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Content **Page**

ONCOPLASTIC BREAST SURGERY: CURRENT STRATEGIES

Munny Momotaz

Surgical management of breast cancer has evolved significantly over the years, trending away from radical procedures, and moving towards those with complete resection of tumor while preserving normal parenchyma tissue thereby decreasing patient morbidity. This shift has allowed for improved aesthetic outcomes and quality-of-life for patients, while maintaining equivalent oncologic safety.[1], The term oncoplastic surgery was coined to describe an evolving area of breast surgery that applies the principles of surgical oncology and plastic and reconstructive surgery to the management of women with breast cancer. Onco-plastic surgery does not describe a particular surgical procedure; it represents a comprehensive approach to surgical planning intended to achieve (1) widened surgical margins; (2) reduced local recurrence risk; (3) optimized cosmetic outcome; and (4) breast volume reduction when patients with macromastia develop breast cancer.[2]

Pre-operative evalution:

In the patient who is a candidate for oncoplastic breast surgery, it is necessary to have a multidisciplinary preoperative evaluation with the breast oncologic surgeon and plastic surgeon. The breast oncologic surgeon will determine the volume and location of breast to be resected thereby providing information as to the anticipated defect that will be reconstructed, and whether or not the patient is a candidate for breast conservation therapy. The option of significant tissue rearrangement through oncoplastic techniques can facilitate the removal of larger tumors, which can potentially extend the option of breast conservation to patients who would have traditionally required mastectomy.[3] It is also important to establish expectations both of the patient and the surgeons during the preoperative period.

Oncoplastic Techniques:

Oncoplastic breast surgery entails complete tumor extirpation, partial reconstruction of wide local excisions, and symmetrizing surgery for the contralateral breast.The technique used for reconstruction depends on a number of factors, most importantly tumor location and size, tumor to breast size ratio, and patient desires.

Volume displacement technique:

Local tissue rearrangement is an essential component of many oncoplastic techniques. It is most commonly used in women with moderate-sized breasts, small tumors and grade 1 ptosis. This technique may shift the defect to a less conspicuous location by taking advantage of subcutaneous fat and skin elsewhere. These approaches often involve raising of skin/ subcutaneous flaps to allow for mobilization of the underlying glandular tissue to fill the glandular defect. Glandular flaps may allow defects in all areas of the breast to be filled, even in the difficult-to-repair upper inner quadrant defects, provided there is sufficient tissue.

Volume Replacement technique: If there is insufficient tissue for local tissue rearrangement because the defect is too large, local or regional flaps provide viable options for reconstruction. Local flaps from the subaxillary region are useful for moderate defects in the smaller breast. More lateral defects may be reconstructed with a transposition or rotational flap, moving skin and subcutaneous fat that is lateral to the breast into defects in the outer quadrants of the breast. The latissimus dorsi flap provides enough volume to correct almost any partial mastectomy defect, is technically simple and has relatively low morbidity. Because of the different skin color and texture with this flap, it is better to replace an entire aesthetic unit during latissimus dorsi reconstruction. This is ideally done by having one edge of the skin paddle form the inframammary fold, the lateral breast border, or both. However, this flap can still be used if no skin is missing by transferring the muscle alone.

Mastopexy Approches: Mastopexy techniques are good options for patients with significant ptosis and adequate breast volume, as well as larger breasted patients.

Oncoplastic reduction Mammoplasty: Bilateral reduction mammoplasty is an ideal treatment option for breast cancer in women with preoperative macromastia. Based on tumor location, a skin pattern and NAC pedicle are designed pre- operatively to allow for resection of the tumor within the typical resection pattern for the specific reduction technique chosen, and filling of the planned tumor defect with the remaining breast tissue. Once the amount of required tissue resection is determined on the ipsilateral side, the contralateral breast is reduced to match. This technique can also be applied to tumors in other areas of the breast by shifting tissue and rotating the reduction pattern.

Complications:

Overall complication rates for oncoplastic reconstruction range from 15-30% and have been well-documented.4 The complications unique to this type of surgery include skin/flap necrosis, nipple and nipple areola complex necrosis, seroma, hematoma, infection, wound dehiscence and fat necrosis. The most common complication in Wise pattern/ inverted “T” techniques is delayed healing of the “T” junctions.

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A STUDY OF PAP SMEAR FOR DETECTION OF ABNORMAL CERVICAL CYTOLOGY IN A TERTIARY CARE HOSPITAL AT RANGPUR

Asma Ul Hosna[1], Md. Sohorab Hossain Bhuiyan[2], Muhammed Imran Uddin[3], Nafisa Rashid[4]

ABSTRACT

Introduction: Cervical carcinoma is the leading cause of mortality and morbidity in developing country like Bangladesh. It may be due to lack of proper screening facilities and due to lack of awareness among the women. Early detection and appropriate treatment are possible if screening is implemented. Objective: The aim of this study was to evaluate the use of Pap smear in detecting premalignant and malignant lesion as well as non-neoplastic lesion of the cervix. **Materials & Methods:** The retrospective study was carried out at Prime Medical College & Hospital, Rangpur during June 2017 to July 2018, total 150 patients were screened at Pathology Department, Prime Medical College & Hospital, Rangpur. **Result:** The majority of the patients 64 (42.7%) was in the age group of 31 to 40 years followed by 39 (26.0%) cases which was 41-50 years' age group. According to symptom majority of the women 72 (48.00%) had history of per vaginal discharge followed by 59 (39.33%) had pain in lowed abdomen. On pap smear, maximum cases 131 (87.33%) were having negative for intraepithelial lesion, 125 (83.33%) were having nonspecific inflammation, 06 (04.00%) were having bacterial vaginosis, 05 (03.33%) were ASCUS, 03 (2.00%) were having both AGUS & LSIL. **Conclusion:** Pap smear is simple, noninvasive, cost effective and important tool for early detection of premalignant and malignant lesion of cervix. Regular Pap smear screening should be conducted in vulnerable age group. Women with an abnormal pap test should undergo a colposcopy and those with abnormal colposcopy finding should be advised to undergo a biopsy.

Keywords: Pap smear, NILM, LSIL, Squamous cell carcinoma.

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Citation: a study of pap smear for detection of abnormal cervical cytology in a tertiary care hospital at rangpur. TMMC Journal 2024; 9(1):05-11.

Introduction

Cervical cancer is the 3rd most common type of cancer among women worldwide following breast carcinoma and colon carcinoma[1]. Approximately, 80% of cervical cancers occur in developing countries. Cervical cancer mostly affects younger women and during the last two decades the incidence in younger age groups has further increased[2]. Globally, 15% of all cancers' in females are cervical cancers, while in Southeast Asia, cancer cervix accounts for 20% 30% of all cancers'. Cancer of cervix is a major cause of death in women living in developing countries[3]. The frequency of cervical cancer after treatment for dysplasia is lower than 1% and mortality is less than 0.5%[4]. The increasing trend of the disease in developing countries is attributed to the early beginning of sexual activities, certain sexual behaviors like high number of multiple partners, early age at first intercourse, infrequent use of condoms, multiple pregnancies with chlamydia association, and immunosuppression with HIV, which is related to higher risk of HPV infection[5]. HIV-infected women have a higher risk and persistence of multiple HPV infections which are associated with increased risk of progression to precancerous cervical lesions compared to HIV-noninfected[6]. It is estimated that 10-15% of women have oncogenic HPV types (HPV high risk: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 69, 82 and HPV low risk: 6, 11, 40, 42, 43, 44, 54, 61, 72, 81)[7]. The use of oral contraceptives is asserted to increase the risk of the disease (administration for >5 year-double risk, >10 year-quadruple risk), although some other risk factors like sexual activity, frequency of gynecological examinations and medication free interval time should be estimated[7]. Unlike most other malignancies, cancer of cervix is readily preventable when effective programmes are conducted to detect and treat its precursor lesions. Since the introduction of Pap test, a dramatic reduction has been observed in the incidence and mortality of invasive cervical cancer worldwide8. Currently there are two types of diagnostic tests for cervical cancer screening: Pap test and HPV test. The first one detects early the precancerous and cancerous cell lesions in order to be effectively treated and the second one infections by HPV types that could lead to cancer[9]. The Pap smear has proved valuable for mass screening and enabling lesions detection at an early enough stage for effective treatment and has an incidence of reducing Invasive squamous cell carcinoma by at least 80%. The overall sensitivity of the Pap test in detecting a high grade squamous intraepithelial lesion (HSIL) is 70.80%[10]. A Pap screening done in association with an HPV DNA test increases the sensitivity for early detection of precancerous and cancerous lesions[11]. According to the latest guidelines of the American Cancer Society, screening should begin at the age of 21[12]. Women between 21-29 years should be screened with Pap test every 3 years. In women between 21-29 years, who have had two or more consecutive negative cytology results, data are not adequate to assert larger interval time between screening (>3 years). The HPV test should be used in these ages only after Pap test abnormal findings. Women between 30-65 years should be screened with both Pap test and HPV test (co-testing) every 5 years. This type of screening is preferable, but the continuing of Pap test screening every 3 years is also acceptable. Data is inadequate to support longer interval time between tests in this age group after a number of negative tests[13].

