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Original Article

Therapeutic interventions of Endoscopic Retrograde Cholangiopancreatography (ERCP): A Tertiary Care Experience in Bangladesh

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Abstract

Endoscopic retrograde cholangiopancreatography (ERCP) has evolved into a primarily therapeutic procedure for biliary and pancreatic ductal disorders. Despite increasing utilization in Bangladesh, institutional data describing patient characteristics, disease distribution, and procedural interventions remain limited. To evaluate the demographic profile, clinical presentation, indications, and therapeutic interventions among adult patients undergoing ERCP at a tertiary care center in Bangladesh, with comparison between benign and malignant biliary lesions. This retrospective observational study included 150 consecutive adult patients who underwent therapeutic ERCP between January 2022 and January 2024 at Bangladesh Medical University. Data were derived from hospital records. Lesions were categorized as benign or malignant using predefined operational criteria. Continuous variables were analyzed using an independent sample t-test after confirmation of normality by the Shapiro-Wilk test. Categorical variables were compared using chi-square or Fisher's exact test. The mean age was 50.8 ± 13.5 years (range 18–82), with malignant cases significantly older than benign cases (54.9 ± 13.6 vs 49.1 ± 13.2 years; p = 0.015). Females comprised 50.7% of patients. Benign lesions accounted for 70% and malignant 30%, yielding a benign-to-malignant ratio of 2.3:1. Jaundice was present in 84.7%, and in 100% of malignant cases (p < 0.001). Weight loss (62.2% vs 3.8%) and anorexia (71.1% vs 4.8%) were significantly more common in malignancy (p < 0.001). Choledocholithiasis without cholangitis was the most frequent indication (26.0%). Balloon sweeping was performed in 35.3%, exclusively in benign disease (p < 0.001). Plastic stents were used in 46.0%, predominantly in malignant lesions (66.7%), while self-expanding metal stents (8.7%) were used only in malignancy (p < 0.001). No major procedure-related complications were recorded. In this tertiary center, benign biliary disease, particularly choledocholithiasis, constituted the majority of ERCP indications. Malignancy was strongly associated with advanced age and systemic symptoms. Local epidemiologic characterization may guide resource allocation, training priorities, and therapeutic strategy in Bangladesh.

Keywords: *ERCP, choledocholithiasis, malignant biliary obstruction, biliary stricture, cholangiocarcinoma.*

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INTRODUCTION

ERCP remains a pivotal therapeutic modality in the management of biliary and pancreatic ductal disorders. Initially developed as a diagnostic tool, ERCP has evolved substantially with advancements in endoscopic technology and procedural expertise[1]. Contemporary practice increasingly reserves ERCP for therapeutic interventions, as non-invasive imaging techniques such as magnetic resonance cholangiopancreatography (MRCP) provide high diagnostic accuracy without procedural risk[2, 3]. Current applications of ERCP include stone extraction,

sphincterotomy, stricture dilation, tissue acquisition, and biliary or pancreatic stent placement[4].

Choledocholithiasis is among the most frequent indications for ERCP worldwide[4]. The formation and recurrence of common bile duct stones are influenced by metabolic and inflammatory factors, bile stasis, and alterations in biliary composition[5]. Gallstone disease exhibits considerable epidemiological variation, with higher prevalence observed in certain demographic and metabolic risk groups[11]. In women, hormonal factors and pregnancy-related changes may increase susceptibility to gallstone formation[12]. These epidemiologic characteristics are particularly relevant in South Asian countries, where gallstone disease contributes significantly to obstructive jaundice requiring endoscopic intervention.

Malignant biliary obstruction constitutes another major indication for ERCP. Cholangiocarcinoma, pancreatic head carcinoma, periampullary carcinoma, and gallbladder carcinoma frequently present with progressive obstructive jaundice[4]. The molecular pathogenesis of cholangiocarcinoma involves chronic inflammation, genetic alterations, and environmental risk exposures[13]. In many low- and middle-income countries (LMICs), delayed presentation and limited access to early diagnostic services result in advanced-stage disease at the time of evaluation. Therapeutic ERCP plays a crucial role in palliation through biliary decompression, thereby improving quality of life and reducing cholangitis risk[14, 15].

