Original Article

Audit of ERCP at Ibn Sina Hospital from 2009-2010

Nasreeldeen Adam Ali[1], Abdelmoiem Eltayeb[2], Tarig Mohamed Husien[2], Mohamed[2] O M Sulaiman, Bahauldeen Gasm El Seed[2], MAM Ibnouf[3]

Abstract

Background:

Surgeons are expected to deal with expect some failure of ERCP in extraction of missed CBD stones. Re-do surgery is difficult; however surgeons have to stand for it.

Objectives:

To audit the outcome of ERCP in extraction of CBD stone for patients referred to Ibn Sina Teaching Hospital.

Material and methods:-

Study design:-This is prospective, hospital based study; carried in the period from January 2009 to June 2010 in Ibn Sina Teaching Hospital .A total of 119 patients referred for ERCP extraction of CBD stones were studied.

Results:

Male to female ratio was 1:5. The mean age (±SD) is 55.4 (±17.57). Post cholecystectomy missed stones were 7(6%), post CDB exploration retained stones were 4(3.4%) and re-do ERCP was done in 9(7.6%) patients.

Failure of stone extraction occurred in 10(25%) cases due to failure of cannulation while another 10(25%) cases had multiple impacted stones and nine (22.2%) had too big stone to be extracted. In addition, five (12.5%) cases had CBD stricture, and the procedure was not completed because of bleeding in two cases and impaction of the dormia basket in two (5%) cases. The success of redo ERCP is seven out of nine cases. Complication occurred in seven (5.88%) patients. These were bleeding in two (1.68%), cholangitis in one (0.84%) CBD and retro-peritoneal duodenal perforations in two (1.68%) and retained dormia basket in two (1.68%) cases. The mortality rate was one (0.8%) patient.

Conclusion:

ERCP, at Ibn Sina Hospital, has success rate in stone extraction in 79(66.4%) and complication rate in seven (5.88%) patients. About one third of cases attending ERCP for stone extraction were referred back for open exploration of CBD.

Keywords: cholecystectomy, CDB exploration, impacted stones.

Endoscopic retrograde cholangio-pancreatography (ERCP), MRCP and EUS have comparable sensitivity and specificity in the diagnosis of choledocholithiasis[1,2]. With these newer diagnostic imaging technologies emerging, ERCP is evolving into a predominantly therapeutic procedure.

1. Registrar of surgery. IbnSina Hospital.
2. Consultant surgeon. IbnSina Hospital.
3. Prof of surgery. Omdurman Islamic University.
4. Correspondence: maibnouf@gmail.com

ERCP is a complex endoscopic procedure, has long learning curve to develop proficiency, however, it is not without complication. Complications of ERCP may occur as medication reactions, oxygen desaturation, cardiopulmonary accidents, haemorrhage, perforation and sepsis. Moreover, transient a symptomatic pancreatitis is frequent.

At least 180 procedures are required for a trainee to acquire a level of competence in diagnostic and therapeutic ERCP, which allows cannulation of the bile duct in 70 to 80 percent of cases[3]. Nevertheless, 90 to 95%

success can be achieved by experts[4]. Individual endoscopists who perform more than 40 endoscopic sphincterotomies per year or at least one per week have a lower complication rate than those who perform fewer procedures[5].

Retained or recurrent stones following cholecystectomy are best treated endoscopically.

Objectives:-

To find out success and complication rates of ERCP in extraction of CBD stones in patients seen in IbnSina Teaching Hospital.

Material and methods:-

Study design: This is prospective case series study, hospital based study, carried in the period from January 2009 to June 2010 in IbnSina Teaching Hospital.

Setup:-GIT endoscopy unit in IbnSina Teaching Hospital. Two surgeons and two physicians with experience ranging from 2-10 years in ERCP.

Inclusion criteria: All patients diagnosed as CBD stones referred for ERCP with or without jaundice in the period between January 2009 to June 2010 are included in the study (n= 119).

Exclusion criteria: Cases of CBD stones booked for surgery from the start, jaundiced patient with carcinoma head of pancreas, cholangiocarcinoma, periampullary carcinoma and jaundiced patient with CBD injury were excluded.

Patients were reviewed for age, sex, success and failure of CBD stones extraction, causes of failure, and complications.

Statistical analysis: The collected data analyzed using computer program Statistical Package for Social Science (SPSS). Mean, standard deviation and one t test sample were used where appropriate. Statistical significance was taken at P <0.05.

Results

A total of 119 patients with CBD stones treated by ERCP in Ibn Sina Teaching Hospital in the period between January2009 to June2010 were studied. They were 18 males and 91 females.

The mean age is 55.4 (±17.57) range of 19 to 90 years. Post cholecystectomy missed stones were 7(6%) (Table 1), post CDB exploration retained stones were 4(3.4%) and ERCP was re-done in 9(7.6%) patients.