Since early detection predicts better prognosis, one of the most effective ways of preventing and controlling cervical cancer is regular screening and early diagnosis. Cytology is most effective and practical method for cervical cancer screening, as it is simple, relatively inexpensive, reliable, less time consuming and generally applicable. The aim of this study was to evaluate the use of pap smear in detecting premalignant and malignant lesion as well as non-neoplastic lesion of the cervix.

Materials and Methods:

The retrospective study was carried out at Prime Medical College & Hospital, Rangpur during June 2017 to July 2018. Total 150 patients were screened at Department of Pathology. We screened 150 sexually active women who were more than 21 years of age. Women with different complaints, including vaginal discharge, blood mixed discharge, foul smelling discharge, post-coital bleeding, intermenstrual bleeding, postmenopausal bleeding, abdominal pain, infertility, and secondary amenorrhea, were included in this study. Women who were treated for cancer cervix, women who were pregnant, women who used local douche or antiseptic cream were excluded from the study. We had received Pap smears from the Department of Obstetrics and Gynecology with detailed history in predetermined proforma that included the chief complaint and the findings of per speculum and vaginal examinations. Written informed consent was also obtained from all women. We had received properly smeared and labelled glass slide which was fixed with 95% ethyl alcohol in a jar. We stained all the slides with Pap stain and examined according to the new Bethesda System for Reporting Cervical Cytology 2014. The system broadly divides lesions into those negative for intraepithelial neoplasia and epithelial cell abnormalities (ECA) that include squamous and glandular cells. Women who had abnormal Pap test results, including atypical squamous cells of undetermined significance (ASCUS), low grade squamous intraepithelial lesion (LSIL), and HSIL were advised for a colposcopic examination.

Results:

A total number of 150 cases were included in this study. The youngest patient in this study was 21 years old and the oldest was 86 years old. The majority of the patients 64(42.7%) was in the age group of 31 to 40 years followed by 39(26.0%) cases which was 41-50 years' age group (Table 1). The mean age was calculated as 59.27 years.

Table 1: Distribution of the women (N=150) according to age.

Age (Years) group	No. of the patients	Percentage (%)
21-30	26	17.3
31-40	64	42.7
41-50	39	26.0
51-60	13	8.7
61-70	06	4.0
>71	02	1.3
Total	150	100

According to symptom majority of the women 72(48.00%) had history of per vaginal discharge followed by 59(39.33%) had pain in lowed abdomen, 37(24.67%) had itching vulva, 28(18.67%) had burning micturition & 13(08.67%) had irregular menstrual cycle. (Table 2)

Table 2: Distribution of the cases (N=150) according to symptom.

Presenting symptom	Number of cases	Percentage (%)
Per vaginal discharge	72	48.00
Pain in lower abdomen	59	39.33
Itching valva	37	24.67
Burning micturition	28	18.67
Irregular menstrual cycle	13	08.67
Post coital bleeding	7	04.67
Post-menopausal bleeding	3	02.00

According to epithelial cell abnormality majority of the cases 131(87.33%) were having negative for intraepithelial lesion, 125(83.33%) were having nonspecific inflammation, 06(04.00%) were having bacterial vaginosis, 05(03.33%) were ASCUS, 03(2.00%) were having both AGC & LSIL.

Table 3: Distribution of cases (N=150) according to epithelial cell abnormality.

Pap smear cytology	Number	Percentage
Negative for intraepithelial lesion	131	87.33
Nonspecific inflammation	125	83.33
Bacterial vaginosis	06	04.00
ASCUS	05	03.33
AGC	03	02.00
LSIL	03	02.00
HSIL	02	01.33
Squamous cell carcinoma	01	00.67

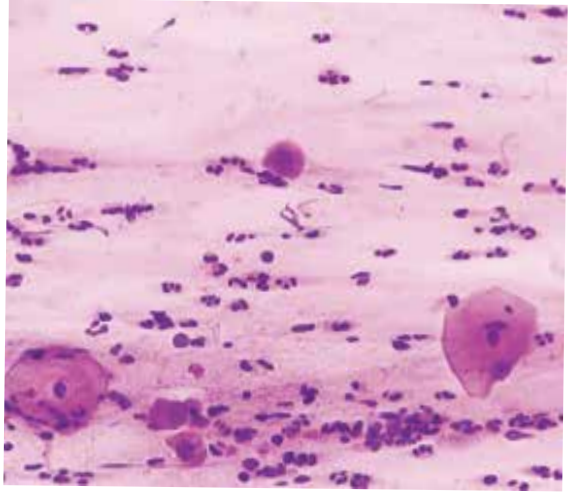

Figure 1: Squamous cells of Negative for intraepithelial lesion or malignancy with moderate inflammation (Pap stain, 40X).

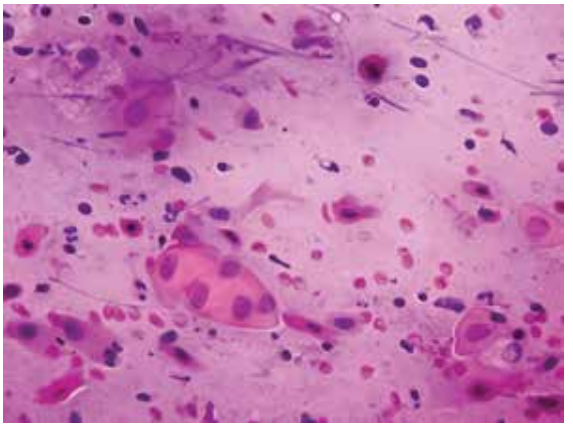

Figure 2: Squamous cell of Low grade intraepithelial lesion or malignancy (Pap stain, 40X).

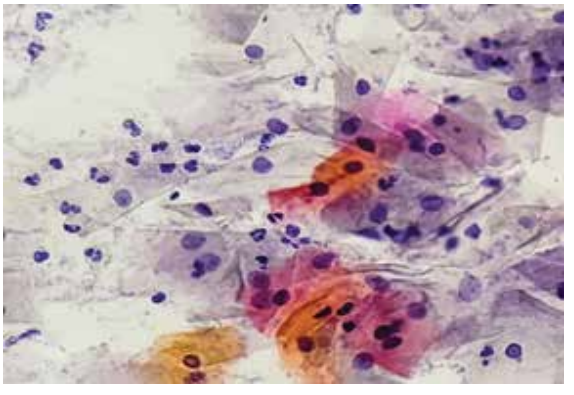

Figure 3: Bacterial vaginosis with presence of clue cells (Pap stain, 40X).

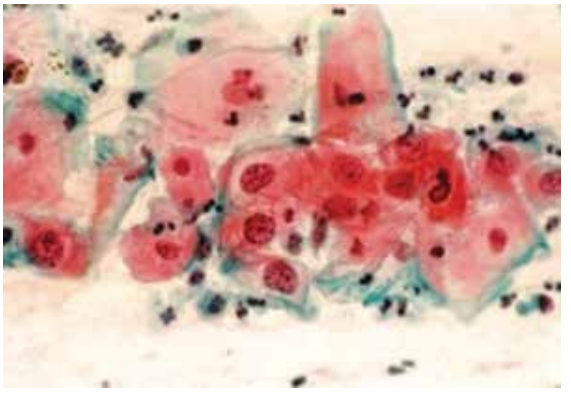

Figure 4: Atypical squamous cells of undermined significance (Pap stain, 40X).

Discussion:

A regular screening programme is capable of early detection of cervical cancer at the stage of dysplasia and thus reducing the morbidity and mortality. Cytology is most effective and practical method for cervical cancer screening. It is simple, relatively inexpensive, reliable, less time consuming and easily applicable.

The majority of the patients 64(42.7%) was in the age group of 31 to 40 years followed by 39(26.0%) cases which was 41-50 years' age group. Similar results were found in studies conducted by Choudhary et al where most of the women were in the age group of 31 to 40 years i.e. 56% and 41 to 65 years i.e. 25.8%[14]. This age group is most vulnerable for manifestations of cervical pathology as cervical lesions are slowly growing and takes 10-12 years to manifest after cervical insult.

