

## Endoscopic Retrograde Cholangiopancreatography (ERCP) Experience in a Tertiary Level Hospital in Northern Division of Bangladesh

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### ABSTRACT

**Objective:** In this study our main aim is to find out the diagnosis of cases after ERCP procedure and the therapeutic interventions done for appropriate cases in Prime Medical College Hospital, a tertiary level hospital in Rangpur, in northern division of Bangladesh.

**Methodology:** This Prospective observational study was conducted from March 2018 to June 2019 at Prime Medical College Hospital among 80 patients with various biliary and pancreatic diseases were selected for therapeutic ERCP.

**Results:** In our study among 80 patients, most of the cases are choledocholithiasis (37.5%), followed by cholangiocarcinoma (23.75%), carcinoma gall bladder (15%), peri-ampullary carcinoma (10%), benign biliary stricture (3.75%), papillary stenosis (2.5%), chronic calcific pancreatitis (2.5%), carcinoma head of pancreas (2.5%), biliary ascariasis (1.5%). Therapeutic interventions were performed according to diagnosis. Papillotomy and stone extraction for choledocholithiasis. Papillotomy and biliary stenting for cholangiocarcinoma, carcinoma gallbladder, peri-ampullary carcinoma, benign biliary stricture, papillary stenosis and carcinoma head of pancreas. Papillotomy and pancreatic

stenting for chronic calcific pancreatitis. Papillotomy and worm extraction for biliary ascariasis.

**Conclusion:** From our result we found that choledocholithiasis and biliary tract malignancy were two most common ERCP findings and the most common therapeutic interventions were papillotomy and stone extraction for choledocholithiasis and papillotomy and stenting for biliary malignancy.

**Keywords:** ERCP, Papillotomy, Stenting, Stone Extraction.

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### INTRODUCTION

Endoscopic retrograde cholangiopancreatography (ERCP) has evolved into an almost exclusively therapeutic procedure since its first description in the late 1960s as a diagnostic technique. By using moderate sedation, ERCP is performed with a side-viewing duodenoscope that allows identification of the major papilla and the bile duct is cannulated under endoscopic and fluoroscopic guidance. A variety of catheters, guide-wires, and stents are available to perform the therapeutic interventions. Diagnostic ERCP is still used for facilitating manometry in patients with suspected sphincter of Oddi dysfunction and for establishing the diagnosis of primary sclerosing cholangitis when other imaging techniques have been non-diagnostic.<sup>1-3</sup>

Now-a-days we mainly do ERCP with therapeutic intent in biliary tract disease for removal of common bile duct calculi, for palliation of malignant biliary obstruction, in management of biliary leaks/damage complicating surgery, for dilatation of benign strictures and primary sclerosing cholangitis.<sup>4</sup> For pancreatic diseases, drainage of pancreatic pseudocysts and fistula are done and pancreatic calculi are removed in selected cases.

### OBJECTIVE

#### General Objective

- To find out the diagnosis of cases after ERCP procedure and the therapeutic interventions done for appropriate cases

in Prime Medical College Hospital, a tertiary level hospital in Rangpur, northern division of Bangladesh.

**Specific Objective**

- To find out the diagnosis obtained by ERCP procedure
- To find out the therapeutic procedures done in ERCP procedures in appropriate cases

**METHODOLOGY**

**Type of Study**

Prospective observational study

**Place of study**

Prime Medical College Hospital

**Study Period**

March 2018 to June 2019

**Study Population**

80 patients, with various biliary and pancreatic diseases were selected for therapeutic ERCP.

**Sampling Technique**

Purposive

**Inclusion Criteria**

- Consecutive 80 patients who underwent ERCP for different indications were included in this study

**Exclusion Criteria**

- Patients who refused to undergo endoscopy
- Patients with an acute unstable cardiovascular or cardiopulmonary condition
- Patients with severe coagulopathy
- Markedly narrowed duodenum identified in upper GI endoscopy

**Method**

Before ERCP each selected patient underwent upper GI video endoscopy to exclude any structural abnormalities in esophagus, stomach, or duodenum. During ERCP a side-viewing duodenoscope was passed through the esophagus and stomach and into the second part of the duodenum. The major duodenal papilla was identified and inspected for any abnormalities. The minor duodenal papilla is also located in the second part of the duodenum and served as the access point for the dorsal pancreatic duct. Evaluation of the dorsal pancreatic duct with ERCP is rarely performed.

