JKMC
# Journal of Khulna Medical College

Vol : 02 | No : 02 October 2023



An Official Organ of Teachers' Association, Khulna Medical College

**Editorial**

# Indiscriminate Use of Medical Laser in Bangladesh

Medical lasers have been widely used for treatment of various diseases. Despite the notable benefits, lasers could cause several complications such as skin burn, eye injury, airway fire, and so on. These accidents may occur not only with patients, users of the laser or laser handlers but also to people passing in front of the laser treatment room.[1]

In our country many specialities are using laser for medical treatment. Laser therapy are becoming popular rapidly in Bangladesh because of hospitals and clinicians advertisement through different medias. They are marketing these therapies as more effective than conventional established techniques. Many physicians are being compelled to purchase the laser devices with the fear of losing patients to other hospitals those have laser facilities. Many centers are keeping lasers only for promotional purpose or selling their services. A laser can attract patients whether it is used or not. Although different types of lasers are used for different diseases, many medical centers are using only one type of laser for treating multiple diseases. In many instances, they are using wrong laser for treatment. To remove the tattoo mark many centers are using wrong lasers and creating wounds which heals with leaving scar marks which seems uglier than previous tattoo mark. This is probably due to lack of proper training.

Patients are often unaware and sometimes misinformed about the outcome of laser treatment in our country. Patients unware of the investigational aspects of these devices are often demanding laser therapy regardless of its appropriateness.[2] Long term studies about laser therapy are not readily available. So we should conduct prospective studies against known forms of therapy that are in place and considered to be effective.

In our country many physicians are using medical lasers with inadequate training. In many instances only technicians are using lasers. To prevent hazards of laser therapy, doctors should have updated laser education and practical training. Patient Hands-on practice and continuous medical education on laser technology is the first requirement for a doctor to use laser in any medical field. In addition, the use of lasers may only be permitted if the maintenance protocols of laser devices can be demonstrated. Continuous education on the safe use of lasers should be given every year, and when a new device is purchased. Anesthesiologists, anesthesia nurses, technicians need sufficient knowledge and experience because the overall responsibilities of laser device operation and safety during operation should be given to trained personnel only. When a hospital purchases a new laser machine it must undergo both theoretical and practical laser surgery orientation with the participation of all the users, including practitioners, anesthesiologists, operation room nurses and staffs.

In Bangladesh, many users are violating the basic rules of laser uses. Lasers should only be used in controlled locations. Only essential personnel should be allowed in these locations, and all protective goggles must be worn. The windows in the area where the laser is used must be blocked by a substance with a material that can block the laser from being emitted outside the laser chamber. However, when a $CO_2$ laser is used, no blocks are needed. While using the laser, specific signs to pay attention to everyone around us should be used. All entrances must be marked to alert incoming people of ongoing laser procedure. There must be protective goggles that match the wavelengths at the entrances to be used by the incoming people. A sign may be placed around the door to indicate that the laser is in use. Also, if the practitioner is not using the laser, it is safe to change to "Stand-By" or turn off mode.[3] There should have a checklist while preparing for laser surgery. Surgical equipment should be checked immediate before use. Check up must be done by laser safety personnel.

Medical Lasers are increasingly being popular in Bangladesh. They are very useful in diagnosing and treating illnesses. However, they can cause serious damages to both the patients undergoing laser treatment and the medical personnel involved. To prevent such risks, healthcare professionals need enough training on the use of lasers. These lasers should not be used in the centers which have no appropriate facilities for safe use. Specific laser should be used for specific disease. Medical institutions and health authorities of our country should establish appropriate guidelines and precautions for safe use of lasers, which should be implemented and practiced to prevent laser accidents.

J Khulna Med Coll. 2022; 2(2): 45-46

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## References

1. Woo SH, Chung PS, Lee SJ. Safe use of Medical Lasers. Med Lasers. 2021; 10(2): 68-75. https://-doi.org/10.25289/ML.2021.10.2.68
2. Strandness DE Jr, Barnes RW, Katzen B, Ring EJ. Indiscriminate use of laser angioplasty. Radiology. 1989;172(3 Pt 2):945-6. doi: 10.1148/172.3.945. PMID: 2528168..
3. Guideline Quick View: Laser Safety. AORN Journal.2020;112(3):311-316.

   https://doi.org/10.1002/aorn.13181

Original Article

# Patient Profile of Neurology OPD at a Tertiary Care Hospital in Bangladesh

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## Abstract

**Background:** Background: One-fourth of the world's population lives in South Asia, where about 50% of people are under the poverty line and have little access to healthcare and there is also anomaly in the distribution of health care services. As there is limitation in resources so it is important to give attention on common diseases. On this background as a member of south Asia Bangladesh is currently going through an epidemiologic transition where non-communicable diseases are becoming the leading cause of disease burden. So it is very important to give attention on this aspect in health care services in Bangladesh.

**Objective:** To find out the disease pattern among the patients attending at neurology OPD in a tertiary care hospital.

**Methods:** From January 2022 to December 2022, this cross-sectional study was carried out at neurology OPD(Outpatient Department) of Khulna Medical College Hospital. Those who visited the Outpatient Department of Neurology during this period were chosen as study subjects and a total of 1985 patients were visited. Patients' information about age, sex, and diagnosis were collected. The data were then entered into the computer using Microsoft Excel and were summarized in tables as frequency with percentage.

**Results:** Among 1985 visitors, females (54.9%) were predominant than males (45.1%). Female to male ratio was 1.22.Maximum patients were in age group 61 – 70 years (24.2%) followed by in descending order 51 – 60 years (22.0%), 21 – 30 years (16.1%), 41 – 50 years (12.6%), 31 – 40 years (10.2%), 71 – 80 years (8.6%), 11 – 20 years (3.4%), 81 – 90 years (1.7%) and 0 – 10 years (1.2%).Maximum patients came with headache (16.8%) followed by Low back pain (14.6%), Stroke (14.2%), GAD (11.1%), Neck pain (7.7%), ICSOL (3.1%), Epilepsy & seizure (3.1%), Parkinson's disease (2.7%), Peripheral neuropathy (2.2%), Head injury (2.1%), frozen shoulder (1.6%), Bell's Palsy (1.6%), Motor neuron disease (1.6%), Transverse myelitis (1.5%), , Idiopathic Intracranial HTN (1.4%), GBS (1.4%), TIA (1.1%), BPPV (1.0%), Cauda EquinaSyndrome (1.0%), 3rd nerve palsy (0.9%), Myasthenia gravis (0.8%), Brachial plexopathy (0.7%), Diabetic chorea (0.4%), Optic neuritis (0.6%), Wilson's disease (0.5%) and Multiple sclerosis (0.4%).

**Conclusion:** Neurological disorders are common in all age groups, especially after the age of fifty. Headaches, neck pain, low back pain and focal weakness are common presenting symptoms. Headache, PLID and stroke, are the most common neurologic diagnosis made in the OPD. These observations will be helpful for proper management of neurological patients.


**Keywords:** OPD, Neurology, Tertiary care hospital

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## Introduction

Neurology, the field of medicine has entered an exciting phase of development and rapidly becoming the most popular area of medicine. We are thankful to initiatives like the Human Brain Project and US Brain Research through Advancing Innovative Neurotechnologies.[1] According to Lopez et al.[2] neurological disorders make up more than 6% of the world's disease burden, with low- and middle-income nations having a higher prevalence of mortality and disability-adjusted life years.

Epidemiologic studies are always helpful in providing data and facts that are crucial for determining policy. In Bangladesh, during the 1960s, neurology began to distinguish itself from internal medicine as a separate specialty. Although infection and malnutrition are widespread in this region of the world, with an estimated 9 million deaths per year,[3] there has been a paradigm shift. Early-onset cerebrovascular disease has become overburdened in recent years[4] According to a report, Bangladesh

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**Received :** 20/07/2023 **Accepted :** 10/08/2023

has a disproportionately higher mortality risk from stroke.[5] Addressing these non-communicable disorders is critical because many of these disorders necessitate lifestyle changes and risk factor control, which are not possible without a national consensus on raising public awareness of these diseases. However, acting against these diseases is nearly impossible without first determining the scope of the problem. Although the number of patients treated for neurologic disorders is increasing in tertiary care hospitals and institutes, the number of patients in outpatient departments is also increasing. The Outpatient Department (OPD) is the first point of contact between the patient and the hospital staff.[6] It reflects the hospital's activity because the OPD is visited by a large portion of the community.

So, we decided to observe the pattern of neurologic diseases in neurology OPD of Khulna Medical College Hospital (KMCH) to get a snap shot of the problem.

## Methods

This cross-sectional study was conducted in the Outpatient Department of Neurology, Khulna Medical College Hospital from January 2022 to December 2022. During this period patients attended at Outpatient Department of Neurology were selected as study subjects. A total of 1985 patients were visited in the above mentioned place during the period. Patients' age, gender, and the reasons of visit were collected. The information were entered into the computer using Microsoft Excel. Data were summarized in tables as frequency with percentage.

## Results

Information of 1985 patients was summarized as below:

**Table I:** Distribution of the patients according to gender (N=1985)

| Gender | Frequency (n) | Percentage (%) |
|---|---|---|
| Male | 895 | 45.1 |
| Female | 1090 | 54.9 |

Females (54.9%) were predominant than males (45.1%). Female to male ratio was 1:1.22.

**Table II:** Distribution of the patients according to gender (N=1985)

| Age (years) | Frequency (n) | Percentage (%) |
|---|---|---|
| 0 – 10 | 23 | 1.2 |
| 11 – 20 | 67 | 3.4 |
| 21 – 30 | 320 | 16.1 |
| 31 – 40 | 203 | 10.2 |
| 41 – 50 | 251 | 12.6 |
| 51 – 60 | 436 | 22.0 |
| 61 – 70 | 481 | 24.2 |
| 71 – 80 | 171 | 8.6 |
| 81 – 90 | 33 | 1.7 |

Maximum patients were in age group 61 – 70 years (24.2%) followed by in descending order 51 – 60 years (22.0%), 21 – 30 years (16.1%), 41 – 50 years (12.6%), 31 – 40 years (10.2%), 71 – 80 years (8.6%), 11 – 20 years (3.4%), 81 – 90 years (1.7%) and 0 – 10 years (1.2%).

**Table III:** Distribution of the patients according to type of disease (N=1985)

| Name of disease | Frequency (n) | Percentage (%) |
|---|---|---|
| Headache | 334 | 16.8 |
| Low back pain | 290 | 14.6 |
| Stroke | 281 | 14.2 |
| GAD (Generalize anxiety disorder) | 220 | 11.1 |
| Neck pain | 153 | 7.7 |
| ICSOL (Intracranial space occupying lesion) | 61 | 3.1 |
| Epilepsy, seizure disorder | 61 | 3.1 |
| Parkinson's disease (PD) | 53 | 2.7 |
| Peripheral neuropathy (PN) | 43 | 2.2 |
| Frozen shoulder | 32 | 1.6 |
| Bell's Palsy | 31 | 1.6 |
| Motor neuron disease (MND) | 31 | 1.6 |
| Transverse myelitis (TM) | 30 | 1.5 |
| Head injury | 41 | 2.1 |
| Idiopathic Intracranial hypertension (IIH) | 28 | 1.4 |
| GBS (Guillain Barre Syndrome) | 27 | 1.4 |
| BPPV(Benign paroxysmal positional vertigo) | 19 | 1.0 |
| Cauda Equina Syndrome | 19 | 1.0 |
| 3rd nerve palsy | 18 | 0.9 |
| Myasthenia gravis | 15 | 0.8 |
| Brachial plexopathy | 14 | 0.7 |
| Diabetic chorea | 07 | 0.4 |
| Optic neuritis | 11 | 0.6 |
| Wilson's disease | 10 | 0.5 |
| Multiple sclerosis | 07 | 0.4 |
| TIA(Transient ischemic attack) | 21 | 1.1 |
| Others | 57 | 2.9 |

Maximum patients came with headache (16.8%) followed by Low back pain (14.6%), Stroke (14.2%), GAD (11.1%), Neck pain (7.7%), ICSOL (3.1%), Epilepsy & seizure (3.1%), Parkinson's disease (2.7%), Peripheral neuropathy (2.2%), Head injury (2.1%), frozen shoulder (1.6%), Bell's Palsy (1.6%), Motor neuron disease (1.6%), Transverse myelitis (1.5%), , Idiopathic Intracranial HTN (1.4%), GBS (1.4%), TIA (1.1%), BPPV (1.0%), Cauda Equina Syndrome (1.0%), 3rd nerve palsy (0.9%), Myasthenia gravis (0.8%), Brachial plexopathy (0.7%), Diabetic chorea (0.4%), Optic neuritis (0.6%), Wilson's disease (0.5%) and Multiple sclerosis (0.4%).

## Discussion

Achieving better health globally is a crucial social goal that will benefit millions of people directly by extending and improving their lives. A growing body of evidence supports the idea that enhancing health can have substantial indirect benefits by boosting economic growth. Improvements in public health have been made to the populations of Bangladesh's rural and urban areas since the Alma Ata Declaration. Additionally, the accessibility and availability of medical care has significantly increased across the nation. For the purpose of this study, 1-year data (from January 1, 2022, to December 31, 2022) of patients were analyzed.