In the present study, majority of the women 72(48.00%) had history of per vaginal discharge followed by 59(39.33%) had pain in lowed abdomen, 37(24.67%) had itching vulva, 28(18.67%) had burning micturition & 13(08.67%) had irregular menstrual cycle. Similar results were found in studies conducted by Bamanikar et al where commonest presenting complaint was white discharge per vagina found in 51.8% patients which is comparable to other studies conducted by Choudhary et al (46.8%), Papa dasari et al (44.7%), Ashok Verma et al (54.5%)[14,15,16,17].

In the present study, majority of the cases 131 (87.33%) were having negative for intraepithelial lesion. In Bhavani K et al 90.77% were having negative for intraepithelial lesion or malignancy on pap smear, which corresponds to the following study conducted by other author[15,18].

In the current study, 03.33% were having ASCUS, which corresponds to the studies conducted by Vaghela et al (2.8%), Bamanikar et al (2.32%), Verma A et al (1%)[15,17,19]. A higher incidence of ASCUS was found in study by Umarani et al (5.34%) maybe due to the more number of cases and long duration of studies[20].

In this study 2.00% cases were AGC, which corresponds to the studies by Vaghela et al (1.4%) and Umarani et al (0.64%)[19,20]. In present series 2.00% of cases had LSIL, which is comparable to the studies Bamanikar et al (1.96%) and Umarani et al (1.62%)[15,20].

In current study 1.33% had HSIL, which was comparable to studies by Bhavani K et al (1.8%) and Umarani et al (0.64%)[18,20]. In this study, 00.67% had SCC, which corresponds to the results by Bamanikar et al (0.53%), Umarani et al (0.28%)[15,20].

Conclusion:

Cervical cytology by pap smear testing is a very useful, simple, economic and safe tool for detecting precancerous cervical epithelial lesion. It should be established as a routine screening procedure for early detection of premalignant and malignant lesion of cervix and thus help the clinician in early and more efficient management of the patient.

Abbreviation:

NILM-Negative for intraepithelial lesion or malignancy; ASCUS-Atypical squamous cell of undetermined significance; SIL-Squamous intraepithelial lesion; HSIL-High grade squamous intraepithelial lesion; LSIL-Low grade squamous intraepithelial lesion; SCC-Squamous cell carcinoma; ADC-Adenocarcinoma

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PERFORMANCE OF SINGLE SHOT EPIDURAL ANAESTHESIA IN LOWER ABDOMINAL & LOWER LIMB SURGERY

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ABSTRACT

In this study analysed are the epidural anaesthesias of the years 2011-2012, which were carried out with the single-shot-method. Single shot epidurals without the use of a catheter is still widely used in various settings, and is effective in providing intraoperative anaesthesia and analgesia in the immediate postoperative period. It is a cross sectional prospective study done in the international medical college hospital. Suject of study is randomly selected. We use 1% Lidocaine & 0.25% Bupivacaine, Fentanyl mixer and Tuohy epidural needle for the study. sensory block occurs 5-15 minutes, motor block 8-20 minutes (by Bromage scale), blood pressure 85% of patient systolic and diastolic pressure were maintained during the time the epidural anaesthesia, duration of anesthesia is >4 Hours & analgesia is 6-8 Hour which is prolong. Post operative analysis requirement is les. The whole rate of complication is very minimum with epidural anaesthesia. Patients complain of shivering 5.2%, loss of feeling absent lower limb 15%, feeling of asphyxia 3%, pain 1%, backache 5%. It is cost effective also.

Keywords:

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Citation: Performance of Single Shot Epidural Anaesthesia in Lower Abdominal & Lower Limb Surgery. TMMC Journal 2024; 9(1):12-15.

Introduction

Neuroaxial axial block is one of the best choice of anaesthesia in case of lower limb and lower abdominal surgery or surgery below neck. Neuroaxial block may reduce the venous and pulmonary embolism, cardiac complication in high risk patients.

Single shot epidurals without the use of a catheter is still widely used in various settings, and is effective in providing intraoperative anaesthesia and analgesia in the immediate postoperative period.

Materials and Methods

It is a cross sectional prospective study done in the international medical college hospital during the period of 2011-2012. Subject of study is randomly selected 104 patent among them-

LUCS : Lower Uterine Caesarian Section.

TAH : Total Abdominal Hysterectomy.

VH : Vaginal Hysterectomy.

We use 1% Lidocaine & 0.25%, Bupivacaine, Fentanyl mixer and Tuohy epidural needle for the study. Performance of the procedure is assessed by type of sensory block & scale of motor block by Bromage scale. Surgical anaesthesia is considered when there is total sensory block and motor block at the level of Bromage scale 2/3.Blood pressure was measured at every 5 minute interval till blood pressure became stable, then every half hourly for four hour. Other standard monitoring was done like SpO2, HR, ECG. Complications-immediate and late are followed up during the time of postoperative period. Data was collected in a pretested questionnaire .Data were then compiling in computer and analyzed in SPSS-17 program.

Statistical Analysis

Collected data were compiling in computer and analyzed in SPSS-17 program.

Results

The rate of complication is very minimum with epidural anesthesia. Patients complain of shivering 5.2%, loss of feeling absent lower limb 15%, feeling of asphyxia 3%, pain 1%, backache 5%, sensory block occurs 5-15 minutes, motor block 8-20 minutes (by Bromage scale), blood pressure 85% subject systolic and diastolic pressure were maintained during the time the epidural anesthesia, duration of anesthesia & analgesia is prolonged. It is cost effective also.

Discussion

Lower limb and lower abdominal surgery is mostly done under sub arachnoid block (SAB) in Bangladesh. But the SAB has some recognized complications, on the other hand epidural anaesthesia and analgesia is maintained by catheter in some selective cases. Single shot epidural anaesthea is not well practiced due lack of expert anaesthe siologist, delayed onset of surgical anaesthesia,less availability & cost of epidural set. This study is done with a aim to introduce epidural anaesthesia trying to overcome the problems related to epidural anaesthesia.

The epidural anaesthesias of the years 2011-2012, which were carried out with the single-shot-method. Single shot epidurals without the use of a catheter is still widely used in various settings, and is effective in providing intraoperative anaesthesia and analgesia in the immediate postoperative period. It is a cross sectional prospective study done in the inter national medical college hospital. Suject of study

is randomly selected. We use 1% Lidocaine & 0.25%, Bupivacaine,Fentanyl mixer and Tuohy epidural needle for the study. This study shows rapid onset of action in using mixter of 0.25% Bupivacaine & 1% Lidocaine & fentany 25. The onset of action of this combination with higher very much reasonable which is nearer to onset of SAB. In this study we have no experience of inadvertent intravascular or sub arachnoid injection. whole rate of complication is very minimum with epidural anaesthesia. Patients complain of shivering 5.2%, feeling of absent of lower limb 15%, feeling of asphyxia 3%, pain 1%, backache 5%, sensory block occurs 5-15 minutes, motor block 8-20 minutes (by Bromage scale), blood pressure 85% systolic and diastolic pressure were maintained during the time the epidural anaesthesia, duration of anesthesia &analgesia is prolonged. Requirement of Post operative analgesic is requirement less. It is cost effective also. We can consider single shot epidural anaesthsia in lue of SAB where applicable.But to established the matter we have need to do an wide number heterogenous population for further study.

Conclusion

The whole rate of complication is very minimum with epidural anaesthesia sensory block occurs 5-15 minutes, motor block 8-20 minutes (by Bromage scale), blood pressure 85%, Patents systolic and diastolic pressure were maintained during the time the epidural anaesthesia, duration of anesthesia &analgesia is prolonged.. Patients complain of shivering 5.2%, loss of feeling or absent lower limb 15%, feeling of asphyxia 3%, pain 1%, backache 5%, It is cost effective also.

