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Original Article

Outcome of Endoscopic Retrograde Cholangio-Pancreatography at Nobel Medical College Teaching Hospital: A Single Centre Experience

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Abstract

Background
Endoscopic retrograde cholangio-pancreatography is a technically demanding endoscopic procedure for both diagnostic and therapeutic purpose in treating various pancreaticobiliary diseases. This service is very limited in tertiary care center of our country Nepal mostly limited to Kathmandu valley and Dhulikhel hospital.

Materials and Methods
This is a descriptive cross-sectional study of patients who underwent Endoscopic retrograde cholangio-pancreatography with therapeutic intent in Nobel Medical College Teaching Hospital, Biratnagar from April 2019 to April 2020. Total 148 patients were included in this study for analysis.

Results
The most common finding was choledocholithiasis in 132(89.2%) patients. Benign biliary stricture was found in 7 (4.7%). Biliary obstruction due to periampullary growth was found in 7 (4.7%) patients. Bile duct injury was found in 1(0.7%) and chronic pancreatitis in 1 (0.7%) patient. The therapeutic success of Endoscopic retrograde cholangio-pancreatography was for choledocholithiasis, Stone Clearance in 1st attempt 68.9%, in multiple attempts18.2%, failed stone extraction in 3 cases (2.0%) only biliary stenting was done in 15 (10.3%) patients of various biliary disease for therapeutic and palliative reason. Pancreatic stenting was done in1(0.7%) patient. The most common complication was Acute Pancreatitis in 6(4.1%), Post-Sphincterotomy bleeding in 1 (0.7%), biliary septic shock in 1 (0.7%) and 1 death (0.7%).

Conclusion
Endoscopic retrograde cholangio-pancreatography can be continued in Nobel Medical College Teaching Hospital as it has lots of benefits with minimal acceptable complications.

Keywords: *Choledocholithiasis, ERCP, Pancreatitis*

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Introduction

Pancreato-biliary disorders are one of the common encountered clinical problems in day to day practice. Among them many of the problems require some sort of intervention. Endoscopic retrograde cholangiopancreatography (ERCP) is one of the minimally invasive therapeutic and diagnostic tools for pancreato-biliary disorder introduced first in 1968 [1]. Though ERCP is a difficult method, it may be an easy diagnostic to a complicated invasive procedure [2].

Due to presence of other noninvasive diagnostic tools like MRCP, EUS the role of ERCP role has largely become therapeutics. ERCP is the most complex digestive endoscopy technique. Post ERCP complications may be up to 10% and a mortality rate of 1% [3-6], which include acute pancreatitis, post-sphincterotomy bleeding, biliary sepsis (cholangitis and cholecystitis), perforation of duodenum and side effects of intravenous Anesthesia [3-5]. ERCP is limited to only few centers in Nepal.

It was started in Nobel Medical College Teaching Hospital, Biratnagar so that people from eastern part of Nepal can be benefitted from it. The cost of treatment doesn't increase for economically backward people of this region. The Purpose of this study was to find indication of ERCP, diagnosis and its complications in eastern region

Materials and Methods

A descriptive cross-sectional study was conducted in the department of surgery, Nobel Medical College, Biratnagar from April 2019 to April 2020 after the ethical clearance from IRC of Nobel Medical College. The sampling method used was convenience sampling and the entire population of patients who had undergone ERCP during that period was included in the study. The consent of patient was taken. The patients were fully evaluated by taking detail history and physical examination. Baseline investigations which included complete blood count, liver function test, renal function test, ultrasonography, esophago-duodenoscopy in few cases and MRCP in few cases were done before ERCP. All of the cases were evaluated by cholangiogram during therapeutic ERCP. Total 148 patients who underwent ERCP for various diseases were included in this study. ERCP was done by minimal invasive surgeon and experienced gastroenterologists from Dhulikhel Hospital. The demographic data, diagnosis and complications were studied. The outcome was analyzed in terms of sex, age, findings of procedure and immediate complications upto 5 days of ERCP. The statistical analysis was done by using statistical package for social sciences (SPSS) version 20 for windows.

Results

A total of148 patient was analyzed who underwent ERCP from April 2019 to April 2020. The data included 111 female (75.00%) and 37 male (25.00%) in the ratio of 3:1 (Table 1). The mean age of patient was 46.90 years.