Table 1: frequency of stone extraction among operated and those who were not operated

History of cholecystectomy	Stone extraction Yes	No	Total(%)
Yes	2	5	7(5.9)
No	77	35	112(94.1)
Total	79	40	119(100)

CBD stones were retrieved successfully in 79(66.4%) cases. The number of patients who failed stone extraction within 20 minutes was statistically significant (*P 0.0001)*.(Table 2)

Table 2: The extraction time of CBD stones

Time of procedure	Stone extraction Yes	No	Total
up to20 minute	43	4	47
> 20minutes	36	36	72
Total	79	40	119

Failure of stone extraction was due to failure of cannulation in 10(25%), multiple impacted stones in 10(25%), and stones which were too big to be extracted in 9(22.2%) cases. In addition, 5(12.5%) cases had CBD stricture, and the procedure was not completed because of bleeding and impaction of the dormia basket in 2(5%) cases each. Redo ERCP was successful in seven out of nine cases. Complication occurred in 7(5.88%) patients (Table 3).

Table 3: ERCP complications among the study population

	No	%
Bleeding	2	1.68
Perforation	2	1.68
Cholangitis	1	0.84
Retained dormia basket	2	1.68
Total	7	5.88

The rate of complications is 5.88% however routine serum amylase level was not done to

know transient pancreatitis. The mortality rate was one (0.8%) patient.

Discussion

In 1968 ERCP was introduced as a diagnostic tool and five years later endoscopic sphincterotomy transformed ERCP into an important therapeutic instrument[6]. ERCP, MRCP and EUS have comparable sensitivity and specificity in the diagnosis of choledocholithiasis[1,2]. However, the most adventitious role of ERCP is its therapeutic role. In Sudan ERCP is being performed in two governmental and three departments. All ERCP centers are in the capital of the country, Khartoum. Gallstone disease was reported to have variable prevalence5-15% of the general population[7,8]. In contrast, in Sudan the prevalence of gallstone was reported to be 5.2%[9].This allows us to draw a rough estimate of the number of patients with gallstone in Sudan as 2,000,000 inhabitants. The incidence of CBD stones among patients undergoing cholecystectomy was reported as 12%[10]. This allows us to estimate that there are approximately 240,000 inhabitants with CBD stones in Sudan. We feel such estimates are important for planning of establishing at least another two governmental centers for ERCP. This is because at least 180 procedures are required for a trainee to acquire a level of competence in diagnostic and therapeutic ERCP procedures[3]. To attain such a standard, makes the responsibility extremely hard for the existing governmental centers.

In this study, the mean age was 55.4 (±17.57) range was 19 to 90 years and the 5:1 female to male ratio are consistent with the reported data[11, 12]. However, the success rate of ERCP in stone extraction in this study (66.4%) is lower than figures found in literature[4]. If a mechanical lithotripter was available to deal with 19 cases suffering of big and impacted stones, the success rate could have been higher. The success rate might have reached more than 80%, which considered as a level of competence[4] yet it would be away from optimal standard level of 90% to 95% success rate[4].

About 7(6%) cases presented with missed stone after cholecystectomy, this could have been avoided if routine intraoperative cholangiogram is introduced as a policy. However, surgeons should be ready for re-do surgery for missed stones in our current set up.

In this study, failure of cannulation was 10(25%) which correlates well with rate of failure of cannulation in the literature[13].Also, other findings such as presence of stricture in 5(12.5%) cases, stone migration in two cases (5%), bleeding two cases(5%), retained retrieval basket two cases (5%), are comparable with the reports in the literature[14]. Re-do ERCP was successful in 78% i.e. seven out of nine procedures. However, this is a small number and needs further verification by wider study. Similarly, only ERCP succeeded in two out of four cases with missed stones after exploration of the CBD, again this is a small number and needs further verification by wider study. Surgeons should be ready for re-do surgery for missed stones at least in our current set up. Also, about one third of cases referred for ERCP will be referred back for open surgery with exploration of CBD.

In our current setup biliary balloon catheters were not available. Balloon dilatation is of great help particularly in cases of CBD strictures. Also, other modalities like intra-ductal shockwave lithotripsy are not available. Nevertheless, the complication rate was 5.88% which is similar to reports in literature[14]. Patients who developed complications and those whom we failed to extract their stones (*P* 0.0001) were referred to the surgeons in our unit where they were treated successfully.

Conclusion

ERCP, at Ibn Sina Teaching Hospital, was successful in stone extraction in 79(66.4%) patients, failed in 40(33.6%) patients, complications occurred in seven (5.88%) patients while death occurred in one (0.84%) case. About one third of cases attending ERCP for stone extraction were referred back for open exploration of CBD.

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