Note : Bromage scale :

Description of the Bromage score

Grade	Criteria	Degree of block
I	Free movement of legs and feet	Nil (0%)
II	Just able to flex knees with free movement of feet	Partial (33%)
III	Unable to flex knees, but with free movement of feet	Almost complete (66%)
IV	Unable to move legs or feet	Complete (100%)

Modified Bromage score as used by Breen et al

Score	Criteria
1	Complete block (unable to move feet or knees)
2	Almost complete block (able to move feet only)
3	Partial block (just able to move knees)
4	Detectable weakness of hip flexion while supine (full flexion of knees)
5	No detectable weakness of hip flexion while supine
6	Able to perform partial knee bend

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A COMPREHENSIVE ANALYSIS OF GASTROINTESTINAL DISORDERS: DIAGNOSTIC APPROACHES AND TREATMENT OUTCOMES

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ABSTRACT

Background: Gastrointestinal (GI) disorders are a major cause of morbidity worldwide, with conditions such as peptic ulcer disease, irritable bowel syndrome (IBS), and gastroesophageal reflux disease (GERD) affecting many individuals. This study aimed to analyze the diagnostic approaches, treatment outcomes, and complications associated with gastrointestinal disorders. **Methods:** This retrospective observational study was conducted at the Medical College for Women and Hospital and Ibn Sina Diagnostic and Consultation Centre, Uttara, Dhaka, Bangladesh, from January 2021 to June 2023. A total of 80 patients with diagnosed gastrointestinal disorders were included. Data were collected from patient records, focusing on demographic characteristics, diagnostic methods, treatment approaches, and outcomes. **Results:** The most common GI disorders diagnosed were peptic ulcer disease (23.8%), IBS (20%), and GERD (15%). The diagnostic approaches used included upper gastrointestinal endoscopy (47.5%), abdominal ultrasound (36.3%), and laboratory tests (57.5%). Treatment outcomes revealed that pharmacological therapy was the most common approach (65%), with 42 cases resolving, while endoscopic interventions and surgical management had lower success rates. Complications observed included recurrence of symptoms (15%), drug side effects (12.5%), and bleeding (7.5%). **Conclusion:** This study underscores the importance of accurate and timely diagnosis, with a combination of endoscopy, imaging, and laboratory tests proving most effective. While pharmacological therapies yielded positive outcomes, addressing psychosocial factors and offering personalized treatments could further improve patient outcomes.

Keywords: Gastrointestinal disorders, diagnostic approaches, treatment outcomes, peptic ulcer disease, irritable bowel syndrome

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Introduction

Gastrointestinal (GI) disorders encompass a wide range of conditions affecting the digestive system, including the esophagus, stomach, intestines, liver, pancreas, and other associated organs[1]. These disorders are a major source of morbidity worldwide, presenting significant challenges to healthcare systems due to their prevalence, varied clinical manifestations, and often chronic nature[2]. Conditions such as peptic ulcer disease, gastroesophageal reflux disease (GERD), irritable bowel syndrome (IBS), and inflammatory bowel disease (IBD) are commonly encountered, each contributing to diminished quality of life and substantial healthcare costs[3]. Moreover, certain disorders, like gastrointestinal malignancies and advanced liver diseases, can result in significant mortality if not diagnosed and treated promptly[4,5].

The diagnostic approach to gastrointestinal disorders has evolved significantly with advances in medical technology. Endoscopic procedures, such as upper GI endoscopy and colonoscopy, remain the cornerstone

for diagnosing structural abnormalities and malignancies[6]. Imaging modalities, including abdominal ultrasound, computed tomography (CT), and magnetic resonance imaging (MRI), have further enhanced diagnostic accuracy by providing detailed visualization of abdominal structures. In addition, laboratory investigations, such as Helicobacter pylori tests and liver function tests, are critical in identifying underlying pathophysiological mechanisms and guiding therapeutic decisions[7,8]. Despite these advances, misdiagnosis or delayed diagnosis remains common, often due to overlapping symptoms and nonspecific presentations[9,10].

Treatment options for gastrointestinal disorders vary widely, ranging from pharmacological interventions, such as proton pump inhibitors (PPIs), antibiotics, and immunosuppressive agents, to endoscopic procedures and surgical management[11,12]. While pharmacotherapy often serves as the first-line treatment for many conditions, endoscopic and surgical interventions are reserved for more severe or refractory cases[13,14]. The outcomes of these treatment modalities are influenced by various factors, including timely diagnosis, patient compliance, and the presence of comorbidities[15].

Bangladesh, like many other low- and middle-income countries, faces unique challenges in managing gastrointestinal disorders. Limited access to advanced diagnostic facilities, lack of awareness, and delayed healthcare-seeking behavior contribute to the disease burden[5,8]. Despite these challenges, there is a paucity of comprehensive studies evaluating the diagnostic and treatment outcomes of gastrointestinal disorders in this context[12]. Such studies are crucial for understanding disease patterns, identifying gaps in care, and optimizing management strategies tailored to the local population.

This study aimed to address this gap by analyzing the diagnostic approaches and treatment outcomes of gastrointestinal disorders in a tertiary healthcare setting in Dhaka, Bangladesh. By evaluating the effectiveness of commonly employed diagnostic modalities and therapeutic interventions, the study seeks to provide evidence-based insights into current clinical practices.

Methodology & Materials

This retrospective observational study was conducted at the Medical College for Women and Hospital and Ibn Sina Diagnostic and Consultation Centre, Uttara, Dhaka, Bangladesh, over a period from January 2021 to June 2023. A total of 80 patients with diagnosed gastrointestinal disorders were included based on predefined inclusion criteria, which required patients to have undergone thorough clinical evaluations and diagnostic procedures. Patients with incomplete medical records, unclear diagnoses, or significant comorbid conditions unrelated to gastrointestinal disorders were excluded from the study. Data collection involved reviewing patient records to gather demographic information, presenting symptoms, diagnostic modalities used, and treatment plans. Diagnostic approaches included upper gastrointestinal endoscopy, colonoscopy, abdominal ultrasound, and laboratory tests such as Helicobacter pylori testing, all of which were performed following standard clinical protocols. Treatment strategies analyzed in the study encompassed pharmacological therapies, endoscopic interventions, and surgical procedures, tailored to the specific gastrointestinal disorder diagnosed. Outcomes were assessed in terms of symptom resolution, treatment failure, and any observed complications, with data categorized and analyzed accordingly. The study adhered to principles of patient confidentiality and informed consent for use of medical records. Statistical analysis was performed using SPSS software, with results presented as frequencies, percentages, and means, as applicable. The study aimed to evaluate the effectiveness of diagnostic tools and treatment modalities in managing gastrointestinal disorders, providing insights into current practices and identifying potential areas for improvement.

Results

Table II: Demographic Characteristics of the Study Population (N = 80)

Characteristics	Frequency (n=80)	Percentage (%)
Age (years)		
- 18–30	23	28.8
- 31–50	32	40.0
- >50	25	31.3
Gender		
- Male	49	61.25
- Female	31	38.75
Socioeconomic Status		
- Low	19	23.8
- Middle	43	53.8
- High	18	22.5

Table I summarizes the demographics of the 80 study participants. Most were aged 31-50 years (40.0%), followed by those >50 years (31.3%) and 18-30 years (28.8%). Males comprised 61.25%, and females 38.75%. The majority belonged to the middle socioeconomic group (53.8%), with 23.8% from low and 22.5% from high socioeconomic backgrounds.

Table II: Common Gastrointestinal Disorders Diagnosed

Disorder	Frequency (n=80)	Percentage (%)
Peptic Ulcer Disease (PUD)	19	23.8
Irritable Bowel Syndrome (IBS)	16	20.0
Gastroesophageal Reflux Disease (GERD)	12	15.0
Inflammatory Bowel Disease (IBD)	10	12.5
Hepatic Disorders	8	10.0
Others	15	18.8

Table II outlines the common gastrointestinal disorders diagnosed among the study population. Peptic ulcer disease was the most frequent

diagnosis, affecting 23.8% of patients, followed by irritable bowel syndrome (IBS) at 20.0% and gastroesophageal reflux disease (GERD) at 15.0%. Inflammatory bowel disease (IBD) accounted for 12.5% of cases, while hepatic disorders were diagnosed in 10.0%. The remaining 18.8% of patients had other gastrointestinal conditions.

Table III: Diagnostic Approaches Utilized

Diagnostic Modality	Frequency (n=80)	Percentage (%)
Upper Gastrointestinal Endoscopy	38	47.5
Abdominal Ultrasound	29	36.3
Colonoscopy	12	15.0
Laboratory Tests	46	57.5

Table III highlights the diagnostic approaches utilized in the study population. Laboratory tests were the most commonly employed modality, used in 57.5% of cases, followed by upper gastrointestinal endoscopy in 47.5%. Abdominal ultrasound was performed in 36.3% of patients, while colonoscopy was used in 15.0%.

Table IV: Treatment Outcomes

Treatment Approach	Resolved Cases (n)	Ongoing Cases (n)	Failure Cases (n)	Total Cases (n=80)
Pharmacological Therapy	42	6	4	52
Endoscopic Interventions	16	3	2	21
Surgical Management	5	1	1	7

Table IV summarizes the treatment outcomes for the study population. Pharmacological therapy was the most frequently employed approach, with 42 cases resolved, 6 ongoing, and 4 deemed failures out of a total of 52 cases. Endoscopic interventions resulted in resolution for 16 cases, with 3 ongoing and 2 failures among 21 cases. Surgical management was used in 7 cases, with 5 resolved, 1 ongoing, and 1 failure.