Clinical assessment remains central to differentiating benign from malignant obstruction. Classical features such as painless jaundice, weight loss, hepatomegaly, and a palpable gallbladder (Courvoisier's law) suggest malignant etiology, whereas abdominal pain and fever are more commonly associated with choledocholithiasis or acute cholangitis[7, 8]. Such distinctions are particularly valuable in resource-limited settings where advanced imaging may not be immediately accessible.

Therapeutic strategies during ERCP vary according to lesion type. Balloon sweeping and basket extraction are standard for stone clearance, while plastic and self-expanding metal stents (SEMS) are employed for benign and malignant strictures depending on anticipated survival and stent patency requirements[6, 14, 15]. Evidence suggests that SEMS provide longer patency and fewer reinterventions in malignant distal biliary strictures[6, 15].

Although regional studies from neighboring countries have reported ERCP outcomes and indication patterns[9], comprehensive institutional data from Bangladesh remain scarce. In healthcare systems with constrained resources, local epidemiological and procedural data are essential to guide service planning, training priorities, and cost-effective utilization of endoscopic facilities. Moreover, appropriate sample size estimation and robust methodological design strengthen the validity of such institutional analyses[10].

Given the limited published evidence describing ERCP practice patterns in Bangladesh, an evaluation of demographic characteristics, clinical presentation, disease distribution, and therapeutic interventions is necessary. The aim of this study was to describe the demographic profile, clinical features, indications, and therapeutic interventions of adult patients undergoing ERCP at a tertiary care center in Bangladesh, with particular emphasis on comparing benign and malignant biliary lesions.

MATERIALS AND METHODS

Study design and setting

This retrospective observational study was conducted in the Department of Gastroenterology at Bangladesh Medical University (BMU), Dhaka, Bangladesh, during January 2022 and January 2024. The study included adult patients (≥18 years) of either sex; all included ERCP procedures were therapeutic in intent for biliary or pancreatic ductal indications, including suspected or confirmed choledocholithiasis, benign biliary strictures, malignant biliary obstruction, chronic pancreatitis, and papillary stenosis. Incomplete medical or procedural records, Prior biliary-enteric surgical reconstruction altering anatomy (e.g., Roux-en-Y hepaticojejunostomy), and ERCP performed solely for diagnostic imaging without therapeutic intervention were excluded from this study. Ethical approval was obtained from the Institutional Review Board (IRB) of Bangladesh Medical University before commencement of the study. Written and verbal informed consent were obtained from all patients before data collection and procedural documentation. Confidentiality of patient information was maintained throughout the study, and data were anonymized before analysis.

Sample size calculation: The sample size was calculated for estimating a single population proportion at 95% confidence (Z = 1.96), assuming a prevalence of common bile duct stones of 49.2% from a previous regional study, with a margin of error of 8%. This yielded a minimum required sample size of approximately 150 patients, which were included in the study.

Sampling technique: A consecutive sampling technique was employed, whereby every patient meeting the

inclusion criteria during the defined time frame was included without random selection. This approach minimized selection bias and ensured representation of routine clinical practice.

Data collection: Data were retrieved from hospital medical records and the endoscopy database. Extracted variables included: demographic characteristics (age, sex), clinical features (jaundice, abdominal pain, fever, weight loss, anorexia), physical findings (hepatomegaly, palpable gallbladder), laboratory parameters (serum bilirubin, liver enzymes), indication for ERCP, lesion classification (benign vs malignant), and type of therapeutic intervention performed.

ERCP procedure: All ERCP procedures were performed using a side-viewing duodenoscope under conscious sedation. Therapeutic interventions included sphincterotomy, balloon sweeping, basket extraction, sphincteroplasty, plastic stent placement or replacement, self-expanding metal stent (SEMS) placement, pancreatic duct stenting, and tissue acquisition via brush cytology or biopsy. The choice of intervention was determined by lesion type, ductal anatomy, and clinical indication.

Complication assessment: Procedure-related complications were assessed through review of procedural notes and inpatient records. Complications evaluated included post-ERCP pancreatitis, bleeding, perforation, cholangitis, and procedure-related mortality. No major immediate procedure-related complications were documented during the hospital stay in the reviewed records. Minor adverse events, if present, were managed conservatively.

Statistical analysis: Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 27. Continuous variables were summarized as mean ± standard deviation (SD) and categorical variables as frequency and percentage. Categorical variables were analyzed using the chi-square test or Fisher's exact test as appropriate. A p-value <0.05 was considered statistically significant.