**Data Collection and Analysis**

Data were collected in a predesigned data collection sheet using various parameters. Data were compiled and analyzed with appropriate statistical package for social science (SPSS).

**RESULTS**

In figure-1 shows age distribution of the patients where most of the patients belongs to 49-58 years age group, 36.25%.

In table-1 shows gender distribution of the patients where male patients were 82% and female patients were 18%.

In table-2 shows symptoms of the patients where yellow eyes and urine, itching symptoms was very much common among patients.

In table-3 shows distribution of the patients according to Serum bilirubin done prior to ERCP. Where among 80 patients, 95 % had >3 mg/dL serum bilirubin level and 97.5% patients had negative HBsAg.

In table-4 shows distribution of the patients according to USG where 40% patients had biliary obstruction due to choledocholithiasis, followed by 32.5% cholangiocarcinoma.

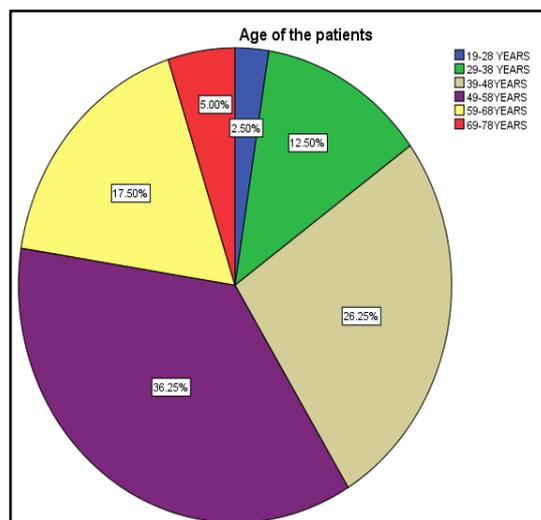


Fig 1: Age distribution of the patients.

Table 1: Gender distribution of the patients

Gender	%
Male	62.5%
Female	37.5%

Table 2: Clinical features of the patients

Clinical features	%
Yellow eyes	95%
Itching	90%
Pain abdomen	30%
Fever	15%
Vomiting	5%
Palpable gallbladder	3%
Palpable liver	3%

Table 3: Distribution of the patients according to Investigations done prior to ERCP

Investigation	%
<b>Haemoglobin level (gm/dl)</b>	
<8	10%
8-10	80%
10-12	5%
>12	5%
<b>Total Leukocyte count (/cmm)</b>	
<4000	12.5%
4000-8000	87.5%
>8000	25%
<b>Serum bilirubin (mg/dL)</b>	
<1.2	2%
1.21-3	3%
>3	95%
<b>S. Alkaline Phosphatase(U/L)</b>	
<120	28.75
>120	71.25
<b>HBsAg</b>	
Negative	97.5%
Positive	2.5%

**Table 4: Distribution of the patients according to USG**

USG findings	Number	Percentage
Choledocholithiasis	32	40%
Cholangiocarcinoma	26	32.5%
Carcinoma Gallbladder	12	15%
Peri-ampullary carcinoma	4	5%
Ch. calcific pancreatitis	3	3.75%
Ca head of pancreas	2	2.5%
Biliary ascariasis	1	1.25%

**Table 5: Distributions of the patients according to ERCP diagnosis**

ERCP findings	Number	Percentage
Choledocholithiasis	30	37.5%
Cholangiocarcinoma	20	25%
Carcinoma Gallbladder	12	15%
Peri-ampullary carcinoma	8	10%
Benign biliary stricture	3	3.75%
Papillary stenosis	2	2.5%
Ch. calcific pancreatitis	2	2.5%
Ca head of pancreas	2	2.5%
Biliary ascariasis	1	1.25%

**Table 6: Types of papillotomy used in patients**

Papillotomy	%
Conventional method	98%
Pre-Cut papillotomy	2%

**Table 7: Distribution of the patients according to stone extraction**

Stone extraction	%
By balloon	80%
By dormia basket	20%

In Table-5 shows distributions of the patients according to diagnosis where 37.5% patients had cholangiocarcinoma, which was higher than others.

