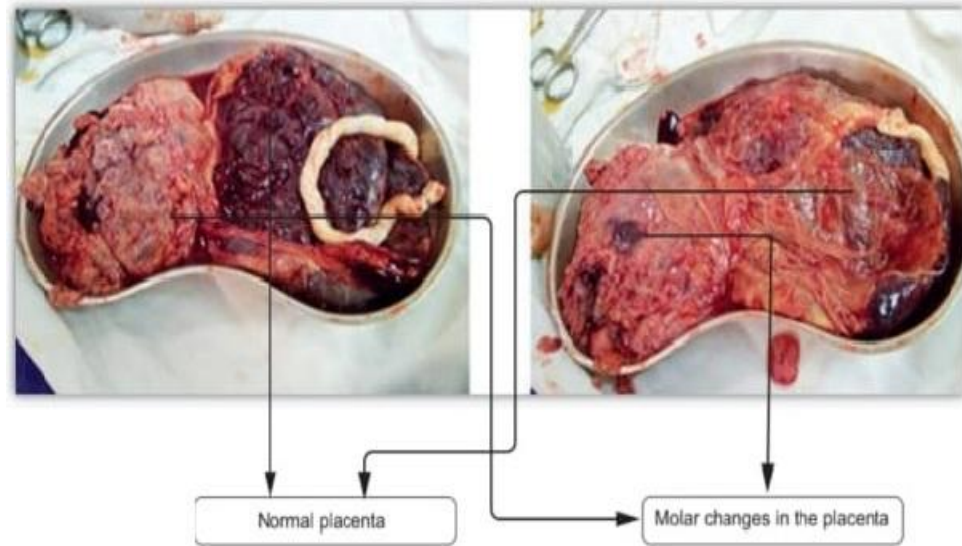


Figure 2: Intraoperative photograph showing two placental tissues—one normal placenta and another vesicular mass consistent with a hydatidiform mole.

Discussion

The coexistence of a viable fetus and molar pregnancy is rare and often complicates management due to the high risk of maternal and fetal morbidity. The majority of cases are associated with poor fetal survival, with reported live birth rates of 20–40%. Maternal complications, including preeclampsia, hyperthyroidism, and hemorrhage, are frequently encountered due to the markedly elevated β -hCG levels.

In the present case, despite significantly elevated β -hCG, Sanjida experienced an uneventful antenatal course. Delivery by cesarean section ensured both maternal safety and successful neonatal outcome. Histopathology of the abnormal placental mass confirmed molar changes.

Postpartum follow-up with **serial β -hCG** is essential to exclude persistent GTN, as 15–20% of complete moles may progress to neoplasia. Our patient's β -hCG normalized

within 2 months, with no evidence of disease during 6 months of follow-up.

This case emphasizes the importance of **careful patient selection, multidisciplinary management, and vigilant postpartum monitoring**, as favorable maternal and neonatal outcomes are achievable despite the rarity and high-risk nature of this condition.

Conclusion

Molar pregnancy with a co-existing viable fetus is a rare but high-risk obstetric condition. With close monitoring, appropriate delivery planning, and strict postpartum surveillance, successful outcomes for both mother and child are possible. This case reinforces the importance of individualized management in such pregnancies.