Females (54.9%) were predominant than males (45.1%). Female to male ratio was 1:1.22. Out of 2431 patients 1296 (53.3%) were males and 1135 (46.7%) were females in Himachal, India (Bhardwaj et al., 2018).7 Males were 53.0% and females were 47.0% in the study of Chowdhury et al. conducted in specialized neurology outpatient clinic of Dhaka Medical College Hospital, Dhaka in 2016.[8]

Maximum patients were in age group 61 – 70 years (24.2%) followed by in descending order 51 – 60 years (22.0%), 21 – 30 years (16.1%), 41 – 50 years (12.6%), 31 – 40 years (10.2%), 71 – 80 years (8.6%), 11 – 20 years (3.4%), 81 – 90 years (1.7%) and 0 – 10 years (1.2%). In the study of Bhardwaj et al.7 in Himachal, India maximum patients were in age group 41 – 60 years (32.3%) followed by in descending order 21 – 40 years (31.8%), 61 – 80 (18.8%), 0 – 20 years 15.5% and >80 years (1.7%). Chowdhury et al. found that maximum patients were in age group 21 – 30 years (29.0%) followed by in descending order 31 - 40 years (22.0%), 41 – 50 years (16.0%), 11 – 20 years (14.0%), 51 – 60 years (11.0%), >60 years 7.0% and 1 - 10 years (1.0%).[8]

In this study, maximum patients came with headache (16.8%) followed by Low back pain (14.6%), Stroke (14.2%), GAD (11.1%), Neck pain (7.7%), ICSOL (3.1%), Epilepsy & seizure (3.1%), Parkinson's disease (2.7%), Peripheral neuropathy (2.2%), Head injury (2.1%), frozen shoulder (1.6%), Bell's Palsy (1.6%), Motor neuron disease (1.6%), Transverse myelitis (1.5%), , Idiopathic Intracranial HTN (1.4%), GBS (1.4%), TIA (1.1%), BPPV (1.0%), Cauda EquinaSyndrome (1.0%), 3rd nerve palsy (0.9%), Myasthenia gravis (0.8%), Brachial plexopathy (0.7%), Diabetic chorea (0.4%), Optic neuritis (0.6%), Wilson's disease (0.5%) and Multiple sclerosis (0.4%).

Chowdhury et al. revealed majority had Headache (46%) followed by vertigo (12%); vomiting (8%) and neck and back pain (8%) as presenting symptom at onset followed by tingling/numbness (4%), convulsion (3%), involuntary movement (3%), palpitation (3%), facial weakness (2%) and insomnia (2%).[8]

Although stroke is a major killer and cause of disability in developing world headache, low back pain and stroke were the most common symptoms in our patients. This is probably due to the fact that, in addition to the primary headache disorders, it may be a presenting symptom of many other neurological disorders like stroke, CNS infection etc. Similar to this study, Lim et al.[9] also showed in his survey of hospitals in Singapore that headache was the commonest problem at OPD. Similar to the above mentioned study, we also had stroke as 3rd commonest disorder. But number of epilepsy patients in our series, were much lower than Chowdhury et al. reported.[8]

In the study conducted in Himachal by Bhardwaj et al.[7] identified six major neurological disorders were epilepsy and seizures (22.2%), headache (15.1%), spondolysis with neurological manifestations (8.1), cerebrovascular disease (7.8%), Parkinsonism (4.4%), and neuropathies (4.4%).

Boongird et al.[10] showed the five common neurological disorders in OPD of Thailand were stroke (38.4%), headache (9.8%), epilepsy (9.5%), polyneuropathy (4.7%), Parkinson's disease (4.2%). In a similar study by Jusoh et al.[11]

in Malaysia, the order of frequency of neurological disorder were epilepsy (19.4%), headache (13.6%), stroke (9.1%), peripheral neuropathy (8.2%), Parkinson's disease (5.4%).

A similar study was done from the same department by Chowdhury et al.[12] in 2010- 2011 involving 3173 patients, in contrast to our findings, showed that stroke was the most common neurologic disease followed by headache. The explanation of this discrepancy may be due to less number patients in our study.

## Conclusion

In all age groups, neurological disorders are prevalent, especially after the age of fifty. Common presenting symptoms include headaches, neck pain, and back pain. The most frequent neurologic diagnoses made at the OPD are headache disorders, low back pain, stroke, and GAD. We think observations of this study may be helpful for the policy maker to improve health care management regarding neurological diseases.

## References


1. Mu-Ming P. Where to the mega brain projects? Natl Sci Rev. 2014;1:12–4
2. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJ. Global burden of disease and risk factors. The World Bank and Oxford University Press, 2006.
3. Murray CJL, Lopez AD. The Global Burden of Disease: The World Health Organization and The World Bank. Cambridge, Mass: Harvard University Press; 1996.
4. MacKay J, Mensah GA. The Atlas of Heart Disease and Stroke. Geneva: WHO Press; 2004.
5. Bhopal R, Rahemtulla T, Sheikh A. Persistent high stroke mortality in Bangladeshi populations. BMJ 2005;331: 1096–1097.
6. Sharma SK, Chowhan SS. Patient Waiting Time: It's Impact on Hospital Outpatient Department. International Journal of Scientific Research March 2013;2(3).
7. Bhardwaj A, Sharma A, Kumar G, Angra M, Bhardwaj SS, Raina SK, et al. Profile of patients from a neurology registry in resource-poor rural Northwest India. Journal of Neurosciences in Rural Practice. 2018;9(04):468-72.
8. Chowdhury AH, Ghose SK, Ahmed KG, Hasan AH, Saha K, Sina H, et al. Pattern of disorders in neurology outpatient department: Experience from a tertiary care hospital in Bangladesh. Journal of Dhaka Medical College. 2016;25(1):53-7.
9. Lim SH, Tan CH. Spectrum of neurologic disorders in Singapore. Neurol J Southeast Asia 1996; 1: 19-26.
10. Boongird P, Soranastaporn S, Menken M, Vejjajiva A. The practice of neurology in Thailand, a different type of medical specialist. Arch Neurol 1993; 50: 311-12.
11. Jusoh R. Profile of neurological practice in Malaysia. Neurol J Southeast Asia 1996; 1:15-17.
12. Chowdhury RN, Hasan ATM H, Rahman KM et al. Spectrum of Neurologic Disorders: Experience in Specialized Out Patient Clinic in Bangladesh. J Medicine 2012; 13: 39-42.

Original Article

# Study of Bacterial Pathogen in Urinary Tract Infection and their Antimicrobial Susceptibility Pattern in A Tertiary Hospital

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## Abstract

**Background:** Urinary tract infection is the most common bacterial infection in developing countries. Present study was done to identify the microorganisms responsible for UTI among the patients in a tertiary care hospital. Further, the antibiotic resistance patterns of different microorganisms were also studied.

**Objectives:** The objective of this study was to evaluate the causative bacteria of urinary tract infection, and to explore their resistant pattern to antibiotics.

**Methods:** Clean catch mid stream urine samples were collected from subjects with clinically suspected acute UTI during from October'2018 to March' 2020. Urine samples were collected aseptically in sterile containers and plated onto blood agar and Mac Conkey agar plates. Organisms were identified and antibiotic sensitivity tests were performed using standard methods.

**Results:** Among the 503 samples, most of them were in the age group of 21 to 40 years. Out of 503 samples, 86 (17.1%) samples were found culture positive. Escherichia coli (71%) was found to be the predominant organism and the second most common pathogenic organism was Klebsiella (16%). Regarding antimicrobial sensitivity pattern Esch. coli was found to be most sensitive to Imipenem (100%), Amikacin (87%), and Nitrofurantoin (83%).

**Conclusion:** In conclusion young aged female are commonly suffering from UTI and Escherichia coli is the most common isolated bacteria. Culture result and antibiogram helps the clinician for specific treatment of UTI. Regular surveillance of the antibiotic resistance is required among microorganisms to ensure the appropriate therapy of Urinary tract infection.

**Keyward:** Urinary tract infection, Antimicrobial susceptibility test, Esch. coli.

J Khulna Med Coll. 2023; 2(2) : 51-56

## Introduction

Urinary tract infection (UTI) is a term applied to a variety of clinical conditions ranging from asymptomatic occurrence of bacteria in the urine to severe kidney infection. It is one of the most common bacterial infections encountered by clinicians in developing countries. Worldwide, about 150 million people are diagnosed with UTI each year.[1] It is more common in females as compared to males, especially females of reproductive age group. It can be either community acquired or hospital acquired. The clinical symptoms of UTIs usually include frequency, urgency, painful urination, sensation of having to urinate after urination, dysuria, pyuria, back pain, abdominal

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**Received :** 09/08/2023 **Accepted :** 11/09/2023

pain.[2] However; bacteria may be present in the urinary tract without any apparent symptoms. The common etiological agents are Escherichia coli (E. Coli), Pseudomonas, Proteus and Klebsiella.[3]

Antimicrobial resistance is the major problem in the therapy for UTI throughout the world. Due to the empirical use of antibiotics in infectious diseases and the lack of standardization in antimicrobial susceptibility test, resistance to commonly used antimicrobial agent is increasing year by year.[4] Antibiotic resistance can appear spontaneous because of random mutation or more commonly following gradual build up over time. Knowing the common isolated uropathogens and their antimicrobial susceptibility is beneficial in planning treatment protocols.[5] Hence, this study was aimed to evaluate the major causes of UTI and the antibiotic sensitivity of bacteria among the samples collected from subjects with clinically suspected infection.

## Methods

This was a cross-sectional observational study conducted in the laboratory of the Department of Microbiology, Khulna Medical College over a period of one and half year (October"2018 to March' 2020). Written consent was taken from the concerned authority.

Patients presenting with symptoms of UTI such as fever, dysuria, increased frequency of urination, loin pain, chill or rigor were subjected to urine culture. Parameters like age, sex and associated disease of the patients were taken into account. A total of 503 samples were collected from Medicine indoor & outpatient department & Gynae out patients department. Pathogens isolated and the antibiotic sensitivity was also taken into account. Required clinical history and examination findings were noted.

All patients were instructed to collect clean catch midstream urine specimen into a wide mouthed sterile screw capped container. Urine samples were immediately taken to bacteriology lab and processed. Each of the specimens was subjected to culture by the semiquantitative standard loop technique on blood agar and MacConkey agar media. The plates were incubated aerobically at 37$^{o}$ C for overnight. Since, we are using 4 mm internal diameter loop, which collects 0.01 ml of the sample, colony counts of 100 and above which is equivalent to or greater than one lakh cfu/ml was considered as significant bacteriuria. Pus cells per high power field were also observed on microscopic examination of the urine.

Identification of bacterial pathogens was made on the basis of Gram reactions, morphology, motility test, biochemical and cultural characteristics. Antimicrobial susceptibility testing of the isolated bacterial species was performed by the standard Kirby-Bauer disc diffusion test as per clinical laboratory Standards institute (CLSI) guidelines were done for antibiotic sensitivity. All the data were manually collected and analyzed using Excel wherever necessary.

## Results

A total of 503 patients clinically suspected of having UTI were included in this study and sent for culture sensitivity test. Out of the total samples sent for culture sensitivity test, the culture positive cases were 86 (17.1%). Among the positive samples, most of the patients were female 73 (84.9%) and male patients were 13 (15.1%) and the male to female ratio was 1: 5.6. (Figure-1)

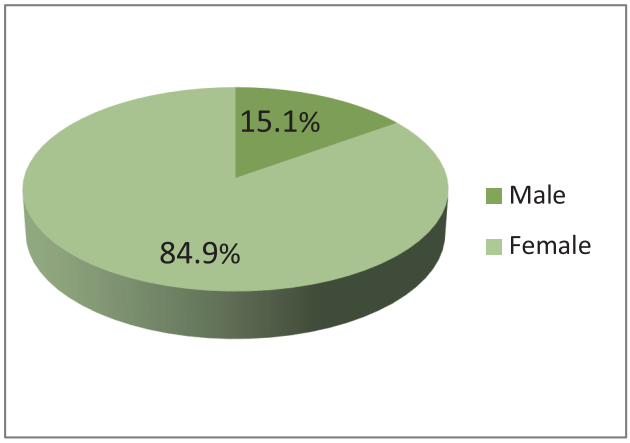


Fig-1: Gender distribution

**Table-I:** Baseline characteristics of culture positive patients.

| Traits | Subgroups | Value |
|---|---|---|
| Education | No constitutional education | 13 (15.1%) |
| | Primary | 35 (40.2%) |
| | Secondary to higher education | 41 (47.7%) |
| Occupation | House wife | 51 (60%) |
| | Student | 11 (13%) |
| | Service holder | 10 (12%) |
| | Others | 13 (15%) |
| Department | Outpatient (455) | 74 (16.26%) |
| | In-patient (48) | 12(25%) |

Most of the patients completed primary education, 13% did not received any constitutional education. As female patient are more prone to UTI so, most of the patients (60 %) were housewife/ home maker among the culture positive patients. Out of 503 patients, 455 were from outpatient department, among which 74 (16.26%) are culture positive and among 48 inpatient department, 12 (25%) were culture positive. (Table-1)

Therefore it seems that among females, urinary tract infection was commonly in the age group of 21-40 years 31(42%) and in males it was common between 41-60 years 4(31%). (Figure-2)

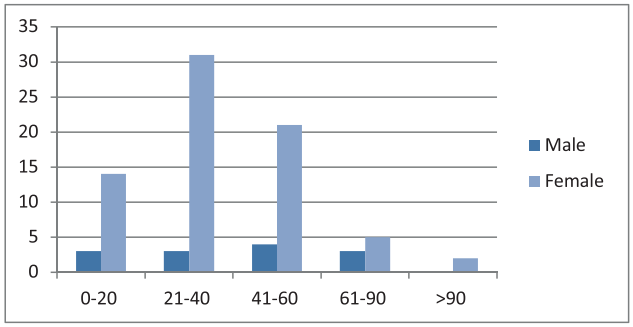


**Fig-2:** Age distribution among urine culture positive samples

Out of 503 urine sample 86 were positive for pathogenic organism and Esch. coli was isolated in 61 (70.9%) followed by Klebsiella sp. 14 (16.3%), Pseudomonas sp. 5 (5.8%), Acinetobacter 3 (3.5%), Enterococci 2 (2.3%) & Proteus sp. 1 (1.2%) (Table-II).