Table V: Complications Observed

Complication	Frequency (n=80)	Percentage (%)
Bleeding	6	7.5
Infection	3	3.75
Drug Side Effects	10	12.5
Recurrence of Symptoms	12	15.0
None	49	61.25

Table V presents the complications observed in the study population. The most common complication was the recurrence of symptoms, reported in 15.0% of cases, followed by drug side effects at 12.5%. Bleeding occurred in 7.5% of cases, and infection was observed in 3.75%. The majority of patients, 61.25%, experienced no complications.

Discussion

Gastrointestinal disorders are common clinical problems that affect millions of individuals worldwide, and their proper management relies heavily on accurate diagnosis and effective treatment strategies. This study, conducted at the Medical College for Women and Hospital and Ibn Sina Diagnostic and Consultation Centre, Uttara examined the diagnostic approaches and treatment outcomes for 80 patients diagnosed with various gastrointestinal disorders. The study revealed significant insights into the prevalence, diagnostic methods, treatment modalities, and complications associated with gastrointestinal diseases, highlighting the importance of comprehensive care in managing these disorders.

Peptic ulcer disease (PUD) was found to be the most common gastrointestinal disorder in this study, accounting for 23.8% of the patients. This finding is consistent with previous studies from Jabłońska & Mrowiec et al., which have

highlighted the high prevalence of PUD, particularly in regions with significant risk factors such as H. pylori infection and the consumption of nonsteroidal anti-inflammatory drugs (NSAIDs)[16]. Helicobacter pylori infection, a major causative factor for PUD, remains a leading concern in many developing countries, including Bangladesh. The diagnosis of PUD was primarily made using upper gastrointestinal endoscopy, which was the most commonly utilized diagnostic modality in our study. Upper GI endoscopy allows for direct visualization of the mucosa, helping to identify ulcers and other lesions, and is considered the gold standard for diagnosing PUD[17].

Irritable bowel syndrome (IBS), another prevalent gastrointestinal condition, was diagnosed in 20.0% of the study population. IBS is a functional gastrointestinal disorder characterized by abdominal pain and altered bowel habits, which can be challenging to diagnose due to the absence of clear structural abnormalities[18]. The diagnostic approach for IBS often involves exclusion of other conditions, and the study used a combination of clinical assessment and laboratory tests to identify this disorder. Previous research from Drossman et al., underscores the role of psychosocial factors in the onset and progression of IBS, with stress, anxiety, and depression often exacerbating symptoms[19]. This highlights the need for a holistic diagnostic approach that considers not only physical but also psychological factors in IBS management[20].

Gastroesophageal reflux disease (GERD) was diagnosed in 15.0% of the patients in this study, a prevalence consistent with global trends. GERD, characterized by the reflux of gastric contents into the esophagus, is commonly associated with symptoms such as heartburn and regurgitation. The study's use of upper GI endoscopy and laboratory tests to diagnose GERD reflects current clinical practices, where endoscopy helps assess the severity of esophagitis and other complications of reflux disease. The role of dietary habits in the development and management of GERD has been widely studied, with Westernized diets high in fats and processed foods being implicated in its onset and progression[21].

The study also found that inflammatory bowel disease (IBD), including Crohn's disease and ulcerative colitis, affected 12.5% of the population. IBD is a chronic condition that requires careful management to prevent complications such as bowel perforation, strictures, and colorectal cancer. Endoscopic interventions, including colonoscopy, are essential for diagnosing and monitoring IBD, as they allow for direct visualization of the colon and the identification of characteristic lesions. This study's finding aligns with the literature on IBD from Jabłońska & Mrowiec, where colonoscopy is an essential diagnostic tool[16]. In IBD patients, dietary interventions, immunosuppressive therapies, and, in severe cases, surgery, play critical roles in disease management[21].

Treatment outcomes in this study were predominantly positive, with pharmacological therapy being the most frequently used treatment approach. A majority of patients treated with medications such as proton pump inhibitors (PPIs) and antibiotics for H. pylori eradication showed resolution of their symptoms. These findings reflect the effectiveness of pharmacological treatments for conditions like PUD and GERD, where medications can significantly reduce symptom burden and improve quality of life.

Endoscopic interventions and surgical management were less commonly required but provided effective solutions for more severe or refractory cases, particularly in IBD patients[22,23].

Complications observed in the study included recurrence of symptoms (15.0%), drug side effects (12.5%), and bleeding (7.5%). The recurrence of symptoms in gastrointestinal disorders is not uncommon, especially in conditions like GERD and IBS, where long-term management is often required. The drug side effects observed in this study, particularly in patients using PPIs or antibiotics, are consistent with findings in the literature, which note that while these medications are effective, they are not without risks. For example, long-term PPI use can lead to adverse effects such as gastric atrophy and increased risk of infections[16]. Therefore, careful monitoring and patient education on the risks and benefits of pharmacological therapy are crucial.

Psychosocial factors also play a significant role in gastrointestinal disorders. The biopsychosocial model, which integrates the physical, psychological, and social aspects of illness, has been widely acknowledged in the management of functional gastrointestinal disorders like IBS[24]. Psychological treatments, including cognitive-behavioral therapy and hypnotherapy, have been shown to be beneficial in reducing symptom severity and improving outcomes in patients with functional GI disorders[25].

Limitations of the study

While this study provides valuable insights into the diagnostic approaches and treatment outcomes for gastrointestinal disorders, there are several limitations that should be considered. The study's sample size, though reasonable, may not capture the full spectrum of gastrointestinal disorders, especially less common conditions. Additionally, the retrospective nature of the study limits the ability to establish causality, as the data were collected from existing medical records. Furthermore, the study relied on the accuracy of the medical records for data collection, which may be prone to errors or omissions. The exclusion of patients with incomplete data or those not seeking medical attention due to financial constraints or cultural factors may also introduce selection bias. Lastly, the study did not include long-term follow-up data, limiting the ability to assess the long-term effectiveness of treatments or recurrence of symptoms.

Conclusion

This study highlights the prevalence, diagnostic approaches, treatment outcomes, and complications associated with gastrointestinal disorders in a tertiary healthcare setting in Dhaka, Bangladesh. The findings emphasize the importance of using a combination of diagnostic tools, including endoscopy, imaging, and laboratory tests, to accurately diagnose conditions such as peptic ulcer disease, IBS, GERD, and IBD. Pharmacological therapy emerged as the most common treatment approach, with positive outcomes for most patients. However, challenges such as recurrence of symptoms and drug side effects were noted, underscoring the need for personalized treatment plans and careful monitoring. The study also highlights the impact of psychosocial factors on gastrointestinal disorders, suggesting that a biopsychosocial approach could improve outcomes. Despite the limitations, this study contributes valuable insights into the management of gastrointestinal diseases in Bangladesh and provides a foundation for future research aimed at optimizing diagnosis and treatment strategies.

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Conflicts of interest

There are no conflicts of interest.

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HISTOMORPHOLOGICAL SPECTRUM OF PAEDIATRIC MALIGNANCY: A CROSS-SECTIONAL STUDY IN BANGLADESH

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ABSTRACT

Background: Pediatric malignancies, though less frequent than adult cancers, present significant diagnostic and therapeutic challenges. Timely histopathological diagnosis is essential for effective treatment planning. **Methods:** This cross-sectional study was conducted at Tairunnessa Memorial Medical College and Popular Diagnostic Centre, Gazipur, between January 2018 and March 2021. A total of 82 histologically confirmed pediatric malignancies (0-18 years) were retrospectively reviewed. Clinical and demographic data were analyzed. **Results:** Out of 82 cases, 48 were male and 34 were female (M:F=1.4:1). The most affected age group was 6-10 years. Hematolymphoid malignancies were most common (45.1%), followed by Wilms tumor (12.2%), medulloblastoma (9.8%), rhabdomyosarcoma, Ewing sarcoma, neuroblastoma, and hepatoblastoma. Most diagnoses were made from lymph node, kidney, CNS, or soft tissue specimens. **Conclusions:** Lymphoid neoplasms and embryonal tumors constituted the major spectrum of pediatric malignancies in our study. The findings highlight the need for awareness, early detection, and robust diagnostic support to improve outcomes.

Keywords: Pediatric cancer, histopathology, hematolymphoid neoplasms, Wilms tumor, Bangladesh

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Introduction

Pediatric cancers represent a unique group of neoplastic diseases that differ substantially from adult malignancies in terms of origin, histology, biology, and clinical behavior. While globally they account for about 1% of all cancers, the burden they pose in terms of morbidity and mortality is disproportionately high due to their occurrence in a vulnerable age group. Unlike adult cancers, which are frequently epithelial and often linked to lifestyle or environmental factors, pediatric malignancies typically arise from mesenchymal or embryonal tissues, frequently involving hematolymphoid, neural, and renal structures.