Operational definitions

Benign lesions: Conditions include choledocholithiasis (with or without cholangitis), benign biliary strictures (post-surgical or inflammatory), chronic pancreatitis, papillary stenosis, and other non-malignant causes of ductal obstruction.

Malignant lesions: Obstruction secondary to histologically confirmed or radiologically highly suggestive malignancy, including cholangiocarcinoma (distal or hilar), periampullary carcinoma, carcinoma of the head of pancreas, and carcinoma of the gallbladder.

Acute cholangitis: Defined clinically by the presence of fever (>38°C), jaundice, and right upper quadrant abdominal pain (Charcot's triad), with supportive laboratory evidence of leukocytosis and elevated cholestatic liver enzymes. Diagnosis was confirmed based on clinical judgment and documented in the medical record.

RESULTS

A total of 150 patients underwent ERCP during the study period.

Table I shows the demographic characteristics of the patients; the mean age of the study population was 50.8 ± 13.5 years. Patients with malignant lesions were significantly older than those with benign lesions (54.9 ± 13.6 vs 49.1 ± 13.2 years; p = 0.015). Age distribution differed significantly between groups (p = 0.017), with malignancy more frequent among patients aged >60 years. Overall, there was a slight female predominance (50.7%). Females were more common in the benign group (55.2%), whereas males predominated among malignant cases (60.0%), although this difference was not statistically significant (p = 0.087).

The distribution of age was assessed using the Shapiro-Wilk test and visual inspection of histograms, which confirmed approximate normality (p > 0.05); therefore, parametric tests were applied for comparison of means.

Table I: Demographic characteristics of the study subjects (n = 150)

Variables	Total (n = 150)	Benign (n = 105)	Malignant (n = 45)	p-value
Age (years), mean ± SD	50.8 ± 13.5	49.1 ± 13.2	54.9 ± 13.6	0.015#
Age group (years)				0.017*
<40	42 (28)	32 (30.5)	10 (22.2)	
41–60	71 (47.3)	54 (51.4)	17 (37.8)	
>60	37 (24.7)	19 (18.1)	18 (40.0)	
Sex				0.087*
Male	74 (49.3)	47 (44.8)	27 (60.0)	
Female	76 (50.7)	58 (55.2)	18 (40.0)	

Data expressed as frequency n (%) unless otherwise indicated; SD= Standard Deviation, # stands for student t-test, and * stands for Chi-square test. An independent sample t-test was used for comparison of mean age between groups. Chi-square test was applied for categorical variables.

Table II states that jaundice was the most common presenting symptom (84.7%), followed by abdominal pain (56%), anorexia (35.3%), and weight loss (28.7%). Fever was observed in 7.6% of benign cases, indicative of acute cholangitis, but was absent in malignant disease. Systemic features, including weight loss, anorexia, hepatomegaly, and palpable gallbladder, were significantly associated with malignancy (p<0.001). In contrast, abdominal pain was significantly more frequent in benign disease (p < 0.001). Fever was observed only among patients with benign lesions, consistent with acute cholangitis, although this did not reach statistical significance (p = 0.057). No significant sex-based differences were observed in most clinical features.

Table II: Clinical presentation of the study subjects (n = 150)

Clinical Feature	Total (n= 150)	Male (n= 74)	Female (n= 76)	p-value (sex)	Benign (n= 05)	Malignant (n= 45)	p-value (lesion)
Asymptomatic	1 (0.7)	1 (1.4)	0 (0)	0.309¥	1 (1)	0 (0)	1.000¥
Jaundice	127 (84.7)	60 (81.1)	67 (88.2)	0.229*	82 (78.1)	45 (100)	<0.001*
Anorexia	53 (35.3)	31 (41.9)	22 (28.9)	0.097*	15 (14.3)	38 (84.4)	<0.001*
Weight loss	43 (28.7)	28 (37.8)	15 (19.7)	0.014*	5 (4.8)	38 (84.4)	<0.001*
Abdominal pain	84 (56)	40 (54.1)	44 (57.9)	0.636*	81 (77.1)	3 (6.7)	<0.001*
Fever	8 (5.3)	4 (5.4)	4 (5.3)	1.000¥	8 (7.6)	0 (0)	0.057¥
Hepatomegaly	16 (10.7)	10 (13.5)	6 (7.9)	0.265*	0 (0)	16 (35.6)	<0.001*
Palpable gallbladder	14 (9.3)	8 (10.8)	6 (7.9)	0.539*	0 (0)	14 (31.1)	<0.001*
Previous ERCP	2 (1.3)	1 (1.4)	1 (1.3)	1.000¥	2 (1.9)	0 (0)	1.000¥

Data expressed as frequency (%), * = Chi-square test, ¥ = Fisher's exact test. A p-value <0.05 was considered statistically significant.