**Table II:** Pattern of bacteria isolated from urine culture (n=86)

| Isolated Organism | Total 86 (%) |
|---|---|
| E.coli | 61 (70.9) |
| Klebsiella spp | 14 (16.3) |
| Enterococcus spp. | 2 (2.3) |
| Proteus spp. | 1 (1.2) |
| Pseudomonas spp | 5 (5.8) |
| Acinetobacter | 3 (3.5) |

**Table III:** Antibiotic susceptibility and resistance pattern of Esch. coli.(61)

| E coli (61) | Sensitive (%) | Resistance % |
|---|---|---|
| Amikacin | 86.7 | 13.3 |
| Amoxicillin-Clavulanic acid | 32 | 68 |
| Aztreonam | 61 | 39 |
| Ceftazidime | 68 | 32 |
| Cefixime | 32.3 | 66.7 |
| Ciprofloxacin | 49.2 | 50.8 |
| Cefepime | 56.7 | 37.2 |
| Ceftriaxone | 42.5 | 56.4 |
| Cefuroxime | 27.8 | 57.5 |
| Gentamicin | 81 | 9 |
| Imipenem | 95 | 5 |
| Nitrofurantoin | 82 | 8 |
| Cotrimoxazole | 62.5 | 37.5 |

Esch. coli was found to be most sensitive to Imipenem (95%), Amikacin (86%), Nitrofurantoin(82%),Gentamycin (81%), and resistance to Amoxiclav (68%), Cefixime (67%), Cefuroxime (57%) & ceftriaxone (56%) (Table-III)

**Table IV:** Antibiotic susceptibility and resistance patterns of Klebsiella sp.(14)

| Klebsiella (14) | Sensitive (%) | Resistance (%) |
|---|---|---|
| Amikacin | 85.71 | 14.3 |
| Amoxicillin-Clavulanic acid | 21.4 | 78.6 |
| Aztreonam | 33.4 | 66.6 |
| Ceftazidime | 46.4 | 53.8 |
| Cefixime | 40 | 60 |
| Ciprofloxacin | 50 | 50 |
| Cefepime | 57.14 | 27.8 |
| Ceftriaxone | 38.5 | 61.5 |
| Cefuroxime | 36.4 | 63.6 |
| Gentamicin | 77 | 23 |
| Imipenem | 100 | 0 |
| Nitrofurantoin | 54.6 | 45.4 |
| Cotrimoxazole | 40 | 60 |

Table -IV represents the Klebsiella species was mostly sensitive to Imipenem (100%), Amikacin (85.71%) followed by Gentamycin (77%), and resistance to Amoxiclav (78.6%), Aztreonam (66.6%) & Cefuroxime (63.6%).

## Discussion

This study aimed to determine the bacterial causative agents of urinary tract infection and their susceptibility pattern of antimicrobials among different groups of patients of Khulna Medical College Hospital.

In our study prevalence rate of infection of urinary pathogen was 17.1%, similar to the study in India, 2020 was 17%6 & in Nepal, 17.4% in 2017[7]. In Dhaka, another study reveals that the prevalence rate was low 11.92%8. It was also recorded a lower prevalence rate in Negeria 13%9& in Libya, it was 13.9%[3]. But it is more in another study conducted in Bangladesh 30.9% & in northern India it was 79%[10,11]. In our study most of the patients were from outpatient department that can be the cause of lower prevalence rate. Out of total sample, we found 16.26% culture positive from outpatient department and 25% was from inpatient department.

Among 503 patients of UTI, maximum were female 84.9% which is similar to the findings of the study in Nepal was 84.8%7, in Dhaka, Bangladesh was 79.5% and 75.27% [12,20]. It was higher than 67% in another study conducted in Sylhet.[14] Women are more prone to UTIs than men because of short urethra, closer to anus, sexual intercourse, incontinence & bad toilet.[11] Females were most commonly in the age group between 21-40 years (42%) and in case of males it is between 41-60 years (31%). This was in consistent with a study conducted in Dhaka, female was 42.7% and male was 34%[12].

Most of the patients completed primary education 41% and 15% did not received any constitutional education. Another study in Sylhet, it was 27% and 21 % respectively[14]. In respect of occupational status, most patients were house wife 51% then student 13% followed by service holder 12%. As the most patients were female, that explains the house wife was more in percentage.

Regarding of the causative uropathogens in this study, Esch. coli was the most predominant isolate causing UTI in this study while Klebsiella spp. ranked second in prevalence. This is consistent with other studies.[15,16,17] Among the isolates, Escherichia coli 70.9% followed by Klebsiella spp. was 16.3%, Pseudomonas spp. 5.8% that is constant with other study[16,17]. A study in Pakistan[16], E coli was 68.3%, Klebsiella spp. was 9.3%, Pseudomonas spp. 4.1% that was consistent to our study. Another study in Mymensing[18] E coli was 71.8%, Klebsiella spp. was 13.6%, Pseudomonas spp. 12.7%.[18] In India, Esch. coli was 55%, Klebsiella 6.6% similar to our study.[10] But in Negiria[16], Escherichia coli was 30 (37.9%) lower than our study and Klebsiella spp. was 27 (34.2%) that is higher than our study, Pseudomonas spp. (12.7%) slightly higher than this study. The prevalence of E coli is higher, it reiterates the fact that most organisms causing UTI are from the lower gastrointestinal tract.

Escherichia coli are more sensitive to Imipenem 95%, Amikacin 86%, Nitrofurantion 82% followed by Gentamycin 81% that was similar to the study done in Dhaka, Bangladesh it was Imipenem 100%, Amikacin 87.5%, Nitrofurantion 83.33%[20]. In Pakistan, E coli was sensitive to Amikacin (71.4%), Imipenem (66.7%), Gentamicin (61.9%) which is lower than the present study.[21]

E coli are more resistance to commonly used drugs Amoxi-clav (68%), Cefixime(67%), Cefuroxime(57%), Ceftriaxone (56%). It is lower in the study in comilla17 Bangladesh 2019, where Esch. Coli was resistant to amoxiclav (24%), Cefixime(40%), Cefuroxime(42%), Ceftriaxone (45%) and in Pakistan, 2020 it was amoxiclav (71.4%), Cefixime(71.4%), Cefuroxime(76.2%) & Ceftriaxone (71.4%)[21] consistent to our study.

Klebsiella spp. was found the second common pathogenic organism isolated from urine culture. The sensitivity pattern of Klebsiella spp. was Imipenem (100%), Amikacin (85.71%) followed by Gentamycin (77%), and resistance pattern was Amoxiclav (78.6%), Aztreonam (66.6%) Cefuroxime (63.6%), Ceftriaxone (61%), Cefixime (60%) & Ceftazidime (54%). In Dhaka other study reveals that Klebsiella sp are sensitive to Meropenem (45.6%), Amikacin (36.3%) & Gentamycin (27.7%)22 which is lower than this study. Another study conducted in Iran, found the resistance pattern was Cefixime (82%), Cefotaxime (81%),

Ceftriaxone (73%) & Ceftazidime (72%)[23] that is higher than our study. It was reported that Klebsiella sp possessed various drug resistance gene which are responsible for MDR (multi drug resistance) and Multidrug efflux pump are also involved in resistance against antimicrobial agent of Klebsiella[24].

There are several limitations to this study. First, the identification of causative pathogenic organisms are smaller than several other study due to selection of sample was not appropriate. In addition drug resistant genes were not detected due to lack of funding.

## Conclusion

In conclusion, Esch. coli was the most frequent causative agent in UTI. Higher prevalence of UTI was seen in rather than males . Amikacin, Nitrofurantion and Gentamycin are found to be most sensitive antibiotics. The second most common isolated pathogenic organism was Klebsiella, which was mostly sensitive to Imipenem, Amikacin & Gentamycin. The prevalence of antimicrobial resistance among microorganisms that cause UTI is increasing worldwide and is a major factor in selecting antibiotics for treatment. The emergence and spread of resistance can be reduced through appropriate and careful use of antimicrobial agents after culture and sensitivity test as well as increasing awareness among the population about the hazards of inappropriate antimicrobial use through public health education campaign.

## References


1. Alam S, Aftab S, Pervin S, Karim anme, Chowdhury Akmrh. Increasing pattern of antibiotic resistance in urinary Escherichia coli. J.Shaheed Ziaur Rahman Med. Coll. 2014;22(2):19-21
2. Gurung K, KC R , Patel I , Neupane DR, Pokhrel S , Gurung S3. Antibiotic Susceptibility Pattern of Bacteria Causing Urinary Tract Infection at Nepalgunj Medical College. 2020;20(1):35-38
3. Mahmoud AM, Tarig MSA, Osama MS, Mariam MA. Prevalence and antimicrobial resistance pattern of bacterial strains isolated from patients with urinary tract infection in Messalata Central Hospital, Libya. Asian Pacific Journal of Tropical Medicine. 2016; 9(8): 771–776
4. Biswas R , Rabbani R , Ahmed SH , Sarker MAS , Zafrin N , Rahman MM. Antibiotic sensitivity pattern of urinary tract infection at a tertiary care hospital. Bangladesh Crit Care J March 2014; 2 (1): 21-24
5. Thattil SJ , Santhosh S. Prevalence of UTI in Different Age Groups in a Tertiary Care Hospital and their Antibiogram. International Journal of Contemporary Medical Research. 2018 [cited 2022 dec 12];5(1); Available from http://www.ijcmr.com.
6. Chooramani G, Jain B , Chauhan PS. Prevalence and antimicrobial sensitivity pattern of bacteria causing urinary tract infection; study of a tertiary care hospital in North India. Clinical Epidemiology and Global Health ;2020: 8: 890–893.
7. Subedi N , Pudasaini S. Bacteriological profile and antibiotic sensitivity pattern in patients with urinary tract infection. Journal of Pathology of Nepal 2017; 7: 1066 -1069.
8. Iregbu KC ,Nwajiobi-Princewill PI. Urinary tract infection in a Tertiary Hospital in Abija, Nigeria. Afr.J.Exper. Microbial [internet]. 2013 sept. [cited 2022 dec 14]; 14(3): 169-173. Available from:: http://dx.doi.org/10.4314/ajcem.v14i3.9.pdf
9. Abedin MZ, Akter KF, Oyes QM, Babul AM, Irfanul IM, Anisur RM et al. Prevalence and Antimicrobial Susceptibility pattern of pathogens Isolated from different age groups with Urinary Tract Infection in Bangladesh [internet]. 2022 may 27 [cited 2022 dec 14]; Available from:: https://-doi.org/10.21203/rs.3.rs-1423342/v1.pdf
10. Bhargava K, Nath G, Bhargava A , Kumari R , Aseri GK, Jain N. Bacterial profile and antibiotic susceptibility pattern of uropathogens causing urinary tract infection in the eastern part of Northern India. 2022[cited 2022 dec 14];13: Available from https://doi.org/10.3389/fmicb.2022.965053
11. Nahar A , Hasnat S , Akhter H , Begum N. Evaluation of antimicrobial resistance pattern of uropathogens in a tertiary care hospital in Dhaka city, Bangladesh. South East Asia Journal of Public Health [internet]. 2017;7(2):12-18. Available from:: http://dx.doi.org/10.3329/seajph.v7i2.3885.pdf
12. Moue A , Syed AQM. Aktaruzzaman, Ferdous N, Karim MR, KhalilMMR et al.Prevalence of urinary tract infection in both outpatient department and in patient department at a medical college setting of Bangladesh. IJB [internet]. 2015 Nov 30. [cited 2022 dec 2]; 7(5): 146-152 available from:: http://dx.-doi.org/10.12692/ijb/7.5.146-152.pdf
13. Akter T, Fatema K , Nahar S , Karim SU, Sultana H , Khan MS et al. Spectrum of Antimicrobial Susceptibility of Escherichia coli Isolated from Urine Samples of a Tertiary Care Hospital of Bangladesh. IMJ 2020; 24(3);429-434
14. Hossain G, Hossain E, Ahammed F, Kabir MR, Karmaker G, Chowdhury IA, et al. Bacteriological profile and sensitivity pattern of urinary tract infection patients in north east part of Bangladesh. Int J Adv Med 2020;7(11):1614-1618.
15. Sultana M, Paul SK , Hossain MS , Alam SKS , Khan MAS , Aziz MA. Prevalence of Bacterial Isolates Specimens from Suspected Patients of Urinary Tract Infection in Both Outpatient Department and in Patient Department in MMCH, Mymensingh, Bangladesh. Sch J App Med Sci, 2021 Oct 9(10): 1553-1558

