OVER VIEW OF ROLE OF ERCP IN HEPATOBILIARY PROBLEMS AND ENCOUNTERED COMPLICATIONS IN A TERTIARY CARE HOSPITAL IN KPK PROVINCE

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ABSTRACT

Objective: To evaluate the contribution of ERCP in various hepatobiliary disorders and complications encountered.

Study Design: Cross sectional study.

Place of Study and Duration: Study was carried out at Gastroenterology and Radiology department, Combined Military Hospital (CMH) Peshawar Pakistan, from Jan 2015 to Nov 2015.

Methodology: Consecutive patients coming to Gastroenterology department of CMH Peshawar were enrolled in the study after calculating sample size. Unsuccessful ERCP or patients with previous history of pancreatobiliary surgery were excluded. All ERCPs were performed by single endoscopist and images were reviewed by senior radiologist. Patients were observed for 48 hours with serial amylase levels and X-ray abdomen on need basis.

Results: One hundred and one patients were included in the study out of which 55 were male and 49 were female with mean age 51.83 ± 18.414 years. Choledocholithiasis was seen in 44.23%, strictures in 42.3% and bile duct dilatation in 61.5% cases. Overall complication rate was 12.5%. Complications encountered included pancreatitis (4.8%) infection (3.8%) bleeding (1.9%) and perforation (1.9%).

Conclusion: Hepatobiliary disorders were quite frequent in our day to day practices. Choledocholithiasis and biliary stricture were the commonest among them. ERCP is an extremely useful technique in dealing with these hepatobiliary disorders saving unnecessary surgeries.

Keywords: Biliary strictures, Choledocholithiasis, Endoscopic retrograde cholangiopancreatography (ERCP).

INTRODUCTION

Obstructive jaundice is a common problem caused by obstruction to the passage of conjugated bilirubin from liver cells to intestine[1]. It was once thought to be a surgical problem as most of the cases were handled by surgeons. However, with the development of newer techniques, it is no longer considered a surgical problem only and many cases are dealt with by the physicians (Gastroenterologist).

ERCP is a well-established therapeutic procedure for benign and malignant diseases of the biliopancreatic system[2,3]. In our setup its utility increases due to limited access to other diagnostic tools like magnetic resonance cholangiopancreatography and endoscopic ultrasound. However, ERCP is an invasive procedure with significant risk of variety of short and long term complications including pancreatitis, perforation, hemorrhage etc[4,5]. ERCP Involves luminal endoscopy along with fluoroscopic imaging of biliary and pancreatic ducts. Sphincterotomy is performed to improve biliary access or to open the passage for extraction of stones. Common indications for ERCP include common bile duct stones, benign and malignant strictures and bile duct injury[6].

The outcome of treatment of obstructive jaundice in developing countries may still be poor due to lack of advanced diagnostic imaging and therapeutic facilities in most centers[7]. A part from complications, ERCP also has limitations

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that it requires specialized expensive equipment and long learning curve to develop proficiency[8].

In Khyber Pakhtunkhwa (KPK) Province of Pakistan, ERCP is a recently introduced technique, limited to a few centres only. Therefore the incidence of various hepatobiliary diseases is not known in this region. Moreover a comparison of various complications associated with this technique with established centres was also necessary for future improvement.

The objective of the study was to know the disease spectrum in KPK province and to know the safety profile in our center.

METHODOLOGY

This cross sectional study was carried out at CMH Peshawar from January 15 to November 15. Sampling technique used was non probability consecutive sampling. Sample size was calculated using WHO sample size calculator. By keeping the value of confidence level as 95%, anticipated population proportion as 0.5 and absolute precision as 0.10, a sample size of 97 was calculated. However we took the sample size of 104 in our study.

Patients in whom cannulation could not be done or patients presenting with pancreatitis or patients who had a previous history of surgery on biliary or pancreatic system were excluded from the study. Each patient was assigned one page of ERCP datasheet on which his age, gender, clinical signs and symptoms, relevant investigations and ERCP findings were recorded. Pre-requisites were informed consent, ultrasound abdomen, and liver function test and prothrombin time. Intravenous midazolam 3-5mg and intravenous pethidine 25-50mg were used for conscious sedation. Hyosine bromide was used to control gut motility. All the ERCPs were performed by single endoscopists with Olympus TJF 160 videoscope. All the findings were reviewed by a senior radiologist. Endoscopic findings included size of ducts, filling defects (stones), strictures with location and therapeutic interventions like sphincterotomy, stone extraction and stenting. Patients were observed for 48 hours as indoor case and stable patients were discharged after 48 hours with regular review on need basis. Serum amylase levels were seen in all patients at 4 hours and 24 hours respectively. X-ray plain abdomen in erect position was carried out in patients who underwent sphincterotomy. Post ERCP pancreatitis was defined as abdominal pain lasting for 24 hours with serum amylase more than 3 times the normal.

All the data was recorded and analyzed using statistical package for social sciences (SPSS version.20). Quantitative data was presented by mean ± SD. Categorical variables were presented as frequency and percentage. Chi square test was applied for qualitative variables. The *p*-value ≤0.05 considered significant.

RESULTS

A total of 104 patients were included in the study. The age of the study population ranged from 17-100 years with a mean age of 51.83 ± 18.414 (table). There were 55 (52.88%) males and 49 (47.11%) females. Female to male ratio was 1:1.122.

Table: Showing age distribution of our study population.

n	104
Mean ± SD	51.83 ± 18.414
Minimum	17
Maximum	100

Choledocolithiasis was seen in 46 (44.23%) cases in total. It included isolated choledocholithiasis as well as combined lesions. Strictures were seen in 44 (42.3%) cases in total. Ratio of male to female for biliary stones was 13:10 whereas for strictures it was 13:9.