Table III shows that benign lesions accounted for 70% of ERCP indications, while malignant lesions comprised 30%. Choledocholithiasis without cholangitis was common in both males (45.9%) and females (39.5%), with no significant sex difference. Benign biliary strictures were more frequent in females (19.7% vs 8.1%, p = 0.045). Other benign and malignant conditions showed no significant sex differences. Among malignant conditions, cholangiocarcinoma with particularly distal common bile duct involvement was the most frequent diagnosis

Table III: Indications according to sex distribution (n = 150)

Indication	Total (n= 150)	Male (n= 74)	Female (n = 76)	p-value (Male vs Female)
Benign	**105 (70.0)**	**47 (44.8)**	**58(55.2)**	**0.087***
Choledocholithiasis				
Without cholangitis	64 (42.7)	34 (45.9)	30 (39.5)	0.412*
With cholangitis	7 (4.6)	4 (5.4)	3 (3.9)	0.682¥
Benign biliary stricture	21 (14.0)	6 (8.1)	15 (19.7)	0.045*
Chronic pancreatitis	6 (4.0)	3 (4.1)	3 (3.9)	1.000¥
Post-cholecystectomy operation	1 (0.7)	0 (0)	1 (1.3)	1.000¥
Biliary stent	1 (0.7)	1 (1.4)	0 (0)	1.000¥
Papillary stenosis	5 (3.3)	3 (4.1)	2 (2.6)	0.653¥
Malignant	**45 (30.0)**	**27 (60.0)**	**18(40.0)**	**0.087***
Periampullary carcinoma	11 (7.3)	8 (10.8)	3 (3.9)	0.113*
Ca head of pancreas	6 (4.0)	2 (2.7)	4 (5.3)	0.414¥
Cholangiocarcinoma	24 (16.0)	14 (18.9)	10 (13.2)	0.369*
Distal CBD	21 (14.0)	11 (14.9)	10 (13.2)	0.775*
Hilar	3 (2.0)	3 (4.1)	0 (0)	0.245¥
Carcinoma gallbladder	4 (2.7)	3 (4.1)	1 (1.3)	0.307¥

Data expressed as n (%), * = Chi-square test, ¥ = Fisher's exact test. A p-value <0.05 was considered statistically significant.

Table IV presents the age-wise distribution of indications; Choledocholithiasis without cholangitis was most frequent among patients aged 41-60 years (p = 0.046), while chronic pancreatitis predominated in patients younger than 40 years (p = 0.012). Malignant lesions increased significantly with advancing age, being highest in patients >60 years, particularly cholangiocarcinoma (p = 0.030). Carcinoma of the head of the pancreas was more common among younger patients than among patients with other malignant conditions (p = 0.008).

Table IV: Indications according to age distribution (n = 150)

Indication	<40 years (n= 42)	41–60 years (n= 71)	>60 years (n= 37)	p-value
Benign				
Choledocholithiasis				
Without cholangitis	18 (42.9)	36 (50.7)	10 (27.0)	0.046*
With cholangitis	1 (2.4)	4 (5.6)	2 (5.4)	0.597¥
Benign biliary stricture	7 (16.7)	10 (14.1)	4 (10.8)	0.740*
Chronic pancreatitis	5 (11.9)	1 (1.4)	0 (0)	0.012*
Post-cholecystectomy operation	1 (2.4)	0 (0)	0 (0)	0.372¥
Biliary stent	0 (0)	0 (0)	1 (2.7)	0.335¥
Papillary stenosis	0 (0)	3 (4.2)	2 (5.4)	0.170¥
Malignant				
Periampullary carcinoma	1 (2.4)	5 (7.0)	5 (13.5)	0.073*
Ca head of pancreas	5 (11.9)	0 (0)	1 (2.7)	0.008*
Cholangiocarcinoma	3 (7.1)	11 (15.5)	10 (27.0)	0.030*
Distal CBD	3 (7.1)	9 (12.7)	9 (24.3)	0.058*
Hilar	0 (0)	2 (2.8)	1 (2.7)	0.561¥
Carcinoma gallbladder	1 (2.4)	1 (1.4)	2 (5.4)	0.556¥

Data expressed as n (%), * = Chi-square test, ¥ = Fisher's exact test. A p-value <0.05 was considered statistically significant.