In table-6 shows types of papillotomy used in patients where most of the patients 98% undergo conventional method.

In table-7 shows distribution of the patients according to stone extraction, where 80% patients stone extracted by balloon and 20% patients stone extracted by dormia basket.

## DISCUSSION

Endoscopic retrograde cholangiopancreatography (ERCP) is a useful process for the evaluation and treatment of diseases of the gallbladder and pancreas. During most of the prevailing years, ERCP has been invaluable as both a diagnostic and therapeutic procedure. Though, advances in noninvasive radiographic and less invasive endoscopic imaging have transformed ERCP into an almost exclusively therapeutic process.

In the study male patients were 62.5% and female patients were 37.5% and most of them belongs to 49-58 years age group. Which very much similar to other study.<sup>5,6</sup> Stones within the bile duct

during ERCP appear as filling defects and can be noticed with a sensitivity and specificity of approximately 95%. The therapeutic applications of ERCP have revolutionized the treatment of patients with choledocholithiasis and other bile duct disorders. Stones in the bile duct, when cause symptoms, tend to manifest as life-threatening complications such as cholangitis and acute pancreatitis.

In our study USG showed that 40 % patients had choledocholithiasis. They were removed by papillotomy with balloon catheter or basket sweeping. Most biliary malignancy are diagnosed in an advanced stage.

In this study, 25% (20) had cholangiocarcinoma, carcinoma gallbladder 15% (12), peri-ampullary carcinoma 10% (8), They had undergone ERCP either due to intense itching or presence of cholangitis. There were 41% patients with malignant biliary obstruction in the study of Alam & Khan. On the other hand, choledocholithiasis was the highest number 38% followed by malignant biliary obstruction 28%. In the study carried out by Masud et al.

The majority of benign biliary stricture are the results of iatrogenic injury during cholecystectomy and are the minority are the sequelae of chronic pancreatitis, primary sclerosing pancreatitis, trauma, liver transplantation, and choledocholithiasis. We found 3.75% (3) benign biliary stricture in this study and we managed the cases with papillotomy and balloon dilatation of the stricture and placement of a plastic stent. *Ascaris lumbricoides* is a common parasite and over a billion of people are estimated to be infested with it. There incidence is higher in developing countries. The worm may lodge in the lumen of bile duct and may cause bile duct obstruction and may present with cholangitis and obstructive jaundice. The treatment is ERCP and extraction of worm(s) from bile duct. In our study we had 1.25% (1) patient with biliary ascariasis and we managed the patient with sphincterotomy and worm extraction with basket. Papillary stenosis is a structural abnormality caused by chronic inflammation and fibrosis. In these patients endoscopic sphincterotomy is the treatment of choice. We had 2.5% (2) patients with papillary stenosis and managed with ERCP and sphincterotomy. Endoscopic pancreatic sphincterotomy (EPS) alone is a treatment modality in chronic pancreatitis. The rationale for treating chronic pancreatitis with endoscopic sphincterotomy is to reduce pancreatic intraductal pressure. We had 2.5% (2) patients with chronic calcific pancreatitis and managed with endoscopic sphincterotomy, in this study we have found that choledocholithiasis and biliary malignancy are two most common indications need management with ERCP and the most common interventions are papillotomy and stone extraction for choledocholithiasis and biliary stenting for palliative care of biliary malignancies. Further large scale, well designed study needs for evaluating the efficacy and complication associated with ERCP procedure.

## LIMITATION

Small sample size and duration of study was short. Furthermore, we have selected patients only for therapeutic purposes cases. Cases with large CBD stone, duodenal stricture are excluded.

## CONCLUSION

From our result we can say that, ERCP is an effective tool for evaluating and managing hepatobiliary and pancreatic diseases.

Further well-designed studies with monitoring for complications and long-term outcome are needed for proper evaluation of ERCP procedure.

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