16. Oluwafemi TT, Akinbodewa AA , Ogunleye A , Adejumo OA. Urinary tract infections and antibiotic sensitivity pattern of uropathogens in a tertiary hospital in South West, Nigeria. © Sahel Medical Journal 2018;21(1):18-22
17. Majumder MMI , Ahmed T , Ahmed S , Khan AR, Saha CK.Antibiotic Resistance in Urinary Tract Infection in a Tertiary Care Hospital in Bangladesh-A Follow-up Study. Medicine today [internet]. 2019 nov 10. [cited 2023 feb 8];914:31(1). Available from:: https://doi.org/10.3329/medtoday.v31i1.40314.pdf
18. Muhammad A , Khan SN , Ali N , Rehman MU , Ali I.Prevalence and antibiotic susceptibility pattern of uropathogens in outpatients at a tertiary care hospital. New microbes and new Infect [internet]. 2020 june13 [cited 2023 feb 20] 6;100716 available from:: https://doi.org/10.1016/j.nmni.2020.10071.pdf
19. Parveen R , Rahim I. Study of Bacterial Pathogens in Urinary Tract Infection and their Antimicrobial Sensitivity Pattern. Bangladesh Journal of Infectious Diseases December 2017; 4(2):40-44
20. Muzammil M , Adnan M, Sikandar SM, Waheed MU , Javed N , Rehman MFU.Study of Culture and Sensitivity Patterns of Urinary Tract Infections in Patients Presenting with Urinary Symptoms in a Tertiary Care Hospital [internet]. 2020 jan29 [cited 2023 feb 2];914:31(1). Available from :: Cureus 12(2): e7013 10.7759/cureus.7013.pdf
21. Aminul P , Anwar S, Molla MMA, Miah MRA. Evaluation of antibiotic resistance patterns in clinical isolates of Klebsiella pneumoniae in Bangladesh. Biosafety and Health [internet]. 2021 Nov 3 [cited 2023 feb 7]; 11:001 Available from:: https://doi.org/10.1016/j.bsheal.2021.11.001.pdf
22. Barakzahi M, Hormozi B, Rashki A, Ghalehnoo ZR. Prevalence of Extended Spectrum β-Lactamase in Klebsiella pneumonia Isolates in a Teaching Hospital of Zahedan City, Iran Clin Microb Infec. 2014 October; 1(3): e22934
23. Ogawa W , Li DW, Yu P, Begum A, Mizushima T, Kuroda T, Tsuchiya T. Multidrug resistance in Klebsiella pneumoniae MGH78578 and cloning of genes responsible for the resistance [internet]. 2005 Aug; 28(8):1505-8.
24. Gharrah MM, Mahdy AME & Barwa RF. Association between Virulence Factors and Extended Spectrum Beta-Lactamase Producing Klebsiella pneumonia Compared to Nonproducing Isolates. Interdisciplinary Perspectives on Infectious Diseases. 2017;1-14. https://doi.org/10.1155/2017/7279830

Original Article

# Outcome of Rectal Prolapse in Children Treated with Sclerotheraphy by 5% Phenol in Almond Oil: Our Experience

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## Abstract

**Background:** Rectal prolapse is defined as herniation of rectum through the anus. Injection sclerotheraphy or surgery may be needed in cases who fail to respond to conservative treatment. The aim of the study is to see the effectiveness of 5% phenol in almond oil as a sclerosent.

**Materials and Methods:** It is a retrospective study, performed on 41 patients of rectal prolapse aged 20 months to 12 years who underwent injection sclerotheraphy using 5% phenol in almond oil.

**Results:** 36 patients (87.8%) cured with one injection and 5 patients need 2nd injection due to recurrence and 97.5% success rate noted. No improvement detected in one patient even after 2nd injection

**Conclusions:** Injection sclerotheraphy by 5% phenol in almond oil is a simple, effective, low morbid measure for rectal prolapse in children.

**Key words:** Rectal prolapse, Injection sclerotheraphy, 5% phenol in almond oil.

J Khulna Med Coll. 2023; 2(2) : 57-59

## Introduction

Rectal prolapse is defined as herniation of rectum through the anus. It is a well-recognized problem, most commonly found in infant and children that may be only mucosal or involve all layers of rectum.[1] Rectal prolapse may be classified into idiopathic and secondary types. The most common form of rectal prolapse is idiopathic, usually seen in healthy children between 1-3 years of age, a time peroid during which rectal mucosa is not firmly attached to the muscle layers. Children with other conditions such as ectopia vesicae, myelomeningocele, cystic fibrosis,may prone to develop rectal prolapse. Diarrhoea, dysentry, malnutrition, functional defecation disorder, constipation related rectal prolapse are not uncommon in third world countries.[2,3]

Various treatment modalities for rectal prolapse have been described in different lieratures. Approximately half of idipathic rectal prolapse improve with conservative treatment incuding manual reduction, adequate toilet

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**Received :** 04/07/2023 **Accepted :** 01/08/2023

training and diatery modification.4 Injection sclerotheraphy or surgery may be needed in cases who fail to respond to conservative treatment. Owing to high complication, surgical procedures are less favorable in children. Injecion sclerotheraphy using various sclerosing agents is a simple, effective method has been established by different investigators.[1,3,5,6]

## Materials and Methods

It was a retrospective study in the Department of Pediatric Surgery, Khulna Medical College and Hospital (KMCH), Khulna and one private hospital in Khulna where we do all types of pediatric surgical procedure. This study included 41 children with rectal prolapse between the peroid of July 2019 to July 2023. Of which males were 25 and females 16. Age ranged from 20 months to 12 years. All the patients are treated conservatively at first for 2 to 3 months. If the rectal prolapse persisted after conservative treatment or if the rectal prolapse required repeated reduction, then sclerotheraphy given. No patient found before the 20 months of age. Patients above 20 years are excluded from this study. Data collected included age, sex, presenting symtomps and sign, predisposing past medical history, investigations, follow-up, recurrence and complications.

## Technique of injection sclerotheraphy

On admission, fleet enema given before operation for rectal clearence. Under general anaesthesia, the patients were placed in a lithotomy position. The operative field were prepared with povidone iodine solution. Injection sites (2, 6, 10 O' clock) were marked with surgical marker to avoid haemorrhoidal vessels. An 10 ml syringe was filled with the sclerosing agent. Injection sites were exposed by right angle retractor on each site of proposed injection. (Fig-1)

Fig 1: Injection Sclerotheraphy

The sclerosent was injected in rectal submucosa through the mucocutaneous junction (about 3 ml in each position). Local anesthetic jelly soaked anal pack given that was removed 4 hours later before discharge. The patients were advised to continue stool softeners, fibre riched diet and fluid. The patients were followed up on 14 days postoperatively and between the time of 1 month to 3 months. Complications like infection, ulceration, bleeding and anal stenosis were observed. Ethical clearance was taken from Khulna Medical College and informed consents were taken from guardian.

## Results

A total of 41 patients underwent injection sclerotheraphy with 5% phenol in almond oil. Age ranged from 20 months to 12 years with an average of 4 years 2 months. The male to female ratio was 1.6: 1.Thirty one patients were less than 6 years and 10 patients were more than 6 years old. (Fig-2, 3)

Fig 2: Rectal prolapse in male child

Fig 3: Rectal prolapse in female child

Possible predisposing factors noted including constipation in 21 (51.2%), diarrhoea in 9(21.9%), chronic dysentry in 6(14.6%), malnutrition with failure to thrive in 4(9.7%), spinal defect in 1(2.4%). Sweat Chloride test was not carried out to detect cystic fibrosis. Out of 41 patients, 36 (87.8%) cured with one injection and 5 patients need 2nd injection due to recurrence and 97.5% success rate noted. No improvement detected in one patient even after 2nd injection. Thiersch's absorbable suture with 3rd time injection given in that patient. One patient noticed incomplete prolapse after one injection for 2 to 3 times in the first week that was improved on second week. There were no injection site infection or excessive oozing, ulceration and anal stenosis.

Table:1 Comparison of results in different studies

| Different studies | Improvement after 1st Injection | Improvement after 2nd Injection | No improvement after 1st & 2nd Injection |
|---|---|---|---|
| Present study | 87.8% | 97.5% | 2.5% |
| Hoque et. al | 93.5% | 99% | 1% |
| wyllie | 91% | 100% | 0% |

## Discussion

Treatment of rectal prolapse typically starts with stool softeners, decreased straining and squatting, and improvement in nutritional condition of the patient. Avoidance of straining during defecation is probably the most important factor in conservative management. Injection sclerotheraphy is the most commonly used minimally invasive procedure for rectal prolapse in children. More aggresive surgical methods may be needed for cases who are not improve by injection sclerotheraphy.[3] Different investigators used varities of sclerosing agents. Among them 5% phenol in almond oil is the most commonly used sclerosent. In these study, using 5% phenol in almond oil as the sclerosent 87.8% success in one injection and 97.5% success in 2nd injection noted. In our country, in a similar type of study Hoque et. al found 93.5% cure rate after one injection and 99% cure rate after 2 injection by using 5% phenol in almond oil.6 In a another study, wyllie reported a similar result, using 5% phenol in almond oil 91% cure rate afterone injection and 100% cure rate after two injections.[7] Whereas in a study from Pakistan, Chaudhry et. al reorted 24% recurrence rate after the use of 5% phenol in almond oil as the sclerosing agent.[8] In different studies, researcher used fingure guidance for submucosal injection that has a possibility of needle prick injury and subsequent complication. In these study, injection given in a separate technique as described before and has no chance of such type of injury. Blood set needle also avoided in these study due to chance of excessive oozing and leakage of sclerosent through the pricking point.

## Conclusion

Injection sclerotheraphy by 5% phenol in almond oil is a simple, effective, low morbid measure for rectal prolapse in children. This procedure can be done as a day care basis.

**Conflicts of Interest:** None.

**Funding:** It was a non-funded research.

## References

1. Zgahjer M, Cizmic A, Cigit I, Zupancic B, Bumci I, Popvic L, et al. Treatment of rectal prolapse in children with cow milk injection sclerotherapy: 30 year experience. World J Gastroenterol. 2008;14:737-740.
2. Van Heest R, Jones S, Giacomantonio M. Rectal prolapse in autistic children. J Pediatr Surg 2004; 39: 643-644.
3. Chan WK, Kay SM, Laberge JM, Gallucci JG, Bensoussan AL, Yazbeck S. Injection sclerotherapy in the treatment of rectal prolapse in infants and children. J Pediatr Surg. 1998; 33:255–258.
4. Siafakas C, Vottler TP, Andersen JM: Rectal prolapse in pediatrics. Clin Pediatr (Phila). 1999, 38:63-72.
5. Dolejs SC, Sheplock J, Vandewalle RJ, Landman MP, Rescorla FJ, Sclerotherapy for the management of rectal prolapse in children. J Pediatr Surg. 2017;53:73–76.
6. Hoque MM, Ahmed A, Nandy A. Injection sclerotherapy with 5% phenol in almond oil in the treatment of rectal prolapse in children: our experience. Chattagram Maa-O-Shishu Hosp Med Coll J. 2017;16:19–21.
7. Wyllie GG. The injection treatment of rectal prolapsed. J Pediatr Surg.1979; 14:62-64.
8. Chaudhry MA, Khan A, Khan P. Rectal prolapse in children: a comparative study of 5% phenol with almond oil versus 15% hypertonic saline for its treatment. Ann Pak Inst Med Sci. 2016;12:262–266.

Original Article

# Prospective Study of Obstructive Jaundice: A Single Centre Experience

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## Abstract

**Background:** There are various causes of obstructive jaundice, and choledocholithiasis– is the commonest. Patients with obstructive jaundice usually present with complaints of yellow skin and eyes, pale stools, dark-colored urine, jaundice, and pruritus. Abdominal pain often misleading for diagnosis.

**Aim of the study:** The study aimed to figure out the clinical profile, diagnosis, and treatment of patients with obstructive jaundice at a tertiary care hospital in Bangladesh.

**Methods:** This hospital-based prospective study was conducted on patients with obstructive jaundice, those who were admitted to the Department of General Surgery at Khulna Medical College and Hospital, khulna, Bangladesh patients of age more than 12 years of both sex after obtaining consent from the patient or their relatives were studied during the period of study from April 2022 to September 2022.

**Result:** A prospective clinical study consisting of 27 cases of obstructive Jaundice was undertaken, the maximum percentage of cases (62%) are benign etiology, followed by (38%) cases of malignant etiology. Out of 17 patients with benign etiology, a maximum number of patients with benign etiology was Choledocholithiasis in 15(88.24%) patients, followed by common bile duct (CBD) stricture 1(5.88%) and choledochal cyst in one patient. Out of 10 patients with malignant etiology, the maximum number of patients with malignant etiology was carcinoma head of pancreas 6(60.00%) patients followed by distal CBD cholangiocarcinoma 2(20.00%) patients.

**Conclusion:** Better understanding of the clinical profile in the patients with obstructive jaundice will facilitate appropriate management improved survival.

**Keywords:** Prospective study, Obstructive jaundice, Tertiary care hospital.

J Khulna Med Coll. 2023; 2(2) : 60-65

## Introduction

Obstructive jaundice is a specific type of jaundice in which the symptoms are caused by a narrowed or blocked bile duct or pancreatic duct, which prevents the normal drainage of bile from the biliary tree into the intestine. In simple terms, Obstructive Jaundice means the outflow of bile has been obstructed anywhere from the liver to the duodenum.[1] An accurate pre-operative diagnosis is almost always possible today because of advances in imaging techniques over the decades.[2] Removing the block relieves symptoms and often results in a cure. In today's world, surgical jaundice has become a medical entity as gastroenterologists rather than surgeons manage most obstructive

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**Received :** 10/06/2023 **Accepted :** 13/08/2023

jaundice by ERCP or stenting.[3] Obstructive jaundice has various causes, but it is usually caused by choledocholithiasis (also called bile duct stones or gallstones)-the presence of a gallstone in the common bile duct.[4] Other causes, malignancies, such as cholangiocarcinoma, periampullary and pancreatic cancers, and benign stricture, including chronic pancreatitis, have become increasingly prevalent.[5-7] With the increase in invasive procedures in the biliary tract, there has also been an increase in iatrogenic causes of obstructive jaundice, such as biliary tract injury and cholangitis.[8-9] Biliary tract disorders are significantly found worldwide and account for most cases of choledocholithiasis. In the United States, 20% of individuals over 65 have gallstones, and approximately 1 million newly diagnosed cases of choledocholithiasis are reported annually. Patients with obstructive jaundice usually present with complaints of yellow skin and eyes, pale stools, dark-coloured urine, jaundice, and pruritus.[10] Abdominal pain is often misleading for diagnosis– some patients with choledocholithiasis have painless jaundice, whereas some patients with hepatitis have an aching pain in the right upper quadrant. Malignancy is often associated with the absence of pain and tenderness during the physical examination.[10] Patients with obstructive jaundice are prone to nutritional deficiencies, infectious complications, acute renal failure, and impaired cardiovascular function. Some other adverse events, such as coagulopathy, hypovolemia, and endotoxemia, can be insidious and significantly increase mortality and morbidity.[11] The mortality and morbidity of biliary obstruction depend on the causes of the obstruction.[12] A better understanding of factors responsible for increased morbidity and mortality in these patients will better guide appropriate management. The study aimed to figure out the clinical profile, diagnosis and treatment of patients with obstructive jaundice at a tertiary care hospital in Bangladesh.