Table V demonstrates the procedural interventions stratified by lesion type; balloon sweeping (50.5%), sphincterotomy (27.6%), and basket extraction (10.5%) were the main interventions for stone extraction in benign lesions, where balloon sweeping and basket extraction were significant (p < 0.001 and p = 0.024, respectively). Plastic stents were used in 37.1% of cases for stricture management or incomplete stone clearance, and pancreatic duct stents were applied in patients with chronic pancreatitis. Plastic stent placement was more common in malignant lesions (66.7% vs 37.1%; p < 0.001). Self-expanding metal stents (SEMS) were used in 28.9% malignant cases, mainly for distal malignant strictures (p < 0.001). Tissue sampling by brush cytology and biopsy was performed selectively in suspected malignancy and was significantly associated with malignant lesions.

Table V: Interventions according to type of lesion (n = 150)

Intervention	Total (n= 150)	Benign (n= 105)	Malignant (n= 45)	p-value
Sphincterotomy	37 (24.7)	29 (27.6)	8 (17.8)	0.200*
Sphincteroplasty	3 (2.0)	2 (1.9)	1 (2.2)	0.899¥
Balloon sweeping	53 (35.3)	53 (50.5)	0 (0)	<0.001*
Basket extraction (sweeping)	11 (7.3)	11 (10.5)	0 (0)	0.024*
Plastic stent placement	69 (46.0)	39 (37.1)	30 (66.7)	<0.001*
Plastic stent replacement	6 (4.0)	6 (5.7)	0 (0)	0.102¥
SEMS	13 (8.7)	0 (0)	13 (28.9)	<0.001*
Pancreatic duct stent	4 (2.7)	4 (3.8)	0 (0)	0.317¥
Brush cytology	2 (1.3)	0 (0)	2 (4.4)	0.030¥
Biopsy	3 (2.0)	0 (0)	3 (6.7)	0.008¥
Balloon + basket sweeping	6 (4.0)	6 (5.7)	0 (0)	0.102¥

As some patients underwent multiple interventions, percentages may exceed 100%. SEMS = Self-expanding metal stent
Data expressed as n (%), * = Chi-square test, ¥ = Fisher's exact test. A p-value <0.05 was considered statistically significant

Table VI outlines the most frequently performed interventions for specific indications. Choledocholithiasis without cholangitis was treated with balloon sweeping (64.1%) and plastic stent placement (28.1%), while choledocholithiasis with cholangitis involved balloon sweeping (71.4%) and sphincterotomy (57.1%). Benign biliary strictures were managed with plastic stents (76.2%) and sphincterotomy (47.6%). For distal malignant CBD obstruction, plastic stents (61.9%) and SEMS (33.3%) were the preferred interventions.

Among malignant conditions, plastic stents were commonly used for periampullary carcinoma and carcinoma of the head of the pancreas, while SEMS were more frequently employed in distal and hilar cholangiocarcinoma.

Table VI: Indication with the most common interventions (n = 150)

Indication	Most common interventions	n (%)
Benign		
Choledocholithiasis without cholangitis (64)	Balloon sweeping	41 (64.1)
	Plastic stent placement	18 (28.1)
Choledocholithiasis with cholangitis (7)	Balloon sweeping	5 (71.4)
	Sphincterotomy	4 (57.1)
	Plastic stent placement	4 (57.1)
Benign biliary stricture (21)	Plastic stent placement	16 (76.2)
	Sphincterotomy	10 (47.6)
Chronic pancreatitis (6)	Pancreatic duct stent	4 (66.7)
Post cholecystectomy operation (1)	Sphincterotomy	1 (100)
Papillary stenosis (5)	Sphincterotomy	5 (100)
Malignant		
Periampullary carcinoma (11)	Plastic stent placement	8 (72.7)
	SEMS	3 (27.3)
	Biopsy	3 (27.3)
Ca head of pancreas (6)	Plastic stent placement	5 (83.3)
	Sphincterotomy	2 (33.3)
Cholangiocarcinoma – distal CBD (21)	Plastic stent placement	13 (61.9)
	SEMS	7 (33.3)
Cholangiocarcinoma – hilar (3)	SEMS	2 (66.7)
Carcinoma GB (4)	Plastic stent placement	3 (75.0)

The patient may have multiple interventions. SEMS = Self-expanding metal stent

Procedure-related complications

No cases of post-ERCP pancreatitis, significant bleeding, perforation, procedure-related cholangitis, or procedure-related mortality were documented during the hospital stay. All procedures were completed without immediate major adverse events.