In developed countries, robust healthcare systems, national cancer registries, and early screening programs have contributed to significant improvements in pediatric cancer survival, with rates exceeding 80% in some regions. However, in low- and middle-income countries (LMICs) such as Bangladesh, outcomes remain dismal. Contributing factors include delayed diagnosis, lack of access to specialized care, limited diagnostic and therapeutic resources, and social stigma. There is also a lack of comprehensive national data to guide policy and resource allocation.

Several small-scale studies have reported variable incidences of pediatric malignancies in South Asia, but large, consolidated histomorphological analyses are scarce. Histopathological evaluation remains the cornerstone for definitive diagnosis and treatment planning in pediatric oncology. Recognizing patterns of pediatric malignancy can assist clinicians in forming timely differential diagnoses and prompt referrals. This study therefore seeks to explore the histomorphological spectrum of pediatric malignancies diagnosed over a three-year period at two major healthcare institutions in Bangladesh, shedding light on the prevalence, age and gender distribution, and organ involvement in this population.

Materials and Methods

Study design and setting:

A retrospective cross-sectional study at the Department of Pathology, Tairunnessa Memorial Medical College and Popular Diagnostic Centre, Gazipur.

Study period:

January 2018 to March 2021

Sample size:

82 histologically confirmed pediatric malignancies.

Inclusion criteria:

- Patients aged 0-18 years

- Histologically diagnosed malignancies

Exclusion criteria:

-Non-neoplastic or inconclusive biopsy specimens

Procedure:

Formalin-fixed paraffin-embedded (FFPE) tissue specimens were processed using standard histopathological techniques and stained with H&E. Immunohistochemistry was performed where indicated. Data on age, gender, and histopathological diagnosis were collected.

Analysis:

Descriptive statistical analysis using Microsoft Excel. Data are presented in tables and charts.

Methodology Results

The study included 82 pediatric patients with histologically confirmed malignancies. The male to female ratio was 1.4:1, with the most commonly affected age group being 6-10 years.

Hematolymphoid malignancies were the most frequent, accounting for 45.1% of all cases. Among these, acute lymphoblastic leukemia was predominant. Wilms tumor was the most frequent renal tumor, while medulloblastoma was the leading CNS tumor.

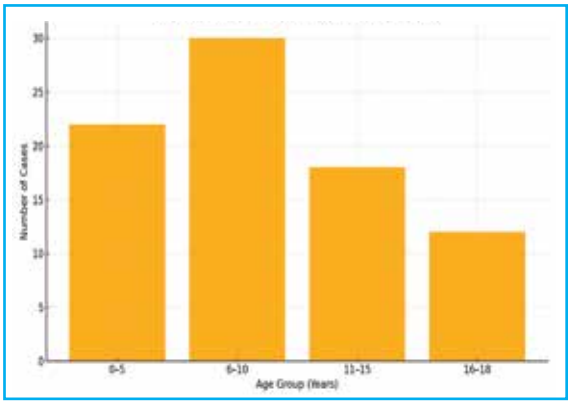

Figure 1: Age-wise Distribution of Pediatric Malignancies

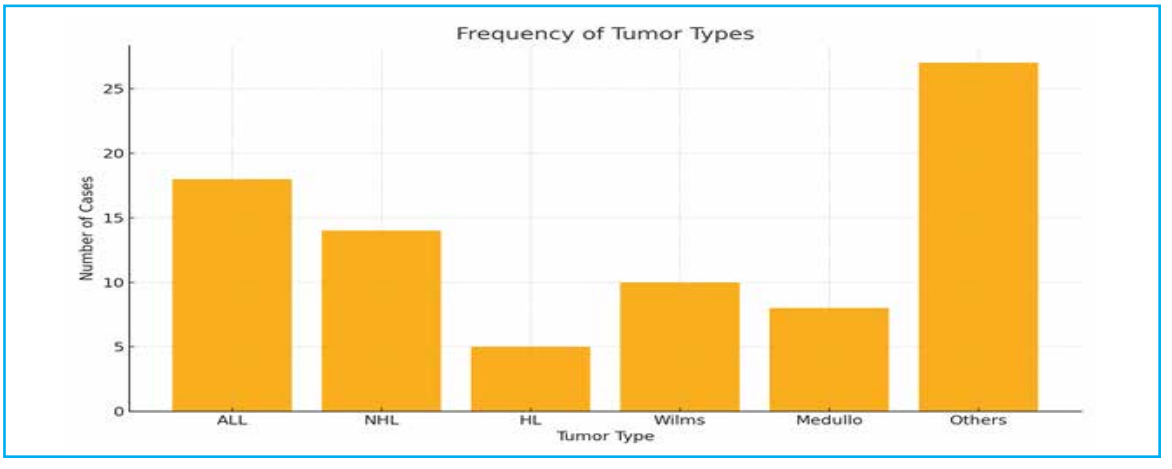

Figure 2: Frequency of Tumor Types

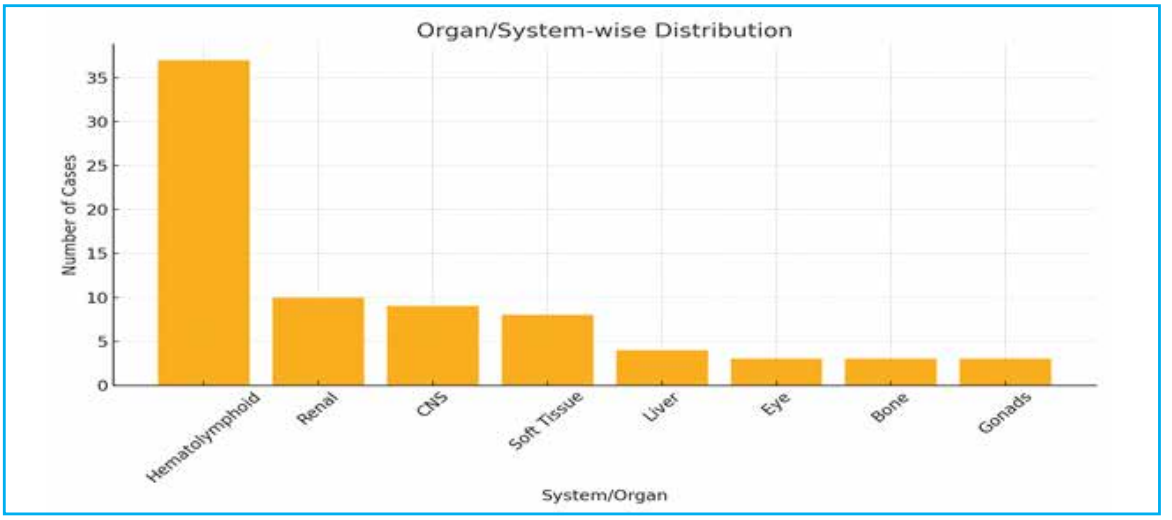

Figure 3: Organ/System-wise Distribution

Photomicrographs:

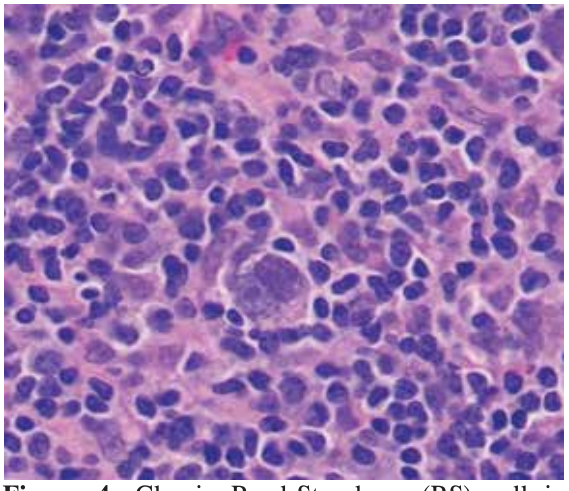

Figure 4: Classic Reed-Sternberg (RS) cell in Hodgkin lymphoma (14-year-old boy).

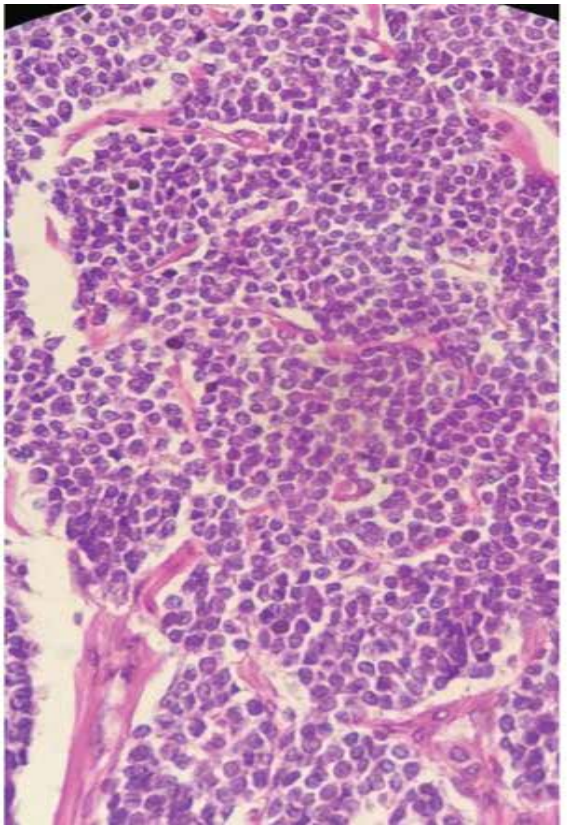

Figure 5: Sheets of small round blue cells consistent with Ewing sarcoma (17-year-old boy).

