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EFFECTIVENESS OF ENDOSCOPIC RETROGRAGE CHOLANGIOPANCREATOGRAPHY IN PATIENTS PRESENTING WITH CHOLEDOCHOLITHIASIS AT TERTIARY CARE HOSPITAL

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ABSTRACT

Introduction: The essential problematic complications subsequent a cholecystectomy include retained calculi in the Common Bile Duct (CBD) or remnant of cystic duct, unrecognized iatrogenic bile duct injuries, post operative strictures involving the CBD or common hepatic duct, leakage of bile from the slipped cystic duct ligature, profuse and persistent discharge of bile from the biliary drains, biliary enteric fistulae, obstruction of common bile duct by clips with consequent deepening jaundice; and cholangitis.[1] **Objective:** To determine the efficacy of endoscopic retrograge cholangiopancreatography in patients presenting with choledocholithiasis at tertiary care hospital. **Settings and study design duration:** This Study design was descriptive study was conducted at Surgery of Department, Bolan Medical College, Quetta from 23/7/2021 to 23/7/2022. **Methodology:** Patients complete history, physical examination and ultrasounds were performed for the confirmation of choledocholithiasis. ERCP was performed for the included patients. All patients were followed up after every 5 hours for any complication. The final outcome was observed at 3rd post operative day for the diagnosis of confirm stone clearance on the basis of ultrasounds. All the ultrasounds were performed by single experienced qualified radiologist having minimum of five years of teaching experience. **Results:** Our study shows that 346 patients 134 (39%) patients were in age range 20-40 years, 212 (61%) patients were in age range 41-60 years. Mean age was 52 years with SD ± 10.88. 198 (57%) patients were male while 148 (43%) patients were female. ERCP was effective in 284 (82%) patients and was not effective in 62 (18%) patients. **Conclusion:** This

study concludes that the efficacy of endoscopic retrograge cholangiopancreatography was 82% in patients presenting with choledocholithiasis at tertiary care hospital Quetta.

KEYWORDS: Endoscopic retrograge, Cholangiopancreatography, Choledocholithiasis.

INTRODUCTION

The essential problematic complications subsequent a cholecystectomy include retained calculi in the Common Bile Duct (CBD) or remnant of cystic duct, unrecognized iatrogenic bile duct injuries, postoperative strictures involving the CBD or common hepatic duct, leakage of bile from the slipped cystic duct ligature, profuse and persistent discharge of bile from the biliary drains, biliary enteric fistulae, obstruction of common bile duct by clips with consequent deepening jaundice; and cholangitis.[1] Endoscopic Retrograde Cholangio-Pancreatigraphy (ERCP) plays an important role in the diagnosis of biliary tree pathology.[2] It is also advisable in the evaluation of recurrence or persistence of symptoms following a cholecystectomy. The current study was designed to look at some of the above complications from a diagnostic point of view.[3]

Magnetic Resonance Cholangio-Pancreaticography MRCP is a non-invasive and sensitive investigation. It is not widely available. ERCP in comparison with MRCP affords an added therapeutic advantage.[4] Surgery is less than an ideal treatment for removing left over gall stones as it is associated with appreciable morbidity and mortality. Postoperative ERCP is indicated for patients with retained CBD calculi.[5]

Laparoscopic common bile duct exploration in the expert hands and therapeutic ERCP are comparable in achieving calculi clearance effectively and safely but ERCP is less cumbersome than surgical exploration. Endoscopic sphincterotomy is now replacing conventional surgery for retained common duct calculi.[6] Retained biliary calculi can be removed without any problems by endoscopic sphincterotomy with or without stone extraction using dormia basket/balloon catheters.[7] For calculi of less than 5mm in diameter, spontaneous extraction can work effectively, and those of less than 12mm in diameter can be removed via basket and balloon. If calculi are 13-25mm in diameter, mechanical lithotripsy is indicated. The majority of CBD calculi will pass spontaneously if the papillotomy is adequate. ERCP is a preferable alternative to surgical removal of retained gallstones.[8]

In one study done by Wani S et al[9] unsuccessful CBD stone clearance after ERCP was recorded in 2.3% of cases. In another study conducted by Koc B et al[10] 94.4% of patients had successful ERCP in terms of complete clearance of CBD stones. In another study done by Li DM et al[11] had reported that after subjecting patients to ERCP, he bile duct clearance rate was 87% in cirrhotic patients versus 96% in non-cirrhotic patients. In another conducted by Bansal BK et al[12] had reported that the successful stone clearance for CBD stones after ERCP was recorded in 79.8% of patients.

Preferably laparoscopic, to clear the choledocholithiasis as deemed necessary, while many studies has already been conducted on such topic in the past but no new research has been conducted in our setup for the last 5 years. by performing this study the results of this study will gives us the updated magnitude of efficacy of endoscopic retrograge cholangiopancreatography in patients presenting with choledocholithiasis in our setup also the results will be shared with other doctors for their updated knowledge.