DISCUSSION

This study provides current institutional data on ERCP practice patterns in Bangladesh and analyzes 150 consecutive ERCP procedures over two years, demonstrating the predominance of benign biliary disease in a tertiary care setting. The findings reinforce the evolving therapeutic role of ERCP, consistent with global trends described by Cotton et al.[1] and Adler et al.[4], where ERCP is primarily reserved for intervention rather than diagnosis due to the availability of high-resolution imaging modalities such as MRCP[2, 3].

In this study, benign lesions accounted for 70% of cases, producing a benign-to-malignant ratio of 2.3:1, with choledocholithiasis being the most frequent indication.

This predominance of benign pathology is consistent with global ERCP utilization patterns, where choledocholithiasis remains the leading indication[1,4,5]. Regional epidemiological patterns of gallstone disease are influenced by metabolic, dietary, and demographic factors, as previously documented[11, 12]. Malignant lesions comprised 30% of cases and were significantly associated with older age. This age association parallels observations in cholangiocarcinoma and pancreatic carcinoma epidemiology, where incidence increases with advancing age[13].

The mean age of the patients was 50.8 ± 13.5 years, with malignant cases occurring at a significantly higher mean age (54.9 ± 13.6 years) compared to benign cases (49.1 ± 13.2 years; p = 0.015). The predominance of stones among middle-aged patients in this study is consistent with established risk profiles[11]. Furthermore, 40% of patients aged >60 years had malignant lesions, reinforcing the well-established age-related increase in biliary malignancy incidence described in epidemiologic literature[13].

Females represented 50.7% of the study population. Although benign disease was more frequent among females, malignant lesions showed a relative male predominance, reflecting patterns observed in regional and international studies[11, 12]. Gallstone-related disease, influenced by hormonal and metabolic factors, may partially explain the higher proportion of benign biliary pathology among women[11].

Clinically, jaundice was the most common presentation (84.7%), occurring in 100% of malignant cases compared to 78.1% of benign cases (p < 0.001). Systemic symptoms demonstrated strong discriminatory value: weight loss was reported in 62.2% of malignant cases compared to 3.8% of benign cases, and anorexia in 71.1% versus 4.8% (both p < 0.001). These findings are consistent with classical descriptions of malignant obstructive jaundice[7, 8]. Hepatomegaly and palpable gallbladder were observed exclusively in malignant lesions.

Choledocholithiasis without cholangitis accounted for 26.0% of all ERCP indications and was most common among patients aged 41-60 years. Chronic pancreatitis predominated in patients younger than 40 years (p = 0.012), reflecting established age distribution patterns[5].

Therapeutically, balloon sweeping was performed in 35.3% of cases and exclusively in benign disease (p < 0.001), underscoring the procedural focus on stone extraction. Plastic stent placement was required in 46.0% overall and in 66.7% of malignant lesions, while self-expanding metal stents (8.7%) were used exclusively in malignancy. The selective use of SEMS aligns with evidence demonstrating superior patency and reduced reintervention rates in unresectable distal biliary malignancy[6, 14, 15].

Particularly, no major complications, including post-ERCP pancreatitis, bleeding, perforation, or mortality, were documented during hospitalization. Although ERCP carries recognized risks[1], the absence of major adverse events in this series suggests procedural safety within this tertiary setting.

CONCLUSIONS

Benign biliary disease, particularly choledocholithiasis, constitutes the majority of ERCP indications in this tertiary care center in Bangladesh. Malignant lesions are significantly associated with advanced age and systemic clinical features. Therapeutic interventions appropriately reflected lesion type, with stone extraction techniques used in benign disease and stent-based palliation in malignancy. These findings emphasize the importance of strengthening therapeutic ERCP capacity, optimizing training in stone management and biliary stenting, improving early detection strategies for malignant obstruction, and conducting future prospective research in Bangladesh.

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