## Methodology

The present hospital-based prospective study was conducted on 27 patients with obstructive jaundice who were admitted Department of General Surgery at Khulna Medical College and Hospital, Khulna, Bangladesh of age more than 12 years both sex after obtaining consent form the patient or their relatives were studied during the period of study from April 2022 to September 2022. The study was approved by the Institutional Ethics Committee for final permission. This was a prospective observational study on 27 patients presenting with signs and symptoms suggestive of obstructive jaundice.

- **Inclusion criteria:**
  - Patient age above 12 years
  - Patients which clinically diagnosed as suffering from obstructive jaundice
  - Patients proved to have obstructive jaundice by any investigative modality
- **Exclusion criteria:**
  - Patients below 12 years of age
  - Patients with jaundice due to causes other than obstructive pathology such as hemolytic or hepatocellular jaundice
  - Patients who attended OPD but were not admitted or missing/incomplete records and patients with other concomitant malignancy
  - Comorbidities such as uncontrolled diabetes, hypertension, CVA, TB, CAD
  - Kidney diseases and pregnancy which were excluded

Data were collected in prescribed data form. All data were presented in a suitable table or graph according to their affinity. A description of each table and graph was given to understand them clearly. All statistical analysis was performed using the statistical package for social science (SPSS) program, and Windows. The study was approved by the Institutional Ethical Committee.

## Result

A prospective clinical study consisting of 27 cases of obstructive Jaundice was undertaken to investigate the pattern of clinical presentation and lab parameters to study the cause of obstructive Jaundice and the different modes of treatment adopted. Out of the total of 27 patients included in the study, the mean age range is found to be 51-60yrs (33.33%) for patients with obstructive Jaundice. The mean age of presentation was 51.10 years. The minimum age was 12 years, and the maximum was 80 years (Table I). Comparatively, male patients were more than female patients; 16(52.26%) patients were male, and 11(40.74%) patients

were female (Figure-1). Table II is shown the symptomatic distribution of cases; all patients were suffering from Jaundice and pain in the abdomen 20(74.07), 16(18.52%) patients had clay-colored stool, 15(55.56%) patients had fever, 11(40.74%) patients had lumps in the abdomen, and only five patients had itching. Under the clinical signs, all patients had icterus, 18(66.67%) patients had tenderness, 5(37.04%) patients had palpable gall bladder, 9(33.33%) patients had scratch marks, and 5(18.52%) patients had hepatomegaly (Table II). The level of bilirubin ranges from 3.2 to 27.6 mg%. Our study's total patients (44.44%) had bilirubin levels of 11–20 mg%. The mean value of total bilirubin was 11.58 mg% (Table III). In this study, out of 27 patients with obstructive Jaundice, the maximum percentage of cases (62%) are benign etiology, followed by (38%) cases of malignant etiology. Out of 17 patients with benign etiology, a maximum number of patients with benign etiology was Choledocholithiasis in 15(88.24%) patients, followed by common bile duct (CBD) stricture 1(5.88%) and choledochal cyst in one patient. Out of 10 patients with malignant etiology, the maximum number of patients with malignant etiology was carcinoma head of pancreas 6(60.00%) patients followed by distal CBD cholangiocarcinoma 2(20.00%) patients, followed by one patient of hilar cholangiocarcinoma and carcinoma gall bladder each (Table IV). Table V shows the various interventions for obstructive jaundice patients; 3(11.11%) patients had choledocho-duodenostomy, 2(7.41%) RNY hepatico-jejunostomy, 6(22.22%) Whipple's procedure and 12(44.44%) CBD exploration with T-tube was the highest. The most common postoperative complication in studied cases was found to be wound infection 5(18.52%), followed by cholangitis (3.70%) and septicemia (3.70%). The other less common complications included anastomotic leak (3.70%) and Electrolytic imbalance (3.70%). (Table VI)

**Table I:** Age distribution of the study population (N=27)

| Age range (Years) | Frequency | Percentage |
|---|---|---|
| 12-20 | 1 | 3.70 |
| 21-30 | 2 | 7.41 |
| 31-40 | 4 | 14.81 |
| 41-50 | 6 | 22.22 |
| 51-60 | 9 | 33.33 |
| 61-70 | 4 | 14.81 |
| >71 | 1 | 3.70 |

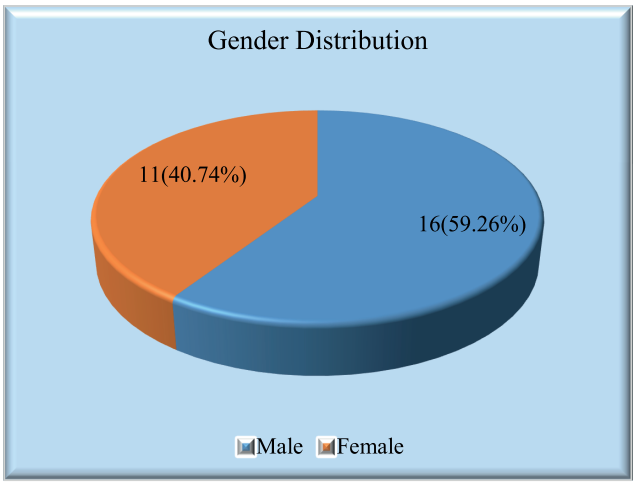


Figure-1: Gender distribution of the study population (N=27)

**Table II:** Symptomatic distribution of cases

| Symptoms | Frequency | Percentage |
|---|---|---|
| Jaundice | 27 | 100.00 |
| Pain in abdomen | 20 | 74.07 |
| Lump in abdomen | 11 | 40.74 |
| Itching | 5 | 18.52 |
| Loss of appetite | 6 | 22.22 |
| Fever | 15 | 55.56 |
| Clay colored stool | 16 | 59.26 |
| **Clinical sings** | | |
| Icterus | 27 | 100.00 |
| Scratch marks | 9 | 33.33 |
| Palpable gall Bladder | 5 | 18.52 |
| Hepatomegaly | 5 | 18.52 |
| Tenderness | 18 | 66.67 |

**Table III:** The distribution of cases as per total bilirubin levels

| Bilirubin levels (mg%) | Frequency | Percentage |
|---|---|---|
| <5 | 2 | 7.41 |
| 5-10 | 10 | 37.04 |
| 11-20 | 12 | 44.44 |
| 21-30 | 3 | 11.11 |

**Table IV:** Frequency of benign and malignant obstructive jaundice

| Etiology of obstructive jaundice | Frequency | Percentage |
|---|---|---|
| Benign disease (n=17) | | |
| Choledocholithiasis | 15 | 88.24 |
| Biliary stricture (benign) | 1 | 5.88 |
| Choledochal cyst | 1 | 5.88 |
| Malignant Diseases (n=10) | | |
| Carcinoma head of Pancreas | 6 | 60.00 |
| Distal CBD cholangiocarcinoma | 2 | 20.00 |
| Hilar cholangiocarcinoma | 1 | 10.00 |
| Carcinoma of Gall bladder | 1 | 10.00 |

**Table V:** Various interventions for obstructive jaundice patients

| Intervention | Frequency | Percentage |
|---|---|---|
| CBD exploration with T-tube | 12 | 44.44 |
| Whipple's procedure | 6 | 22.22 |
| RNY hepatico-jejunostomy | 2 | 7.41 |
| Triple bypass | 4 | 14.81 |
| Choledocho-duodenostomy | 3 | 11.11 |

**Table VI:** Complications occur after interventions

| Complications | Frequency | Percentage |
|---|---|---|
| Anastomotic leak | 1 | 3.7 |
| Wound infections | 5 | 18.52 |
| pancreatitis | 1 | 3.7 |
| Cholangitis | 1 | 3.7 |
| Electrolyte imbalance | 1 | 3.7 |
| Septicemia | 1 | 3.7 |

## Discussion

Obstructive jaundice is not a disorder but a symptom of an underlying disease involving the liver, the gallbladder, or the pancreas. This will usually be managed by surgical intervention, also known as surgical jaundice.[13] The present study included 27 patients with obstructive jaundice in the defined study period. In the present study, males are more affected (59.26%) with obstructive jaundice compared to females with a Male: Female ratio of 1.45:1. The different studies have reported differences in male and female predominance. In a study carried out by Anand et al. of 80 cases of obstructive jaundice, there was a slight female preponderance at 1:1.05; other studies have the following male: female ratio: Hussain Talpur et al.: 1:2.32; Lawal et al.: 1:0.78; Sharma et a: 1.05:1[14-17]. According to the age distribution of patients in the present study, older age groups (>65 years; and 55–65 years) were more commonly affected by obstructive jaundice than younger age groups, with a mean age of patients of 56.68 ± 23.34 years. The mean age of incidence of obstructive jaundice was 48.5 years in the study by Shukla et al.[18] In a study by Sharma et al., the mean age was 62.5; other studies also reported similar age groups involved in obstructive jaundice.[17] Obstructive jaundice is one of the most common indications of abdominal operation in the elderly. The elderly patients with benign etiology had a mortality rate of 26% but a high incidence of nonfatal complications. Many of these unfortunate consequences could have been avoided had elective surgery been undertaken soon after the emergence of the first symptoms of biliary tract disease.[19] Regarding the etiology of obstructive jaundice, 58.71% of patients have malignant causes for developing obstructive jaundice compared to benign causes in 41.29% of patients. A similar type of etiological distribution has been found in the study done by Gupta et al., in which it was observed that 63.89% of cases have malignant causes while 36.11% of cases have benign causes.[20] A study in Pakistan involving 60 patients with obstructive jaundice reported 56.6% of patients with malignant causes of obstruction and 43.3% with benign causes of obstructive jaundice.[21] A higher prevalence (75.3%) of malignant causes of obstructive jaundice has been found in a study by Sharma et al.[17] Literature also suggests that malignant biliary tract obstruction (MBTO) is the commonest frequent cause of obstructive jaundice. Primary pancreaticobiliary tract carcinoma and carcinoma of other nearby structures can cause compression of the biliary tract.[22] In exploring the causes in detail in the present study, choledocholithiasis-gall stone in the common bile duct is the most standard (30.35%) cause of obstructive jaundice, followed by carcinoma of the pancreas (25.87%). In a study by Anand et al. regarding the clinical profile and the different modalities of treatment of obstructive

jaundice, it was reported that the common cause of obstructive jaundice was choledocholithiasis, followed by malignancy.[14] An Ethiopian study reported that choledocholithiasis is the most common benign cause of obstructive jaundice.[23] According to literature, primary or secondary choledocholithiasis is the commonest cause of obstructive jaundice.[24] In the present study, icterus-jaundice is the most familiar symptom presentation (97.51%) in all patients with malignant etiology; and in 93.98% of patients with benign etiology. Other common symptoms include loss of appetite (79.60%); and loss of weight (76.12%). In a study by Gupta et al., it was observed that jaundice (91.67%), loss of appetite (77.78%), and abdominal pain (75.00%) were the most typical presentation of obstructive jaundice cases.[20] Jaundice was also the main presenting symptom in the different studies by Agarwal et al. and Nadkarni et al.[25,26] In a study by Khan the frequent presenting symptoms were jaundice, abdominal pain, loss of weight, and pruritus.[27] There are various causes of obstructive jaundice; the most common are choledocholithiasis, benign biliary tract strictures, pancreaticobiliary malignancies, and metastatic disease.[28] Due to the lack of advanced diagnostic/ therapeutic facilities in developing countries like Bangladesh, the outcome of the management of obstructive jaundice may be poor.[29] Thus, understanding the clinical profile of these patients will facilitate appropriate management and improve survival.

Limitations of the study: Every hospital-based study has some limitations and the present study undertaken is no exception to this fact. The limitations of the present study are mentioned. Therefore, the results of the present study may not be representative of the whole of the country or the world at large. The number of patients included in the present study was less in comparison to other studies. Because the trial was short, it was difficult to remark on complications and mortality.

## Conclusion

Early and precise detection of the etiology of obstructive jaundice can help surgeons accurately manage such patients and thus will improve the quality of life of patients and improve survival rates. A better understanding of the clinical profile in these patients will facilitate appropriate management and lead to improved survival.