Data collection procedure

The existing study was conducted after taking approval from hospitals ethical committee. All the patients meeting the inclusion criteria i.e. patients presenting with choledocholithiasis (as per operational definition) was enrolled in the study through OPD and Surgery of Department, Bolan Medical College, Quetta. Written inform consent was taken from the included patients at the time of admission. Detail history, routine examination and ultrasounds were performed for the confirmation of choledocholithiasis. ERCP was performed for the included patients. All the ERCPs were performed by single experienced gastroenterologist having minimum of 5 years of teaching and clinical experience. Antibiotic prophylaxis with ceftriaxone 2 gm intravenous was given post operatively. All patients were followed up after every 5 hours for any complication. The final outcome was observed at 3rd post operative day for the diagnosis of confirm stone clearance on the basis of ultrasounds. All the ultrasounds were performed by single experienced qualified radiologist having minimum of five years of teaching experience.

Statistical analysis

All patients recorded information on performa was analyzed in SPSS software (V 23.0). Mean and standard deviation were analyzed for quantitative variables like age while frequencies/percentages were analyzed for categorical variables like “gender and efficacy of ERCP”. ERCP was stratified among age and gender to see the efficacy using chi square test.

Post stratification chi square test was applied in which p value of ≤ 0.05 was considered as significant.

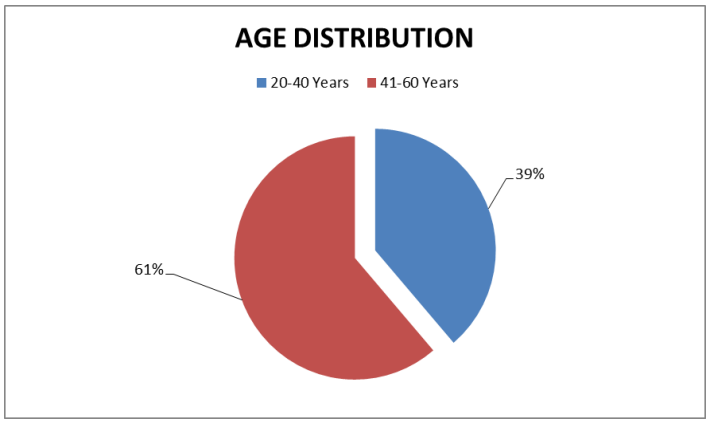
RESULTS

In this study age distribution among 346 patients was analyzed as 134 (39%) patients were in age range 18-40 years, 212 (61%) patients were in age range 41-60 years. Mean age was 52 years with SD ± 10.88 (Figure No 1)

Gender distribution among 346 patients was analyzed as 198 (57%) patients were male while 148 (43%) patients were female. (Figure No 2)

Efficacy of ERCP among 346 patients was analyzed as ERCP was effective in 284 (82%) patients and was not effective in 62 (18%) patients. (Figure No 3)

Stratification of efficacy of ERCP with age, gender is given in table no 4,5



Mean age was 52 years with SD ± 10.88

Figure no. 1

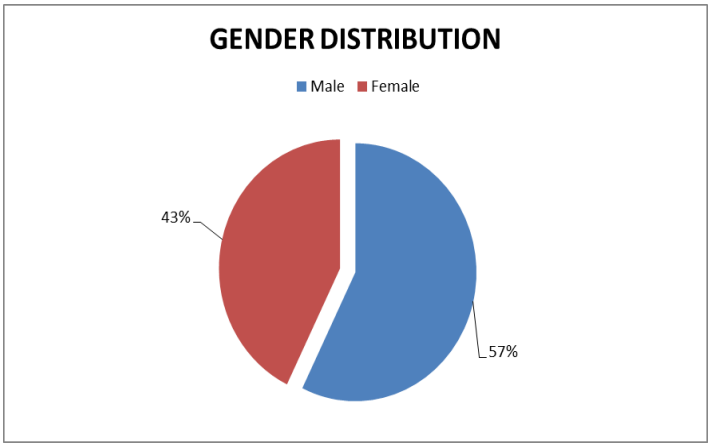


Figure no. 2

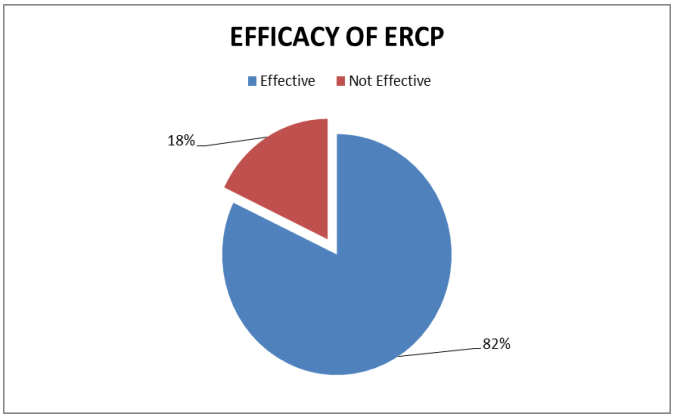


Figure no. 3

Table no. 4: Stratification of efficacy of ercp with respect to age distribution.

Efficacy	20-40 years	41-60 years	Total
Effective	206	99	305
Not effective	26	15	41
Total	232	114	346

Table no. 5: Stratification of efficacy of ercp with respect to gender distribution.