Table 1: Sex distribution of ERCP patients

Sex	No of patients	Percentage
Male	37	25.00%
Female	111	75.00%
Total	148	100.00%

Table no.2: Indications for ERCP

Diagnosis	Frequency	Percentage
Choledocholithiasis	129	87.2%
Obstructive Jaundice (Etiology Undiagnosed)	7	4.7%
Benign Biliary Stricture(pre procedure Magnetic resonance cholangiopancreatography)	4	2.7%
Periampullary Carcinoma	3	2.0%
Acute cholangitis	2	1.4%
Acute biliary pancreatitis	1	0.7%
Post laparoscopic cholecystecto - my bile duct injury	1	0.7%
Chronic pancreatitis	1	0.7%
Total	148	100%

Table no.3: Findings of Cholangiogram during ERCP

Diagnosis	Frequency	Percentage
Choledocholithiasis (including Cholangitis and Acute. Pancreatitis)	132	89.2%
Biliary Stricture (Mid Common bile duct)	7	4.7%
Distal Common bile duct Stricture due to Periampullary Mass	7	4.7%
Post Laparoscopic Cholecystectomy Bile ductInjury (Bile Leak)	1	0.7%
Pancreatic Duct Stricture	1	0.7%
Total	148	100%

Table no 4: Outcome of Therapeutic ERCP:

Diagnosis	Treatment Outcome	Frequency (%)
Choledochlithiasis (n= 132) Solitary and Multiple	Stones Cleared in 1st attempt	102(68.9%)
	Stones cleared in multiple attempts	27(18.2%)
	Stones not Cleared	3 (2.0%)
Benign Biliary Strictures (Including Post Cholecystectomy) (n=7)	Multiple Stents- Dilation Achieved	5(3.4%)
	Stenting done - Followed up with Liver Mets	2(1.4%)
	Required Surgical bypass	0
Malignant Biliary Stricture (Including Ampullary Carcinoma (n=7)	Self Expanding Metal Stents inserted	2 (1.4%)
	Plastic Biliary Stents Inserted	5 (3.4%)
Post Laparoscopic Cholecystectomy Bile duct Injury (Bile Leak) (n=1)	Biliary Stenting Done	1(0.7%)
Pancreatic Duct Stricture (n=1)	Panceratic Stenting Done	1(0.7%)
Total		148 (100%)

Table no 5: Complications of ERCP procedure

Complications (n=148)		Frequency	Percentage
Pancreatitis	Mild	4	2.7%
	Moderate	1	0.7%
	Severe	1	0.7%
Post Sphincterotomy Bleeding		1	0.7%
Biliary Septic Shock		1	0.7%
Mortality (Unrelated to Procedure)		1	0.7%
No complication		139	93.8%

The most common finding was choledocholithiasis 132 (89.2%) (Table 3). Seven patients (4.7%) were of obstructive jaundice under evaluation for which biliary stenting was done and brush border biopsy was taken and sent for cytology and were reviewed later on. 4 cases (2.7%) were of biliary stricture for which stenting was done and biopsy was sent to rule out the cause. 3 cases (2%) were of periampullary carcinoma suspected radiologically by MRCP underwent biliary stenting and biopsy was taken from the suspected mass. 2 cases(1.4%) were stented for acute severe cholangitis.1 case of acute and 1 of chronic pancreatitis (0.7%) each also underwent ERCP and 1 case for Bile duct injury in 18th POD was done.

The therapeutic success of ERCP was for choledocholithiasis, Stone Clearance in 1st attempt 68.9% (Table 4), in multiple attempts18.2%, failed stone extraction in 3 cases (2.0%) only. Failed stone extraction was due to large size (>2cm) of stone. All the patients with benign strictures were stented and successful treatment was achieved with multiple stents in 5 (3.4%) cases, whereas 2 cases that were considered to be benign, with brush cytology & biopsy, were found to have liver mets on follow up. The Malignant biliary strictures were done palliative stenting with 2 cases had Metal Stenting and 5 cases had plastic stents only due to financial limitations.

Most of the patients complained of mild pain only in the post procedure period (93.8%) (Table 5) and were not categorized as post procedural complications. The most common complication was acute pancreatitis in 6 patients. 4 of mild pancreatitis (2.7%) 1 was of severe pancreatitis (0.7%) and 1 of moderate pancreatitis (0.7%) both requiring prolonged hospitalization. Post sphincterotomy UGI bleeding in 1 patient (0.7%), 1 patient of Biliary Septic shock (0.7%) and 1 (0.7%) mortality on the next day of procedure.