**Funding:** No funding sources

**Conflict of interest:** None declared

## References

1. Shah R, John S. Cholesteric jaundice (cholestasis, cholesteric hepatitis). Stat Pearls. Treasure Island (FL): Stat Pearls Publishing. 2019.
2. Bertani H, Frazzoni M, Mangiafico S, Caruso A, Manno M, Mirante VG, Pigò F, Barbera C, Manta R, Conigliaro R. Cholangiocarcinoma and malignant bile duct obstruction: A review of last decades advances in therapeutic endoscopy. World Journal of Gastrointestinal Endoscopy. 2015 Jun 10; 7(6):582.
3. Clarke DL, Pillay Y, Anderson F, Thomson SR. The current standard of care in the per procedural management of the patient with obstructive jaundice. The Annals of the Royal College of Surgeons of England. 2006 Nov; 88(7):610-6.
4. Wang L, Yu WF. Obstructive jaundice and perioperative management. Acta Anaesthesiologica Taiwanica. 2014 Mar 1; 52(1):22-9.
5. Lipsett PA, Pitt HA. Acute cholangitis. Frontiers in Bioscience-Landmark. 2003 Sep 1; 8(6):1229-39.
6. Khan ZA. Clinical profile of patients with obstructive jaundice: a surgeon's perspectives. International Surgery Journal. 2019 May 28; 6(6):1876-80.
7. Lipsett PA, Pitt HA. Acute cholangitis. Surgical Clinics of North America. 1990 Dec 1; 70(6):1297-312.
8. Liu YH, Qiu ZD, Wang XG, Wang QN, Qu ZQ, Chen RX, Liu JB, Zhang CD, Qin SA. Praziquantel in clonorchiasis sinensis: a further evaluation of 100 cases. Chinese Medical Journal. 1982; 95(02):89-94.
9. Khuroo MS, Zargar SA, Mahajan R. Hepatobiliary and pancreatic ascariasis in India. The Lancet. 1990 Jun 23; 335(8704):1503-6.
10. Khan ZA. Clinical profile of patients with obstructive jaundice: a surgeon's perspectives. International Surgery Journal. 2019 May 28; 6(6):1876-80.
11. Shrikhande SV, Barreto G, Shukla PJ. Pancreatic fistula after pancreaticoduodenectomy: the impact of a standardized technique of pancreatojejunostomy. Langenbeck's Archives of Surgery. 2008 Jan; 393(1):87-91.
12. Tripathi C, Yeola M, Gharde P. TO STUDY THE CLINICAL PROFILE OF THE PATIENTS WITH OBSTRUCTIVE JAUNDICE. European Journal of Biomedical. 2019; 6(2):343-55.
13. Assy N, Jacob G, Spira G, Edoute Y. Diagnostic approach to patients with cholestatic jaundice. World journal of gastroenterology. 1999 Jun 6; 5(3):252.
14. Anand S, Panda C, Senapati AT, Behera MR, Thatei C. A study on incidence, clinical profile, and management of obstructive jaundice. J Evid Based Med Healthc. 2016; 3(59):3139-45.
15. Talpur KA, Malik AM, Memon AI, Qureshi JN, Sangrasi AK, Laghari AA. Biliary bypass surgery–Analysis of indications & outcome of different procedures. Pakistan Journal of Medical Sciences. 2013 May; 29(3):799.

16. Lawal D, Oluwole S, Makanjuola D, Adekunle M. Diagnosis, management and prognosis of obstructive jaundice in Ile-Ife, Nigeria. West African Journal of Medicine. 1998 Oct 1; 17(4):255-60.
17. Sharma MP, Ahuja V. Aetiological spectrum of obstructive jaundice and diagnostic ability of ultrasonography: a clinician's perspective. Tropical gastroenterology: official journal of the Digestive Diseases Foundation. 1999 Oct 1; 20(4):167-9.
18. Shukla S, Kharat PR, Kumar K. Clinic pathological study on patients presenting with obstructive jaundice. International surgery journal. 2018 Jan 25; 5(2):705-10.
19. Khan ZA. Clinical profile of patients with obstructive jaundice: a surgeon's perspectives. International Surgery Journal. 2019 May 28; 6(6):1876-80.
20. Gupta AK, Singh A, Goel S, Tank R. Profile and pattern of obstructive jaundice cases from a tertiary care teaching hospital of Uttar Pradesh. International Surgery Journal. 2017 Jan 25; 4(2):743-6.
21. Siddique K, Ali Q, Mirza S, Jamil A, Ehsan A, Latif S, Malik AZ. Evaluation of the etiological spectrum of obstructive jaundice. J Ayub Med Coll Abbottabad. 2008 Dec 1; 20(4):62-.
22. Jemal A, Siegel R, Ward E, Hao Y, Xu J, Thun MJ. Cancer statistics, 2009. CA: a cancer journal for clinicians. 2009 Jul; 59(4):225-49.
23. Bekele Z, Yifru A. Obstructive jaundice in adult Ethiopians in a referral hospital. Ethiopian Medical Journal. 2000 Oct 1; 38(4):267-75.
24. Foley WD, Quiroz FA. The role of sonography in imaging of the biliary tract. Ultrasound Quarterly. 2007 Jun 1; 23(2):123-35.
25. Agrawal JB, Patel RA. Surgical management of obstructive jaundice. Journal of the Indian Medical Association. 1974 Jun 16; 62(12):414-6.
26. Nadkarni KM, Jahagirdar RR, Kagzi RS, Pinto AC, Bhalerao RA. Surgical obstructive jaundice. Journal of Postgraduate Medicine. 1981 Jan 1; 27(1):33.
27. Khan ZA. Clinical profile of patients with obstructive jaundice: a surgeon's perspectives. International Surgery Journal. 2019 May 28; 6(6):1876-80.
28. Wang L, Yu WF. Obstructive jaundice and perioperative management. Acta Anaesthesiologica Taiwanica. 2014 Mar 1; 52(1):22-9.
29. Moghimi M, Marashi SA, Salehian MT, Sheikhvatan M. Obstructive jaundice in Iran: factors affecting early outcome. Hepatobiliary & Pancreatic Diseases International: HBPD INT. 2008 Oct 1; 7(5):515-9.

Original Article

# Comparison of FNA and Core Needle Biopsy in Diagnosis of Granulomatous Mastitis Presenting with Breast Lump

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## Abstract

**Background:** Granulomatous mastitis is a chronic inflammatory disease of the breast with unknown etiology mostly seen in parous women shortly after their last pregnancy. It is crucial to differentiate granulomatous mastitis from cancer and definite diagnosis is established by histopathological examination. Its treatment is variable and the most appropriate treatment protocol is yet to be identified.

**Aims & Objectives:** Aim of the study was to compare the performances of FNA and Core biopsy of breast lump verified by histopathological examination as "Gold standard".

**Methodology:** 227 women presenting with breast lump were included in this study and 122 breast lumps were resected for histopathological examination. After selection, FNA and core biopsy were done at same sitting and follow-up resection histopathology with 122 cases (53.74%) were performed in the laboratory.

**Results:** 40(17.62%) cases were diagnosed granulomatous mastitis by either FNA or core biopsy, the reports of 23 cases (57.5%) were concordant in both the procedures and discrepancy was observed in reporting of 17 cases (42.5%). 36 cases (90%) were resected for histopathology and 33 (82.5%) breast lumps were diagnosed granulomatous mastitis. Diagnostic accuracy, sensitivity, specificity, negative and positive predictive values of FNAC and Core biopsy were calculated. The diagnostic accuracy of core biopsy was 97.54% and that of FNAC was 89.34%. Specificity, sensitivity, positive and negative predictive values of core biopsy were 97.77%, 97.29%, 94.73% and 98.87% respectively. The specificity, sensitivity, positive and negative predictive values of FNAC were 97.77%, 70.27%, 92.85% and 88.88% respectively.

**Conclusion:** The accuracy of core biopsy was much higher than that of FNAC and also the performances of the combination of two procedures were superior to the individual test alone.


**Keywords:** Breast lump, Granulomatous mastitis, FNAC, Core needle biopsy, Histopathology, Accuracy.

J Khulna Med Coll. 2023; 2(2) : 66-71

## Introduction

Idiopathic granulomatous mastitis, also known as granulomatous lobular mastitis is a chronic inflammatory breast disease recently have been reported to increase in developing countries.[1] This disease is still challenging for specialists and causing cosmetic problems for patients and lack of knowledge in diagnosis and management leads to high rate of recurrence associated with surgery and tissue distortion even recurrence after mastectomy.[2] The most common presenting clinical symptom is painful palpable mass that can be associated with erythema and inflammation, multiple peripheral or rare central abscesses, sinus or fistula to the skin, nipple retraction and axillary adenopathy.[3] Mammographic or sonographic signs are not usually helpful for diagnosis such as hypo-echo tubular lesions, multiple abscesses, hypo-echo lobular mass, tissue distortion, fistula of skin, axillary adenopathy, focal asymmetry of

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**Received :** 10/06/2023 **Accepted :** 11/09/2023

mammographic findings, diffused hyper-density mass, retraction and tissue heterogeneity which may be similar to cancer.[4] Various diagnostic methods have been developed to evaluate the breast lump with the aim to identify a sensitive, specific, efficient and economical approach to obtain an appropriate diagnosis of breast lump such as physical examination, fine needle aspiration cytology (FNAC), core needle biopsy (CNB), ultrasonography, open excision biopsy and thermography.[5] FNAC has been proven to be of great value in the diagnosis of breast lumps and it is simple, quick and effective while it has some limitations such as inability to identify its invasive nature for its insufficiency in sampling and false negative results and recently the diagnosis of breast lump has been dependent on core biopsy with gradual reduction in the rate of performing FNAC.[6] Tru-cut biopsy, also known as core needle biopsy (CNB) is now one of the useful means of obtaining an appropriate diagnosis and it is relatively easy and its use also reduces unnecessary excisional biopsy, lowers inadequacy rate and allows ancillary methods, determines grading and typing of cancer and helps to plan a definitive surgery. However core biopsy has also some limitations and some authors recommended combining the two techniques to improve the diagnostic yield by reducing false positive and false negative rates.[7,8] Mammography, ultrasound and magnetic imaging techniques are useful but the tissue biopsy is necessary to confirm the diagnosis of granulomatous mastitis.[9] It is important to assess the efficiencies of the two procedures for comparison to meet the diagnostic challenge to minimize the controversies in selection of treatment and surgical management of the patients.

## Materials and Methods

A total of 227 participants having breast lumps were included in this cross-sectional prospective study during the period from July 2020 to June 2022 in Khulna City Medical College Hospital, Khulna and Shahid Sheikh Abu Naser Specialized Hospital, Khulna. It is difficult to differentiate granulomatous mastitis from malignant lesions, other inflammatory lesions and benign tumours on the basis of clinical information. Therefore, the women presenting with breast lump who underwent both FNA and Core needle biopsy at same sitting included in this study to assess the efficiencies of the two procedures. All the aspirates were performed with 2 and 12 passes using a combination of 25, 23, and 21 gauge needle for FNA, and direct smears were made in all cases and alcohol fixed then stained with Papanicolaou or H&E. At the same sitting and after the FNA, a core needle biopsy was performed using an 18 gauge needle for formalin fixation and after laboratory processing, stained with H&E. The nulliparous women, the women of age less than 20 years and more than 70 years, previously diagnosed malignant tumours, clinically abscesses and patients with history of chemotherapy and immunosuppressive drugs were excluded from the study. The indication for core needle biopsy was determined on the basis of selection criteria, cosmetic issue and consent of the patient for acceptable and easy pursuance of follow-up resection biopsy. The cytological reports of study subjects were categorized on the basis of six cytological categories of reporting breast lesions such as I=Malignant, II=Suspicious, III=Atypical/Indeterminate, IV= Benign/Specific, V= Benign/nonspecific, and VI=Unsatisfactory.[10]

The cases in which the atypical cells having hyperchromatic nuclei with prominent nucleoli and pleomorphism, were present in the smears but not sufficient for definite diagnosis of malignant tumour and the smears having significantly cellular atypia were considered as atypical cytology. For cytological reporting in some cases with the smears deemed suspicious for a malignant lesion and these were cellular composed of crowded, overlapped dyscohesive epithelial cells with hyperchromatic nuclei showing variation of nuclear outline and size and these were required further evaluation to exclude the malignancy, we preferred to categorize these suspicious cases in atypical category for purpose of the present study.

Benign tumours such as fibroadenoma and phyllodes tumours were grouped in specific benign lesions and also fibrocystic disease, granulomatous mastitis, and other specific chronic mastitis were categorized in specific benign lesions. The FNAC reports with only description of benign breast lesions, only negative for malignant cell, non-specific findings or cytologically unsatisfactory smears were considered as non-diagnostic and for calculation of test performance, these were considered negative. Only adequate cellular smears were examined and the difficult cases were reviewed by senior pathologists.

The diagnostic evidence of granulomatous mastitis are presence of epithelioid cells in the smears either in adequate number or arranged in clusters, histiocytes, occasionally epithelioid histiocytes, plasma cells, giant cells and presence of regular ductal epithelial cells with myoepithelial cells, variable cellular debris and mixed inflammatory cells indicating inflammatory process. For the purposes of this study, accuracy, specificity, sensitivity, positive and negative predictive value were calculated only for cases in which a subsequent resection histopathology were available for use of a "gold standard". An overall accuracy is not reported, instead the accuracy, specificity, sensitivity, positive and negative predictive value of the two techniques were compared and also the combination was evaluated within specific diagnostic categories for only the cases which had follow up histopathological examination as aforementioned. Statistical analysis was done using a 2-tailed Fisher exact test. The research protocol for this study and informed consent form were reviewed and approved by the ethical committee of Khulna City Medical College. The written informed consent was then obtained from each participant and a unique identification number was assigned and all records were kept in a secured room to ensure confidentiality.

## Results

The series included 227 women with ages ranging from 20 years to 70 years and median of 38 years presented with breast lumps. For 227 patients, the aspirate and the core needle biopsy were performed at the same time. A total of 122 patients (53.74%) had subsequent resection for histopathological examination. The overall results are summarized in Table-1.