Flowchart of Case Management

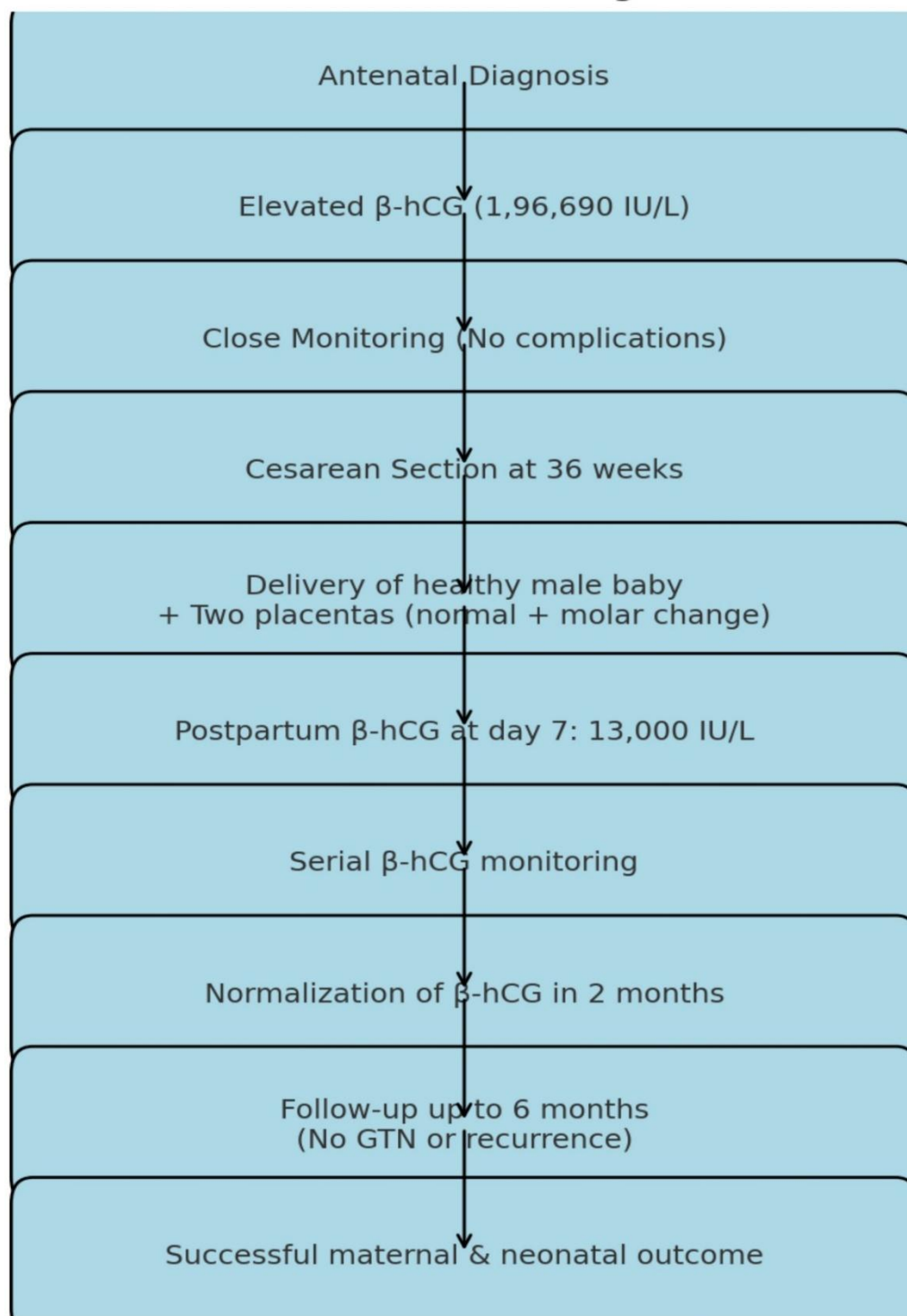


Figure 3: Flowchart of patient management (antenatal monitoring, delivery planning, postpartum β-hCG surveillance).