Total cases with bile leak were 12 (11.5%). Bile duct dilatation was seen in 64 (61.5%) cases in total (fig-1). Overall complication rate was 12.5% (13 cases). Pancreatitis was the commonest complication seen in 5 patients (4.8%). Infection was seen in 4 cases (3.8%). Hemorrhage occurred in 2 cases (1.9%) whereas perforation was also seen in 2 cases (1.9%) (fig-2).

DISCUSSION

Obstructive jaundice is caused by occlusion of the passage of conjugated bilirubin from liver cells to intestine[1]. Common causes include common bile duct stone, pancreato-biliary cancers and iatrogenic injuries to bile duct. ERCP is the gold standard for the evaluation of biliary tree especially in choledocholithiasis[9].

In our study, choledocolithiasis was seen in 44.23% cases. In a publication by Khurram *et al* the incidence of stones in the common bile duct was 32.3%[10]. Whereas Penston *et al* reported 38% incidence of choledocolithiasis[11]. A study by Pierce *et al* revealed 51.98% patients with choledocholithiasis on ERCP[12].

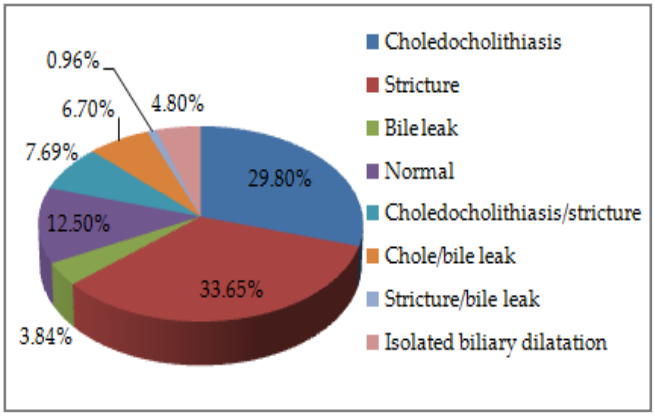

Figure-1: Distribution of various diagnostic outcomes.

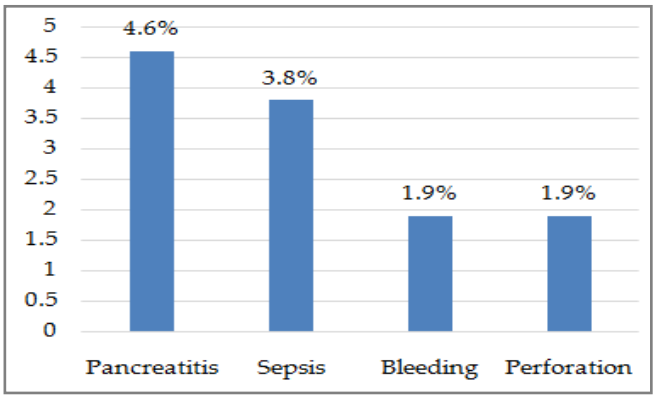

Figure-2: Percentage distribution of various complications.

We found strictures in 42.3% cases. In a study performed by Khurram *et al*, the incidence of stricture was 36.3% whereas Penston *et al* reported incidence of stricture in around 33%. The difference could be due to different prevalence of these pathologies in our population.

Ratio of males to females for bile duct stones was 1.3:1. This is similar to the proportion of 1.2:1 by Khurram and colleagues. For strictures the gender distribution turned out to be 1.44:1 which differs from the study by Khurram *et al* where stricture was more common with females. This may be attributable to larger number of male patients coming to CMH Peshawar since most of the families stay at their native villages / towns.

Bile duct injury is another problem that can be tackled with ERCP. Its incidence ranges from 0.2% to 7% after laparoscopic cholecystectomy compared to 0.2–0.4% after open cholecystectomy[13]. In our project 11.53% patients came with this problem. In a study by Suissa, the incidence of patients with bile leak and stenosis was 6%[14]. Bile duct dilatation was seen in 61.5% cases in our work which is in concurrence with Penston *et al* who saw bile duct dilatation in 65%.

Overall complication rate was 12.5%. In a study by Katsinelos *et al*, complications occurred in 8.3%. The higher percentage observed in our work was because of increased rate of infection, which may be attributable to limitation of disposable accessories. The commonest complication seen in our study was pancreatitis which occurred in 4.8% cases. This result is comparable to other studies including Katsinelos *et al* (4.9%), Penston *et al* (3%) and Laghari *et al* (3.6%)[15-18]. Hemorrhage occurred in 1.9% cases in our project. Katsinelos *et al* reported 4.5% and Penston *et al* 0.5%[15-18].

Infection was seen in 3.8% cases. Katsinelos *et al* reported 2.3% and Penston *et al* 0.6%. The higher incidence of infection in our cases can be explained by reuse of accessories and use of plastic stent rather than a metallic one. Perforation was seen in 2 cases (1.9%) in our study. This sequela responded well to surgical management.

Our study was limited by random patient selection without any restriction of age or

comorbidities. Nevertheless our results are comparable to other centers.

CONCLUSION

Hepatobiliary disorders were quite frequent in our day to day practices. Choledocholithiasis and biliary stricture were the commonest among them. ERCP is an extremely useful technique in dealing with these hepatobiliary disorders saving unnecessary surgeries. Although a number of complications were possible with it, but knowledge of these complications and due precautions can minimize their occurrence.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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