**Table I:** Distribution of patients with breast lump in different categories diagnosed by FNA, Core needle biopsy and follow-up resection histopathology (n=227).

| No. of cases in different Diagnostic categories | Diagnoses by FNA | Diagnoses by Subsequent CNB | No. of cases with Follow-up resection | Histopathologic Diagnosis |
|---|---|---|---|---|
| 15 | Malignant | Malignant | 15(100%) | Ca-15 |
| 12 | Atypical | Malignant | 12(100%) | Ca-11, CIS-1 |
| 23 | Granulomatous Mastitis | Granulomatous Mastitis | 22(95.65%) | GLM-21, CIS-1 |
| 5 | Nondiagnostic Mastitis | Granulomatous | 4(80%) | GLM-4 |
| 5 | Atypical Mastitis | Granulomatous | 5(100%) | GLM-4,CIS-1 |
| 3 | Granulomatous Mastitis | Fibrocystic Disease | 2(66.66%) | FCD-1, GLM-1 |
| 7 | Atypical | CIS | 7(100%) | Ca-5, ADH-2 |
| 59 | Benign Tumour Phyllodes-2 | Benign Tumour | 25(42.37%) | FA-21, FCD-2, |
| 68 | Nondiagnostic | Benign Tumour | 24(35.29%) | FA-22, FCD-2 |
| 5 | nondiagnostic Chr. Mastitis | Nonspecific | 1(20%) | LLM-1 |
| 21 | Fibrocystic disease | Fibrocystic disease | 2(9.52%) | FCD-2, |
| 4 | Fibrocystic disease mastitis | Granulomatous | 3(75%) | GLM-3, |
| 227 | 227 | 227 | 122(53.74%) | 122 |

Ca-Carcinoma, GLM- Granulomatous lobular mastitis, CIS-Carcinoma-in-Situ, FCD-Fibrocystic disease, FA-Fibroadenoma, LLM-Lymphocytic lobular Mastitis, ADH-Atypical ductal hyperplasia.

Among the 227 breast lumps, 26 cases were diagnosed as granulomatous mastitis by FNAC and 37 cases were diagnosed granulomatous mastitis by core needle biopsy and in 40 cases, combinedly either by FNAC or core biopsy, the diagnoses were granulomatous mastitis. A total of 122(53.74%) were resected for histopathology and biopsy revealed 33 cases of granulomatous mastitis. Other diagnoses were 31 breast carcinoma, 3 Carcinoma-in-Situ, 2 Atypical ductal hyperplasia, 43 Fibroadenoma, 7 fibrocystic disease, 2 Phyllodes tumour, and 1 lymphocytic lobular mastitis, (Table-1).

FNAC and Core needle biopsy reports were concordant in 23 cases (57.5%) and in 17 cases (42.5%), reports were dissimilar. In 22 follow up resections, 21 cases were explored granulomatous mastitis and 1 case showed carcinoma-in-situ which was a low grade type. Initially the 2 FNA and 2 core biopsy were reported false positively as granulomatous mastitis and these were diagnosed otherwise in follow up histology. Moreover, the 2 FNA and 3 core needle biopsy were not resected for histopathology because symptoms were non-significant and clinical follow up was advised. Among 201 FNA reports diagnosed other than GLM, 98 cases (48.75%) were resected and histopathology confirmed the diagnoses accordingly, 11 histopathology diagnoses were granulomatous mastitis which had been reported false negatively by cytology. For 190 core biopsy reports diagnosed other than GLM, 88 cases (46.31%) were resected and histopathological examination revealed 87 cases other than granulomatous mastitis and a single case was diagnosed GLM which had been reported false negatively by core biopsy, (Table I).

**Table II:** Diagnostic accuracy, specificity, sensitivity, positive predictive value and negative predictive value of FNA and Core biopsy (n=122).

| Procedure | Accuracy | Specificity | Sensitivity | Positive Predictive Value | Negative Predictive Value |
|---|---|---|---|---|---|
| FNA | 89.34% | 97.77% | 70.27% | 92.85% | 88.88% |
| Core Biopsy | 97.54% | 97.77% | 97.29% | 94.73% | 98.87% |
| Combination | 97.54% | 96.62% | 100% | 91.66% | 100% |

Accuracy of core needle biopsy was 97.54% which is similar to the accuracy of combination and higher than that of FNAC (89.34%). The specificity, sensitivity, positive predictive value and negative predictive value of core biopsy were 97.77%, 97.29%, 94.73% and 98.87% respectively which were higher than those of FNAC (97.77%, 70.27%, 92.85% and 88.88% respectively), (Table II). The sensitivity and negative predictive value of the combination of two procedures were 100% and the highest among the performances of individual test alone.

## Discussion

Aim of the study was to compare the performances of FNAC and core needle biopsy in diagnosis of breast lumps by assessment of efficiencies of the two procedures using the follow up histopathology as a "gold standard". A breast FNAC or core needle biopsy is indicated in several clinical situations that have mainly diagnostic values and additional usage includes the application of necessary ancilliary techniques such as performing immunohistochemistry for estrogen and progesterone receptors (ER & PR) by True-cut biopsy in the malignant epithelial neoplasms. Both the techniques can be performed for diagnosis of breast lesions with or without the assistance of radiology. Advantages of FNAC are rapidity of diagnosis, high acceptability, coast effectiveness, high sensitivity and specificity, feasibility of multiple sampling in a single sitting, appropriate for preoperative planning, sampling of primary site as well as metastatic lesions, helpful for ancilliary techniques, rapid psychological relief to the patient following a negative diagnosis and it can be used in both palpable and non-palpable lesions and also it can be used as therapeutic purpose with minimal complications.[6]

Routine biopsy methods include fine needle aspiration, core needle biopsy, vacuum-assisted biopsy and excisional biopsy and the former two have considerable accuracy but excisional biopsy can be performed if necessary, frozen section evaluation can occasionally be useful in confirming the diagnosis and also to assess the extent of resection. The present study was focused on the diagnostic performances of cytology and core biopsy because it is crucial for clinical management and treatment of a patient having a breast lump caused by granulomatous mastitis and it was also observed that a multidisciplinary approach for the management of the patients of GLM reduces the rate of erroneous initial clinical impression of breast cancer.[13] Recently an international multidisciplinary consensus (2021 edition) has formulated 30 recommendations on the

needle bibasis of The 2010 American College of Physician (ACP) grading system and one of the recommendations on core opsy emphasized on selection of site for core biopsy during inserting the needle as close as possible to the margin of the areola, because if a subsequent operation is planned, the puncture tunnel can be removed at the same time to reduce scar.[14]

The diagnosis and treatment of a patient having granulomatous mastitis is a great challenge for the clinician and also for the patient who suffers with great impairment of quality of life and most importantly malignancy, usually should be excluded before the diagnosis of GLM can be considered.[15] Clinical manifestations of GLM are diverse which were observed in a study including 3060 cases with granulomatous mastitis frequently had symptoms (80%) with palpable lumps of mean size of 5 cm(3-9cm), and 66% were painful and median age of the patients having granulomatous mastitis was 36 years.[16] Another study reported that 90.7% of the patients had history of pregnancy and 82.7% had history of breastfeeding.[17] The most common signs of the disease are palpable mass, pain, inflammation and erythema, abscess formation, single or multiple fistulas, nipple retraction, breast deformity and occasionally axillary lymphadenopathy.18 For the clinical management of the patients, GLM is classified into four stages on the basis of its progression and clinical manifestation such as (1) Self-limited stage, (2) Congestive swelling stage, (3) Abscess formation stage, and (4) complete refractory stage.[19] For clinical management and treatment, a multidisciplinary approach is useful and one study suggested that better characterization of specimens make core needle biopsy more efficacious and it provides more dependable preoperative diagnosis which can help to create a rational algorithm for management.[20] Other corroborative diagnostic procedures such as ultrasonography and mammography are conducive to diagnosis of granulomatous mastitis.[21,22] The higher performances of core needle biopsy and the highest sensitivity and negative predictive value of the combination (100%, Table II) observed in the present study lead us to emphasize on use of the combination for diagnosis of granulomatous mastitis and it has a considerable influence on selection of the modalities such as etiologic, medical and surgical treatment.

Cytological diagnosis of GLM requires a perspicacious observation of pathologist to differentiate it from malignancy and other inflammatory clinical conditions and benign lesions especially fibrocystic disease. To differentiate from malignancy, difficulty arises when cellular atypia in the epithelial cells make a confusion for diagnosis, here three dimensional aggregates, arrangement of the cells, absence or presence of myoepithelial cells, interspersed fibro-fatty tissue and pleomorphism may be determining factors. To differentiate it from fibrocystic disease, difficulties arise when histiocytes of various size along with epithelioid histiocytes appear in the smear. In this cases the arrangement of histiocytes, admixture with epithelial cells, absence of foamy histiocyte, presence of inflammatory cells including plasma cells and aggregates of epithelioid cells may be determining factors. Absence of caseation necrosis should be mentioned in cytological reporting of granulomatous mastitis to differentiate from tuberculosis. In core biopsy, there may be adenosis, non-caseating granulomas, multinucleated giant cells and peri-glandular inflammatory infiltrate. In addition to these cytological and biopsy procedures, other laboratory investigations are useful to differentiate it from tuberculosis such as tuberculin test, routine blood test, ESR, C-reactive protein, antinuclear antibody profile and growth of AFB in the tissue.23

The limitations of the present study were first of all, the prevalence of granulomatous mastitis in the population is not reflected in this study because it was a hospital based research. Secondly, during selection of participants, random sampling technique was not applied and there is sampling bias in this study. Thirdly, inter-observer variation during cytological examination and also for core biopsy were not calculated statistically in this study. Fourthly, immunological study, microbiological examination and molecular diagnostic methods were not performed in the laboratory for study subjects.

## Conclusion

Fine needle aspiration cytology and core needle biopsy are established laboratory procedures for diagnosis of breast lumps. The diagnostic accuracy of core biopsy was found much higher than FNAC and the combination of these two procedures is preferable to exclude the malignancy. The sensitivity and negative predictive value of combination were observed 100% for diagnosis of granulomatous mastitis and the combination of these two procedures has an important role in follow up management of the patients.

**Conflict of interest:** None.

**Funding:** This research received no external funding.

## References


1. Maione C, Palumbo VD, Maffongelli A, Damiano G, Buscemi S, Spinelli G, et al. Diagnostic techniques and multidisciplinary approach in idiopathic granulomatous mastitis: a revision of the literature. Acta bio-medica: Atenei Parmensis. 2019; 90(1): 11-5. Doi: 10.23750/abm.v90i1.6607.
2. Ergin AB, Cristofanilli M, Daw H, Tahan G, Gong Y. Recurrent granulomatous mastitis mimicking inflammatory breast cancer. BMJ case reports. 2011; 2011. Doi: 10.1136/bcr.07.2010.3156.
3. Calis H, Karabeyoglu SM. Follow-up of granulomatous mastitis with monitoring versus surgery. Breast Dis. 2017; 37(2): 69-72. doi: 10.3233/BD-160259.
4. Yildiz S, Aralasmak A, Kadioglu H, Toprak H, Yetis H, Gucin Z, et al. Radiologic findings of idiopathic granulomatous mastitis. Med Ultrason. 2015; 17(1): 39-44.
5. Muhammad E. Validity of fine needle aspiration cytology in diagnosis of breast lumps in upper Egypt. J Med Lab Sci 2012; 21(1): 69-81.
6. Mitra S and Dey P. Fine-needle aspiration and core biopsy in the diagnosis of breast lesions. A comparison and review of the literature. Cytojournal 2016; 13: 18. Published online 2016 Aug 31.
7. Syeda Momena Hossain, Md. Baharul Islam, Mohd Shahjahan Ali, Israfil Islam, Nafisa Naz. Comparative Study of Tru-Cut Biopsy and FNAC in A Clinically Palpable Breast Lump. Ibrahim Card Med J 2021; 11(1):21-27.
8. Joulaee A, Kalantari M, Kadivar M, Joulaee N, Mangual M, Hossaini S, Gh. Etemadmoghadam G. Tru cut biopsy of breast lesions: The first step toward international standards in developing countries. Europian Journal of Cancer 2012; 48: 648-654.
9. Grover H, Grover SB, Goyal P, et al. Clinical and imaging features of idiopathic granulomatous mastitis- the diagnostic challenges and a brief review. Clin Imaging 2021; 69: 126-132.
10. Karin Lindholm. Breast. In; Manual and Atlas of Fine Needle Aspiration Cytology. 3rd Edition. 1999: Churchill Livingstone. Elsevier Science Limited, 2002. P 146-199.
11. Al-Ismaeel AH, Nugud A, Nugud S. Ultrasonography-Guided Core Needle Biopsy Diagnostic Value in Breast lump assessment: An Experience from The Middle East. Journal of Diagnostic Medical Sonography. 2021; 37(1): 5-11. doi: 10.1177/8756479320951758
12. Angelika Wolfrum, Sherko Kummel, Ingo Theuerkauf, Enrico Pelz, Mattea Reinisch. Granulomatous Mastitis: A Therapeutic Challenge. Breast Care 2018; 13: 413-418. DOI: 10.1159/000495146
13. Yaghan RJ, Ayoub NM, Hamouri S, Al-Mohtaseb A, Gharaibeh M, Yaghan L et al. The role of establishing a multidisciplinary team for idiopathic granulomatous mastitis in improving patient outcomes and spreading awareness about recent disease trends. Int J Breast Cancer 2020; 2020: 5243958.
14. Yuan et al. Management of granulomatous lobular mastitis: an international multidisciplinary consensus (2021 edition). Military Medical Research 2022; 9 (1): 20 https://-doi.org/10.1186/s40779-002-00380-5
15. Lei X, Chen K, Zhu L, et al. Treatment for idiopathic granulomatous mastitis: systematic review and meta-analysis. Breast feed Med 2017; 12: 415-421.
16. Martinez-Ramos D, Simon-Monterde L, Suelves-Piqueres C, Querait-Martin R, Granel-Villach L, Laguna-Sastre JM et al. Idiopathic granulomatous mastitis: a systematic review of 3060 patients. Breast J 2019; 25(6): 245-50.
17. Azizi A, Prasath V, Canner J, Gharib M, Sadat Fattahi A, Naser Forghani M, et al. Idiopathic granulomatous mastitis: managements and predictors of recurrence in 474 patients. Breast J 2020; 26(7): 1358-62.
18. Sari, et al. Idiopathic Granulomatous Mastitis: An institutional Experience from a Referral Center. Arch Breast Cancer 2022; Vol: 9. Special issue: 301-308.
19. Steuer AB, Stern MJ, Cobos G, Castilla C, Joseph KA, Pomeranz MK, et al. Clinical characteristics and medical management of idiopathic granulomatous mastitis. JAMA Dermatol 2020: 156(4): 460-4.
20. Sharang S Kulkarni, Sheetal murchite, Aniket Patil. A Comparative Study Between Fine Needle Aspiration Cytology and Core Needle Biopsy in the Diagnosis of Palpable Breast Lumps. Journal of Surgery and Research 2022; 5: 221-228.
21. Alikhassi A, Azizi F, Ehsani F. Imaging features of granulomatous mastitis in 36 patients with new sonographic signs. J ultrasound 2020; 23(1): 61-8.
22. Hasbahceci M, Kadioglu H. Use of imaging for the diagnosis of idiopathic granulomatous mastitis: a clinician's perspective. J Coll Physicians Surg Pak 2018; 28(1): 862-7.
23. Haddad M, Sheybani F, Arian M, Gharib M. Methotrexate-based regimen as initial treatment of patients with idiopathic granulomatous mastitis. Breast J 2020; 26(2): 325-7.