Discussion

This cross-sectional analysis of 82 pediatric malignancy cases reveals that hematolymphoid neoplasms are the most prevalent category (45.1%), with acute lymphoblastic leukemia (ALL) leading the group. This observation mirrors findings by Arora et al. (India, 2009), Ghosh et al. (India, 2012), Siddiqui et al. (Pakistan, 2010), and Bhurgri et al. (Karachi, 2009).

Male predominance (M:F=1.4:1) is consistent with regional data. Saha et al. (Nepal, 2015) and Linabery et al. (USA) reported similar trends. The 6-10 year age group had the highest incidence, consistent with SEER data (USA) and European/ Brazilian studies.

Wilms tumor (12.2%) was the most common renal tumor, matching studies from India and Nigeria, although slightly higher than global averages (IARC 5-8%). Medulloblastoma led CNS tumors (9.8%), supported by Louis et al. (2016) and Bhatia et al. (2013).

Soft tissue sarcomas (9.7%) such as rhabdomyosarcoma and Ewing sarcoma matched SEER (6-8%) and European data. Neuroblastoma and hepatoblastoma also followed global patterns.

Compared to SEER and European registries, our hematolymphoid tumor proportion is higher and CNS tumor proportion lower-likely due to referral and diagnostic limitations. Histopathology and IHC remain essential in resource-limited settings.

Other regional studies reinforce our findings. A study from Sri Lanka by Perera et al. (2017) reported a predominance of leukemias (39%) followed by CNS tumors and lymphomas, closely matching our data. In contrast, a multicenter African study by Stefan et al. (2011) showed

higher rates of Burkitt lymphoma and Kaposi sarcoma due to endemic infections like EBV and HIV, which are rare in Bangladesh.

In Thailand, Chaiyapan et al. (2013) found neuroblastoma and hepatoblastoma to be more common among solid tumors, indicating regional variation. Differences in reporting, referral systems, and environmental exposures could account for this.

Compared to high-income countries like the US and UK, where CNS tumors are second to leukemias, our CNS tumor detection appears lower. This is possibly due to limited neurosurgical facilities and diagnostic imaging, resulting in underreporting.

A nationwide Iranian study by Motlagh et al. (2021) found soft tissue sarcomas in 6% of cases, slightly lower than our 9.7%. Meanwhile, Gurney et al. reported a higher overall survival rate in pediatric malignancies in developed countries, emphasizing the need for early diagnosis, better therapy access, and supportive care in Bangladesh.

Thus, while our findings align with broad South Asian trends, significant disparities remain in diagnosis and treatment across regions. Greater emphasis on pediatric oncology infrastructure, education, and policy-level data integration is crucial to bridge this gap.

Conclusion

Our study highlights the predominance of hematolymphoid malignancies among pediatric cancers in a tertiary care Bangladeshi cohort, followed by Wilms tumor and medulloblastoma. Accurate histopathological evaluation is crucial in early diagnosis and effective management. Regional cancer registries and multicenter collaborations are needed to improve survival outcomes.

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FORENSIC ASPECTS OF HANGING IN BANGLADESH: A RETROSPECTIVE REVIEW OF PATTERNS, PRACTICES, AND PATHOLOGICAL FINDINGS PRIOR TO 2023

Syedur Rahaman Sumon[1], Jannatul Ferdous[2], Wakila Khan[3], Araf Ahmed[4], Aldrin Angelo Rozario[5]

ABSTRACT

Hanging remains one of the most frequently encountered methods of unnatural death, particularly suicides, in Bangladesh. This forensic review evaluates the pathological, medico-legal, and investigative aspects of hanging in the Bangladeshi context using data available prior to 2023. It highlights the challenges faced in scene investigations, the interpretation of autopsy findings, and differentiating between suicidal and homicidal hanging. Additionally, the review explores the sociocultural dimensions surrounding these deaths, particularly in rural areas. Using data extracted from forensic case studies, institutional reports, and published articles, this article synthesizes the evolving trends and practical considerations in forensic examinations of hanging cases. This work is aimed at informing forensic pathologists, legal practitioners, and public health officials by providing a comprehensive perspective based on local context and historical trends.

Keyword: Forensic pathology, Hanging, Medico-legal autopsy, Suicide, Ligature mark, Asphyxial death, Postmortem findings

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Introduction

Hanging is a form of asphyxial death caused by the suspension of the body with a ligature tightened by the body's weight. It is frequently associated with suicide, though cases of accidental or homicidal hanging are also documented, albeit less commonly. In the Bangladeshi context, hanging constitutes a major proportion of medicolegal autopsies, particularly those related to suicide[1].

Despite its prevalence, the forensic investigation of hanging remains complex. The differentiation between suicidal, homicidal, and accidental hanging requires careful evaluation of both autopsy and circumstantial findings. Furthermore, cultural stigma, legal implications, and variability in reporting standards often obscure the true nature of these deaths. This is particularly significant in Bangladesh, where suicide is still regarded as a criminal offense under certain interpretations of law, and societal stigma deters open discourse[2,3].

Several studies from forensic institutions across Bangladesh have described trends in hanging-related deaths, yet no unified review has consolidated these findings. This article seeks to bridge that gap by presenting a comprehensive forensic and pathological review of hanging in Bangladesh based on data available before 2023.

Methodology

1. Data Sources

The review is based on an analysis of forensic autopsy records, institutional publications, journal articles, case studies, and conference proceedings related to hanging deaths in Bangladesh up to December 2022. Key databases such as PubMed, Google Scholar, BanglaJOL, and institutional repositories of major Bangladeshi medical colleges were searched using keywords such as "hanging," "forensic," "autopsy," "Bangladesh," "suicide," and "asphyxia."

2. Inclusion Criteria

- Studies published in English or Bengali before December 2022.
- Articles focused on the forensic, pathological, or investigative aspects of hanging.
- Institutional and retrospective autopsy studies from Bangladesh.
- Case reports involving hanging deaths.

3. Exclusion Criteria

- Studies focused solely on psychological aspects of suicide.
- Non-human forensic studies.
- Reports lacking detailed forensic or pathological analysis.

4. Limitations

A major limitation of this review is the lack of a centralized national forensic database in Bangladesh, leading to reliance on institution-specific data. Furthermore, variations in autopsy reporting standards and underreporting of suicide-related deaths due to social stigma or legal fears may have influenced the dataset.

Epidemiology of Hanging in Bangladesh

Hanging is one of the leading causes of unnatural deaths in Bangladesh. Multiple forensic institutions have consistently reported high incidence rates, with suicide being the most frequent manner of death associated with hanging[4-6]. A retrospective study at Dhaka Medical College reported that hanging accounted for 22.5% of all medicolegal autopsies over a five-year period[7].

1. Demographic Distribution

Most victims of hanging in Bangladesh fall within the 15-35 years age group, with a male predominance noted across studies[8,9]. However, female victims are also frequently reported, especially in cases involving domestic conflict, intimate partner violence, or socio-cultural pressures[10]. Children and adolescents have been documented in smaller proportions, often linked to academic stress or family disputes[11].

Table 1: Demographic Distribution of Hanging Cases in Selected Bangladeshi Forensic Studies (Pre-2023)

Study (Author, Year)	Sample Size	Age Group Most Affected	Male:Female Ratio	Region
Rahman et al., 2019	320	21–30 years	2.5:1	Dhaka
Alam et al., 2017	275	16–25 years	3:1	Rajshahi
Hasan et al., 2015	180	20–29 years	2:1	Chattogram
Sultana et al., 2012	150	15–24 years	2.2:1	Sylhet
Islam et al., 2010	210	26–35 years	2.8:1	Barisal

These studies confirm that young adults, particularly males, represent the majority of hanging victims. This demographic reflects wider social challenges in Bangladesh, including unemployment, educational pressure, and domestic issues.

Medico-Legal Aspects of Hanging

1. Classification and Manner of Death

Hanging is classified based on body position (complete or partial) and ligature material. In Bangladesh, both types are reported, with partial hanging (where part of the body touches the ground) being more common than in Western countries[12].