Discussion

ERCP has played tremendous role in management of pancreato-biliary disorders as alternative or aid to surgical management. It is indeed minimally invasive procedure that alleviates the need for a complex surgical intervention and often is life saving procedure specially during cholangitis. From our study over period of one year, it is obvious that disorder requiring ERCP are significant in eastern part of Nepal. Female population suffers from pancreato-biliary disease more than male as ratio of female to male undergoing ERCP is 3:1 in this study. Most common disorder for which ERCP was done is choledocholithiasis (89.20%) followed by obstructive jaundice, biliary stricture, periampullary carcinoma, biliary cholan-gitis, acute pancreatitis, chronic pancreatitis and bile duct injury. Most of the therapeutic ERCP done was for choledocholithiasis (89.20%) which was also the most common cause similar to other study in Nepal which was 49.17% [7]. The awareness on role of ERCP in Choledocholithiasis among medical personnel has always been highlighted and hence referrals for choledocholithiasis requiring ERCP are high. But the role of ERCP in biliary and pancreatic stricture may still be in shadow. With advanced training and high experience, complex benign or malignant biliary and pancreatic strictures can be managed endoscopically with ERCP. Hence, the awareness on role of ERCP in biliary and pancreatic strictures has to be broadened among medical personnel so that more patients in need are benefitted from this intervention. Diagnostic ERCP is decreasing [8] due to less invasive MRCP and Endoscopic ultrasonography (EUS) with less complication like post ERCP pancreatitis [9]. MRCP and EUS has the ability to accurately identify ductal anatomy and diagnose a range of pancreaticobiliary diseases, including ductal neoplasms, choledochal cysts, and choledocholithiasis [10] but a diagnosis can be made during ERCP with an therapeutic intent of biliary drainage or clearance for patients with biliary obstruction. Therapeutic ERCP with obstructive jaundice in uncertain Diagnosis was 4.7% which is similar to study done in Dhulikhel hospital 4.96% [7]. In most of the doubtful cases MRCP was done for diagnostic purpose, which decreased the need for diagnos-tic ERCP, and also decrease risk of ERCP related complication. Hence, ERCP should not be used for diagnostic purpose of pancreatobiliary disorders but rather should be used exclusively for therapeutic purposes only. The patients who will be benefitted from biliary drainage can be selected for ERCP even though the cause of biliary drainage is not established.

Among complication of ERCP pancreatitis (4.1%) was most common among which (0.7) were severe pancreatitis requiring prolonged

hospital stay. Incidence of pancreatitis in similar institution varies between 1 to 30% [11, 12]. Post-Sphincterotomy bleeding occurred in 1 (0.7%) patient who was managed conservatively by blood transfusion and supportive treatment and patient recovered. Similar studies show incidence of late post ERCP bleeding to be 1.5 % [13]. There was 1 (0.7%) case of mortality post ERCP patient who underwent ERCP for bile duct injury18th post op day following lap cholecystectomy. The mortality was not related to known complications of ERCP. In other study from Sweden the 30-day ERCP- related mortality was found to be 0.09?% [14] this result is similar to our study. The overall complications of ERCP in this study were acceptable compared to standard literature. The complications can be lowered if the ERCPs with diagnostic intent are avoided and proper non-invasive investigations are done to confirm diagnosis, proper patient selection is done and importantly if the procedure is performed by or performed under direct supervision of endoscopist experienced in ERCP.

ERCP is an essential therapeutic armamentarium for pancreato-biliary diseases in this era of advanced medical science. ERCP related complications were very high previously due to poor patient selection and as the procedure was performed by endoscopist with no training or less experience in ERCP. With proper training, guidance and experience, ERCP can be perform-ed safely providing the benefit of minimally invasive procedure to the needed patients in different parts of the country.

Conclusion

There are significant numbers of people in eastern part of Nepal requiring ERCP for pancreato-biliary disorder. In well-trained hands ERCP is safe minimally invasive procedure with minimal complications and huge therapeutic benefit. Hence, more technically competent Endoscopists have to be trained in order to enhance the quality of care in ERCP with minimal complications to serve different parts of the country. The experience of Nobel medical college and teaching hospital (NoMCTH), Biratnagar shows it has been successful to keep up with Standard quality of care for patients with Biliary and Pancreatic Diseases using ERCP.

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Conflicts of interests: None

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