Bibliography

1. Alsaffar GS, Madan ZH, Alsalama MA, Taman M. Successful pregnancy outcome of a suspected molar pregnancy after a trial of in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI): a case report and literature review. *Cureus*. 2025 Apr 4;17(4):e81693. doi: 10.7759/cureus.81693.
2. Braga A, Uberti EM, Fajardo MC, et al. Molar pregnancy with a coexisting living fetus: A case series. *J Reprod Med*. 2016;61(5–6):238–244.
3. Farazestanian M, Maleki A, Bolandi S, Yousefi Z, Hasanzadeh M, Shirinzadeh L, Kamandi S. Molar Changes With a Normal Viable Fetus: A Case Report. *J Family Reprod Health*. 2020 Sep;14(3):205–208. doi: 10.18502/jfrh.v14i3.4675. PMID: 33603814; PMCID: PMC7868656.
4. Hemida R, Khashaba E, Zalata K. Molar pregnancy with a coexisting living fetus: a case series. *BMC Pregnancy Childbirth*. 2022;22:681. doi: 10.1186/s12884-022-05004-3.
5. Hossain N, Anjuman F, Mahmud MS, Hossain S. Molar pregnancy with a co-exist normal viable fetus and successful pregnancy outcome: A case report. *Bangladesh Med Res Counc Bull*. 2022 Dec;48(3):249–253. doi: 10.3329/bmrcb.v48i3.62689.
6. Sebire NJ, Foskett M, Paradinas FJ, et al. Outcome of twin pregnancies with complete hydatidiform mole and healthy co-twin. *Lancet*. 2002;359(9324):2165–2166.
7. Vaisbuch E, Ben-Arie A, Dgani R, et al. Twin pregnancy consisting of a complete hydatidiform mole and coexistent fetus: report of two cases and review of literature. *Gynecol Oncol*. 2005;98(1):19–23.
8. Vejerslev LO. Clinical management and diagnostic possibilities in hydatidiform mole with coexistent fetus. *Obstet Gynecol Surv*. 1991;46(9):577–58.

Journal Of Tangail Medical College (JTMC)

Editor's Policy

Transparency policy

The TMC Journal has a set of ethical editorial principles, an ethics advisory committee and a commitment to transparency. We try to ensure that readers, authors, and editors know as much about the background to each other's work as possible. We do this through policies such as open peer review, declaring competing interests, and explaining the role of the bodies that fund research.

Ethics approval

We require every research article submitted to include a statement that the study obtained ethics approval (or a statement that it was not required and why), including the name of the ethics committee(s) or institutional review board(s), the number/ID of the approval(s), and a statement that participants gave informed consent before taking part.

Publication ethics

The TMC Journal aims to ensure that all articles published in *TMCJ* report on work that is morally acceptable, and expects authors to follow the World Medical Association's [Declaration of Helsinki](#)

Editorial duty of confidentiality towards authors

The TMC Journal editors treat all submitted manuscripts as confidential documents, which mean they will not divulge information about a manuscript to anyone without the author's permission. During the process of manuscript review the following

people may also have access to manuscripts:

- Editors and editorial staff at *TMC Journal*, including medical students on placement and occasional outside visitors - usually doctors or editors from other journals;
- External reviewers, including statisticians and experts in trial methods;
- Members of the journal's editorial committees, comprising the final stage in our peer review process for original research articles;
- The only occasion when details about a manuscript might be passed to a third party without the authors' permission is if the editor suspects serious research misconduct.

Peer review

The TMC Journal employs a peer-review process to evaluate manuscripts for scientific accuracy, novelty, and importance. The peer-review process often works to improve research while preventing overstatements of results from reaching physicians and the public. The *Journal's* careful editing process often requires extensive revisions and involves detailed checking for accuracy.

Authorship

It is the responsibility of every person listed as an author of an article published in *TMC Journal* to have contributed in a meaningful and identifiable way to the design, performance, analysis and reporting of the

work and to agree to be accountable for all aspects of the work.

As stated in the International Committee of Medical Journal Editors (ICMJE) Recommendations, credit for authorship requires:

- Substantial contributions to conception and design; or acquisition, analysis, or interpretation of data
- Drafting of the article or critical revision for important intellectual content
- Final approval of the version to be published
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the article are appropriately investigated and resolved.

Before publication, each author must sign a statement attesting that he or she fulfills the authorship criteria of the **ICMJE Recommendations**. As part of the submission process, authors must indicate whether any writing assistance other than copy editing was provided to them.

Co-authorship

The *Journal* will indicate when two authors contribute equally to a work. In print, this reads as, “Drs. XXX and YYY contributed equally to this article.” When submitting an equally coauthored paper, authors can indicate dual authorship with an asterisk on the manuscript title page.

Corresponding authors

TMC Journal permits only one corresponding author per manuscript submission. This person is solely responsible for all correspondence with the *Journal* and will receive all emails

regarding forms, authorship issues, manuscript files, etc. *TMC Journal* editors will speak only with authors regarding manuscript submissions. However, after acceptance for publication, authors may designate more than one person to be contacted by readers.