The majority of cases are considered suicidal in nature. However, distinguishing between suicidal and homicidal hanging is a critical forensic challenge. In homicidal cases, the body is typically hanged postmortem to simulate suicide. Suspicious inconsistent ligature marks, or presence of other injuries[13,14].

2. Crime Scene and Autopsy Correlation

The condition of the ligature, height of suspension, and positioning of the knot are vital in differentiating between types of hanging. Suicidal hangings often show a high-placed, obliquely ascending ligature mark with the knot positioned at the nape or side of the neck[15]. Forensic investigators must carefully correlate scene findings with autopsy results to establish the manner of death.

Table 2: Comparison of Forensic Features in Hanging vs Ligature Strangulation

Feature	Hanging	Ligature Strangulation
Ligature Mark Orientation	Oblique and non -continuous	Horizontal and continuous
Knot Position	Often lateral or occipital	Usually posterior or not present
Facial Congestion	Mild to moderate	Pronounced
Salivary Dribbling	Common	Rare
Hyoid Bone Fracture (Adult)	Less common	More common
Petechial Hemorrhages	Sometimes present	Frequently present
Defense Injuries	Absent in most cases	May be present
Position of Body	Suspended	Body not suspended

This differentiation is crucial in medico-legal opinion and has significant implications in court proceedings. Wrongful classification can lead to miscarriage of justice or failure to detect foul play.

Pathological Features of Hanging

1. External Findings

The hallmark external sign of hanging is the ligature mark around the neck, usually dry, parchment-like, and abraded. It is often situated above the thyroid cartilage and shows a gap at the position of the knot. The mark may vary based on the type of ligature used, such as ropes, wires, or cloth materials like sarees or lungis, which are common in rural Bangladeshi households[16,17]. Other external signs may include facial pallor or congestion, cyanosis, protrusion of the tongue, and salivary dribbling. Petechiae in conjunctivae or facial skin are variable but generally less common in hanging than strangulation.

2. Internal Findings

Internally, congestion of neck muscles, ecchymoses, and hemorrhages in the sternocleidomastoid and strap muscles are observed. Fracture of the hyoid bone or thyroid cartilage is relatively uncommon in younger victims but more frequent in elderly individuals due to calcification[18,19]. In cases of complete hanging, cervical vertebral dislocation is rare, except in judicial hangings, which involve a long drop designed to fracture the cervical spine[20].

Investigative Protocols

Proper forensic investigation of hanging requires a multidisciplinary approach involving scene analysis, postmortem examination, and circumstantial evaluation. In Bangladesh, these investigations are often hindered by limitations in infrastructure, personnel training, and public awareness.

1. Scene Examination

A thorough scene investigation is critical to rule out foul play. Forensic experts assess:

- Height and nature of the suspension point.
- Type and length of ligature material.
- Position of the body (complete or partial hanging)
- Presence of signs of struggle or disturbance at the scene.

Suspicion arises when the ligature mark is inconsistent with the suspension method, or when other injuries are present on the body.

2. Role of Autopsy

Autopsies in hanging cases should include a detailed external examination, dissection of neck structures, and documentation of internal injuries. Special attention is paid to:

- The appearance and characteristics of the ligature mark.
- Fractures of the hyoid bone, thyroid cartilage, and cervical vertebrae.
- Hemorrhages in neck muscles and soft tissues.

Table 3: Common Pathological Findings in Hanging Victims in Bangladesh (Pre-2023)

Pathological Feature	Frequency (%)	Remarks
Ligature mark	100%	Typically, oblique, non-continuous, dry and parchment-like
Facial congestion	65%	Less pronounced than in strangulation cases
Tongue protrusion	40%	More frequent in complete hanging
Salivary dribbling	55%	Considered a strong sign of antemortem hanging
Petechial hemorrhages	30%	Variable; more common in partial hanging
Hyoid bone fracture	15%	More common in older individuals
Thyroid cartilage fracture	10%	Observed in elderly or traumatic hangings
Cervical vertebrae dislocation	<2%	Rare; mostly in long-drop judicial hangings

Source: Adapted from retrospective autopsy studies by Rahman et al. (2019), Hasan et al. (2015), and Alam et al. (2017)[7,10,14].

Sociocultural and Legal Aspects

1. Cultural Attitudes and Suicide Stigma

In Bangladesh, suicide-although a major public health issue-remains heavily stigmatized due to religious and societal beliefs. Islam, the predominant religion, views suicide as a sin, and many families avoid reporting suicide as the cause of death to avoid dishonor[21,22]. As a result, deaths by hanging may be misreported or under-investigated.

2. Family and Community Response

In many cases, especially involving young women, allegations of dowry-related harassment, domestic abuse, or forced suicide arise. These cases often involve complex legal proceedings, where the true nature of death (suicidal or homicidal) may be contested[23,24]. This creates added pressure on forensic pathologists to provide clear, evidence- based opinions.

3. Legal Framework

Although suicide is decriminalized in practice, certain provisions of the Penal Code of Bangladesh (Section 309) still technically criminalize attempted suicide. Additionally, any unnatural death triggers an inquest and postmortem examination under Section 174 of the Code of Criminal Procedure[25]. However, the lack of forensic infrastructure in rural areas often impedes thorough investigation.

Table 4: Summary of Selected Forensic Studies on Hanging in Bangladesh (Pre-2023)

Author (Year)	Location	Sample Size	Major Findings
Rahman et al. (2019)	Dhaka	320	Majority aged 21-30; partial hanging most common; male:female = 2.5:1
Alam et al. (2017)	Rajshahi	275	Ligature mark above thyroid in 90% of cases; hyoid fracture rare
Hasan et al. (2015)	Chattogram	180	Most victims used household cloths; 20% had domestic violence history
Sultana et al. (2012)	Sylhet	150	Suicidal hanging in 85%; suspicious circumstances in 7%
Islam et al. (2010)	Barisal	210	High incidence in rural areas; petechiae observed in 25%

These institutional reports highlight consistent forensic patterns but also regional variations due to cultural and logistical factors.

Case Studies and Institutional Data

Several notable case reports from Bangladesh provide insight into complex forensic scenarios involving hanging. In one reported case, a 24-year-old woman was found hanging in her home shortly after a domestic dispute. Though initially ruled a suicide, further autopsy findings, including inconsistent ligature marks and defense injuries on the forearms, prompted suspicion of a staged hanging[26].

Institutional reviews reveal that such suspicious circumstances occur in 5-10% of hanging cases. Forensic pathologists often encounter challenges when autopsy findings must be interpreted in the context of potentially manipulated crime scenes, pressure from local communities, or limited access to forensic imaging and laboratory support.

Regional differences are also evident. Urban centers such as Dhaka and Chattogram report a higher prevalence of complete hangings with synthetic ligatures, while rural areas more commonly report partial hangings using sarees, lungis, or ropes[7,9,14]. This reflects socioeconomic and environmental factors influencing the means of suspension.

Challenges and Recommendations

1. Infrastructural Deficiencies

Many forensic facilities in Bangladesh lack standardized protocols for hanging investigations. Limited availability of trained forensic personnel, inadequate morgue facilities, and poor inter-agency coordination hamper thorough documentation and interpretation.

2. Reporting and Documentation Issues

Variability in the quality of postmortem reports is a recurrent issue. Standardized formats for documentation of ligature marks, internal neck dissection, and scene findings are not uniformly followed, reducing the reliability of forensic opinions in judicial settings.

3. Sociocultural Interference

Stigma around suicide and honor-related concerns often interfere with transparent reporting. Families may attempt to conceal suicidal deaths, leading to inconsistent narratives or resistance to autopsy. In some cases, police may be reluctant to investigate possible homicide when suicide is presumed.

4. Recommendations

- Development of national forensic protocols for hanging.
- Introduction of compulsory training on asphyxial deaths for forensic and law enforcement personnel.
- Strengthening of infrastructure at district-level forensic centers.
- Legal reform to decriminalize suicide attempts explicitly and to ensure non-discriminatory investigation of suicide-related deaths.
- Public awareness campaigns to reduce stigma surrounding suicide and mental health.

Conclusion

Hanging continues to be a predominant mode of unnatural death in Bangladesh, especially among young adults. The forensic evaluation of such cases requires an integrated approach that considers pathological, scene-based, and sociocultural dimensions. While the autopsy findings in hanging are well characterized, the true manner of death may remain obscured without thorough scene investigation and interdisciplinary coordination.

This review has synthesized available data before 2023 to highlight trends, challenges, and opportunities for improving forensic practice in Bangladesh. Implementing standardized investigative protocols, enhancing training, and addressing sociocultural barriers are crucial for accurate medicolegal evaluations and justice delivery in hanging cases.

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