Case Report

# Secondary Hepatic Pregnancy: A Glitch of Nature

Khaliduzzaman SM[1], Huda S[2], Lailatunnesa[3], Nahar S[4]

**Abstract**

Introduction: Abdominal pregnancy is a rare event and hepatic pregnancy is extremely rare. Abdominal pregnancy can be primary or secondary, while secondary abdominal pregnancy ranges from 1 per 2200 to 1 per 10,200 pregnancies1. Only 39 cases of hepatic pregnancy have been reported in the English literature since 1952, based on Medline database inquiry. A 30 years old lady, G3P2+0, history of previous two cesarean sections, presented with amenorrhea for 25 weeks and shortness of breath and pain in right upper quadrant of abdomen for last two weeks, admitted in Dept. of ObGyn, Khulna Medical College, Khulna. An ill-defined mass (20X15cm) was detected in right upper quadrant of abdomen. Vaginal examination revealed just bulky uterus. TAS at her 24 weeks of amenorrhea, detected a pregnancy sac containing an alive fetus weighing about 640gm in subhepatic area. An alive preterm baby was taken out of sac by upper midline incision, placenta was left in situ. A single done of intravenous Methotrexate (50mg/kg bw) was administered on 14th post-operative day. On 18th post-operative day, she was discharged without any sequel and advised for follow-up. Monthly sonographic follow-up showed gradual reduction of size of the subhepatic mass. Amenorrhea with empty uterus and history of previous two cesarean sections, should raise the suspicion of abdominal pregnancy even hepatic pregnancy although it is an extremely rare condition.

**Key words:** Hepatic pregnancy, Methotrexate, Cesarean section

J Khulna Med Coll. 2023; 2(2) : 72-75

## Introduction

Abdominal ectopic pregnancy has been defined as an ectopic pregnancy implanted in the peritoneal cavity, but excludes the tube, ovary or intraligamentous. It accounts for approximately 1% of all ectopic pregnancies[1,2]. The incidence of hepatic ectopic pregnancy is lower than that of ectopic pregnancy in other locations in abdomen. As the majority of abdominal pregnancies are implanted in the pelvis, it is rare to find ectopic implantation on the peritoneal wall of the abdomen[3]. In supine position, the lower surface of the right lobe of the liver is the lowest position of the abdominal cavity. It explains that the location of the ectopic pregnancy of the liver often appears on the lower surface of the right lobe of the liver. Fatty liver and high vascularity of the hepatic parenchyma have the similar effect, promoting zygote implantation on the surface of the liver and making the initial attachment in an ectopic pregnancy feasible and to grow up there and gain the age of viability. Most patients with hepatic pregnancy have a history of wearing intrauterine devices, and implantation occurs on the lower surface of the right lobe of the liver[4]. Our patient has history of previous two cesarean section, it was difficult to determine whether this was a case of primary or secondary hepatic pregnancy. The diagnosis and treatment of these unusual abdominal pregnancies present both diagnostic and therapeutic dilemmas[5].

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**Received :** 09/04/2023 **Accepted :** 10/07/2023

## Case presentation

A 30-year-old woman, G3P2+0, history of previous two cesarean sections, presented with amenorrhea for 25 weeks and shortness of breath with pain in upper right quadrant of abdomen for last two weeks, admitted in Dept of Obstetrics & Gynecology, Khulna Medical College, Khulna. Apparently stable hemodynamic status, mild anemia with upper abdominal distension were the physical findings. She gave no history of chills, fever, nausea, vomiting and diarrhea. An ill-defined mass (about 20X 15 cm) was found in right upper quadrant of abdomen. Vaginal examination revealed, just bulky uterus and fornices were free, no bleeding or discharge. Abdominal sonography at her 24 weeks of amenorrhea, a pregnancy sac with an alive fetus weighing about 640gm found in subhepatic area. (Fig-1)

Laparotomy was planned having all other investigations are normal. Upper midline incision was given under general anesthesia and an alive preterm baby was taken out of sac which was found beneath the right lobe of liver, placenta was left is situ. (Fig-2, 3) Abdomen was closed in layers leaving two wide bore drains beneath right lobe of liver. Patient recovered in postoperative periods without significant consequences. A single dose of intravenous Methotrexate (50mg/kg body weight) was administered on 14th post-operative day. She was discharged on 18th post-operative day without any sequel. She was advised for long-acting reversible contraception and monthly sonographic follow-up. On successive four follow-ups, the sub hepatic mass was gradually reducing is size. (Fig-4) The premature baby survived only two days with all neonatal resuscitative measures.

**Figure 1.** TAS showing empty uterus, an alive (145b/m) fetus (BPD 58mm) seen at RHR. Almost no fluid seen surrounding the baby, no free abdominal collection.

**Figure 2.** Intact pregnancy sac containing alive fetus beneath right lobe of liver

**Figure 3.** Alive preterm newborn, survived in NICU for 48hours.

**Figure 4.** Ultrasonography of whole abdomen on 11th post-operative day, showing mixed echogenic structure (10 X 8.6) seen in sub-hepatic region.

## Discussion

Primary hepatic pregnancy is an extremely rare extrauterine pregnancy event, contributing a very high maternal morbidity and mortality. It is difficult to distinguish between primary and secondary hepatic pregnancy. Risk factors for pelvic inflammatory disease, history of previous abdominal surgery those contribute the aberrant intra-abdominal and peritoneal milieu, leads to nidation of fertilized ova to be implanted in most unusual sites like liver preferably beneath the right lobe, due to its larger surface area, abundant blood supply. The criteria for diagnosing primary abdominal pregnancy were first given by Studdiford which include (1) normal tubes and ovaries with evidence of recent or remote injury; (2) absence of any evidence of uteroplacental fistula; (3) presence of pregnancy related exclusively to peritoneal surface; and (4) pregnancy recent enough to eliminate the possibility of secondary implantation following primary tubal nidation[6,7]. Most of the reported cases presented with digestive clinical manifestations such as right upper abdominal pain, vomit and nausea. These misleading symptoms may point doctors toward digestive and hepatobiliary pathologies, and abdominal ectopic pregnancies were commonly misdiagnosed[8]. Diagnosis relies not only on clinical manifestations, but also on essential laboratory tests and adequate assistant examination. The women of child-bearing age with amenorrhea and rising serum hCG levels should be noted with ultrasonography owing to inexpensive price and no-ionizing radiation[9,10,11].

Our patient had no history of using oral contraceptives and intrauterine devices, had history of previous two cesarean sections. Following her missed period, she did not develop the constitutional symptoms of pregnancy and quite unaware of becoming pregnant. Later she developed upper abdominal discomfort, shortness of breath for two weeks prior to doing an abdominal ultrasonography, at her 24 weeks of amenorrhea. At 25th weeks she got admitted into our hospital. She gave no history of fever, abdominal bloating or bowel irregularities. The anatomic location of the fetus, fetal activity, parts, age and placental location can be demonstrated and evaluated through color Doppler. Furthermore, sonography is helpful to determine the mass is vascular or not. However, ectopic pregnancy cannot be finally excluded in certain cases with ultrasonography by reason of limitations of its own. Therefore, CT and MRI scans become very necessary and they can describe regional anatomy in greater detail of ectopic gestational sec, precise location of the placenta[12]. Our diagnosis was straightforward through transabdominal sonography.

The open surgery should be the first choice when shock, acute peritonism or concurrence of two symptoms. According to the available statistical data, most patients (26/31) accepted laparotomy, including laparotomy (omental transplantation, hepatic artery ligation, liver packing and lobectomy), laparotomy combined with intra-operative injection of MTX into gestational sac, laparotomy united with injection of MTX, laparotomy linked with postoperative injection of MTX and postoperative hepatic artery embolization. Non-open surgery are becoming greatly popular because of their safety, effectiveness, and substitutability with the rapid development of medical technologies over the past decades[13,14,15]. We planned for laparotomy to bring out the fetus and keep the placenta in situ and administration of parenteral MTX postoperatively considering our existing facilities. Early diagnosis and treatment are the mainstay of the best outcome regarding management of such rare cases. Serial abdominal scans every month interval to see the gradual reduction of the size of the sub-hepatic mass was our follow-up protocol and the patient was co-operative, she resumed her menstruation on 8th month post-operative.

## Conclusion

The diagnosis and treatment of these unusual abdominal pregnancies present both diagnostic and therapeutic dilemmas. In cases of pregnancy of unknown location (PUL), gynecologists should bear in mind the rarest possibility of a hepatic pregnancy, in spite of absence of the proposed risk factors for ectopic pregnancy. Comprehensive radiological work up is mandatory for determining the scheme of management. Open surgery or laparoscopy depends of duration of pregnancy, size of the sac, patients' hemodynamic status. The gestational sac diameter of more than 3.5cm is a relative contraindication for methotrexate treatment. As there is diversity of the patient's condition, so diagnostic approach and management plan should be individualized.

## Acknowledgment

The authors would like to express their deepest gratitude to the department colleagues and the dedication of the patient, and the patient has signed the informed consent for surgery and photography.

## Conflict of interest

We declare that we had no conflict of interest.

## References:

1. Parekh VK Bhatt S, Dogra VS. Abdominal Pregnancy: An unusual Presentation. J Ultrasound Med 2008; 27:679-81.
2. Atrash HK, Friede A and Hogue CJ. Abdominal pregnancy in the United States: frequency and maternal mortality. Obstet Gynecol 1987; 69: 333-337.
3. Garzon S, Raffaelli R, Montin U. et al. Primary hepatic pregnancy: report of a case treated with laparoscopic approach and review of th literature. Fertil Steril 2018; 110:925-31. e1.
4. Wang J, Su Z, Lu S, et al. Diagnosis and management of primary hepatic pregnancy: literature review of 31 cases. Arch Gynecol Obstet 2018; 298:235-42.
5. Molinaro TA, Barnhart KT. Ectopic pregnancies in unusual locations. Semin Repord Med 2007; 25:123-30
6. Chui AK, Lo KW, Choi PC, Sung MC, Lau JW (2001) Primary hepatic pregnancy. ANZ J Surg 71(4):260–261
7. Luwuliza-Kirunda JM (1978) Rrimary hepatic pregnancy case report. Acta Obstet Gynecol Scand 66(6):563–564
8. Qiao JC, Chang ZG, Wei JM, Liu YN, Cui HY, Zhang Y (2013) Hepatic ectopic pregnancy treated successfully by hepatectomy. Chin Med J (Engl) 126(24):4806–4807
9. Tu J, Wang E, Shen J (2016) Primary hepatic ectopic pregnancy:a case report. J Reprod Med 61(3–4):175–178
10. Wang T, Chen P, Bian D (2017) Primary hepatic pregnancy.Clin Res Hepatol Gastroenterol 41(3):241–242.
11. Brouard KJ, Howard BR, Dyer RA (2015) Hepatic pregnancy suspected at term and successful delivery of a live neonate with placental attachment to the right lobe of the liver. Obstet Gynecol 126(1):207–210.
12. Hu S, Song Q, Chen K, Chen Y (2014) Contrast-enhanced multiphasic CT and MRI of primary hepatic pregnancy: a case report and literature review. Abdom Imaging 39(4):731–735.
13. Shippey SH, Bhoola SM, Royek AB, Long ME (2007) Diagnosis and management of hepatic ectopic pregnancy. Obstet Gynecol 109(2 Pt2):544–546.
14. Sibetcheu Tchatou A, Tchounzou R, Mbuagbaw L, Mboudou ET (2017) Successful medical treatment of a hepatic regnancy: a case report. J Med Case Rep 11(1):70.
15. Moores KL, Keriakos RH, Anumba DO, Connor ME, Lashen H (2010) Management challenges of a live 12-week sub-hepatic intra-abdominal pregnancy. BJOG 117(3):365–368.

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