Conflicts of interest and financial disclosures

TMC Journal is committed to publish the highest-quality research and reliable, authoritative review articles that are free from commercial influence.

For all research articles published, *TMC Journal*:

- Lists study sponsorship
- Posts disclosure forms filed by all authors alongside the full text of each article
- May publish additional information about author contributions in the Methods section of research articles

A separate disclosure policy applies to review articles and editorials, which comment on published articles but do not present new research. The Journal expects that authors of such articles have no significant financial interests in any biomedical company relevant to topics and products discussed in the subject they are reviewing or the article on which they are commenting. When prospective authors do have financial ties to disclose, Journal editors decide whether they are relevant to the subject and whether they are minimal.

TMC Journal policy requires that none of its editors have any financial relationships with any biomedical companies.

Manipulation of figures

When submitting new and revised manuscripts, authors must describe and clearly indicate all modifications, selective digital adjustments, and electronic enhancements made to any digital images.

Authors must also ensure that all submitted figures meet the following criteria:

- No specific feature in an image has been enhanced, obscured, moved, removed, or introduced
- Any adjustments to brightness, color, or contrast have been made to an entire image and do not misrepresent any features of the original image
- No image has been duplicated within the manuscript or published elsewhere
- Original image metadata is available and can be provided to *TMC Journal* editors on request

Identifiable patients:

Authors should remove information from photographs and manuscripts that might identify a patient. Where this is impossible, submissions must be accompanied by a written release from the patient.

Clinical trials registration

The **International Committee of Medical Journal Editors (ICMJE)** and, therefore, *TMC Journal* require investigators to register trials in acceptable clinical trial registries (e.g. BMRC) before the onset of patient enrollment. Manuscripts describing primary results of nonregistered trials will be turned away prior to peer review.

Clinical trials

The ICMJE requires that “any research project that prospectively assigns human

subjects to intervention and comparison groups to study the cause-and-effect relationship between a medical intervention and a health outcome” must be registered before the start of patient enrollment. To be acceptable, a registry must be owned by a non-for-profit entity, be publicly accessible, and contain the 20 fields required by the World Health Organization (WHO).

Each manuscript will be checked on submission to determine whether the study needed registration, and, if registered, whether the registration is complete and meaningful. No manuscript will enter the editorial process until it has passed this screen.

Data sharing

The **International Committee of Medical Journal Editors (ICMJE)** and, therefore, *TMC Journal* require investigators to submit a data-sharing statement and register a data-sharing plan when registering a trial.

Statistics

TMC Journal recognizes that there are many ways to perform statistical analyses and solve statistical problems.

No prior publication

When making manuscript decisions, the editors strongly consider the accuracy, novelty and importance of the submission and strive to ensure that an independent peer review of the scientific findings occurs before public dissemination. *TMC Journal* will therefore not consider any manuscript that has been published elsewhere and any manuscript whose primary results have been released, except as indicated below.

The following activities do not violate *TMC* Journal embargo or no-prior-publication policies:

- Presenting research at scientific meetings
- Posting a manuscript on a non-profit preprint server for feedback from the scientific community
- Releasing results to government agencies to meet statutory requirements or urgent public health needs

Copyrights/permissions

Material published in the *TMC* Journal is covered by copyright. All rights are reserved under Bangladesh and International copyright and other laws and conventions.

Unauthorized use

Trademark ownership

The *TMC* Journal and *TMC* Journal Logo are trademarks of the Tangail Medical College, Tangail. Any use of this trademark in connection with the sale, offering for sale, distribution, or advertising of any goods or services, which is likely to cause confusion, to cause mistake, or to deceive, is strictly prohibited.

Publication ethics

In addressing concerns raised by readers, the *TMC* Journal is guided by the recommendations and policies related to research and publication ethics developed by the International Committee of Medical Journal Editors, the Committee on Publication Ethics and the Council of Science Editors.



Official Journal of
Tangail Medical College, Tangail
<https://tmctangail.college.gov.bd>