Efficacy	Male	Female	Total
Effective	170 (86%)	114 (77%)	284
Not effective	28 (14%)	34 (23%)	62
Total	198	148	346

Chi square test was applied in which P value was 0.1339

DISCUSSION

The important untoward complications following a cholecystectomy include retained calculi in the Common Bile Duct (CBD) or remnant of cystic duct, unrecognized iatrogenic bile duct injuries, post operative strictures involving the CBD or common hepatic duct, leakage of bile from the slipped cystic duct ligature, profuse and persistent discharge of bile from the biliary drains, biliary enteric fistulae, obstruction of common bile duct by clips with consequent deepening jaundice; and cholangitis.[1] Endoscopic Retrograde Cholangio Pancreatigraphy (ERCP) plays an important role in the diagnosis of biliary tree pathology.[2] It is also advisable in the evaluation of recurrence or persistence of symptoms following a cholecystectomy. The current study was designed to look at some of the above complications from a diagnostic point of view.[3]

Our study shows that 346 patients 134 (39%) patients were in age range 18-40 years, 212 (61%) patients were in age range 41-60 years. Mean age was 52 years with SD ± 10.88. 198

(57%) patients were male while 148 (43%) patients were female. ERCP was effective in 284 (82%) patients and was not effective in 62 (18%) patients.

Another study conducted by Wani S et al[13] in which Of the 62 programs invited, 20 programs and 22 AETs participated in this study. At the end of training, median number of EUS and ERCP performed/AET was 300 (range, 155-650) and 350 (125-500), respectively. Overall, 3786 exams were graded (EUS, 1137; ERCP-biliary, 2280; ERCP-pancreatic, 369). Learning curves for individual end points and overall technical/cognitive aspects in EUS and ERCP demonstrated substantial variability and were successfully shared with all programs. The majority of trainees achieved overall technical (EUS, 82%; ERCP, 60%) and cognitive (EUS, 76%; ERCP, 100%) competence at conclusion of training.[14]

Another study conducted by Koc B et al[15] in which the success rate of the LCBDE+LC group (96.5%) was found to be higher than for the ERCP+LC group (94.4%). Complication rates of the LCBDE+LC and ERCP+LC group were 7% and 11.1%, respectively. Complications requiring ERCP in the postoperative period after LCBDE+LC have been noted in 3.5% of cases.

Our study correlates with another study conducted by Li DM et al[16] in which A total of 6,505 patients from 15 studies were analyzed (male ratio 59%, mean age 59 years), 11% with alcoholic and 89% with non-alcoholic cirrhosis, with 56.2% Child-Pugh class A, and 43.8% class B or C. Indications for ERCP included choledocholithiasis 60.9%, biliary strictures 26.2%, gallstone pancreatitis 21.1% and cholangitis 15.5%. Types of interventions included endoscopic sphincterotomy 52.7%, biliary stenting 16.7% and biliary dilation 4.6%. Individual adverse events included hemorrhage in 4.58% (95%CI: 2.77-6.75%, $I2$ = 85.9%), post-ERCP pancreatitis (PEP) in 3.68% (95%CI: 1.83-6.00%, $I2$ = 89.5%), cholangitis in 1.93% (95%CI: 0.63-3.71%, $I2$ = 87.1%) and perforation in 0.00% (95%CI: 0.00-0.23%, $I2$ = 37.8%). Six studies were used for comparison of ERCP-related complications in cirrhosis *vs* non-cirrhosis, which showed higher overall rates of complications in cirrhosis patients with pooled OR of 1.63 (95%CI: 1.27-2.09, $I2$ = 65%): higher rates of hemorrhage with OR of 2.05 (95%CI: 1.62-2.58, $I2$ = 2.1%) and PEP with OR of 1.33 (95%CI: 1.04-1.70, $I2$=65%), but similar cholangitis rates with OR of 1.23 (95%CI: 0.67-2.26, $I2$ = 44.3%).

Our study correlates with another study conducted by Bansal BK et al[17] in which From February 2009 to October 2012, 168 patients were randomized: 84 to the single-stage

procedure (group 1) and 84 to the two-stage procedure (group 2). Both groups were matched with regard to demographic and clinical parameters. The success rates of laparoscopic CBD exploration and ERCP for clearance of CBD were similar (91.7 vs. 88.1 %). The overall success rate also was comparable: 88.1 % in group 1 and 79.8 % in group 2 ($p = 0.20$). Direct choledochotomy was performed in 83 of the 84 patients. The mean operative time was significantly longer in group 1 (135.7 ± 36.6 vs. 72.4 ± 27.6 min; $p \leq 0.001$), but the overall hospital stay was significantly shorter (4.6 ± 2.4 vs. 5.3 ± 6.2 days; $p = 0.03$). Group 2 had a significantly greater number of procedures per patient ($p < 0.001$) and a higher cost ($p = 0.002$). The two groups did not differ significantly in terms of postoperative wound infection rates or major complications.

CONCLUSION

Our study concludes that the efficacy of endoscopic retrograge cholangiopancreatography was 82% in patients presenting with choledocholithiasis at tertiary care hospital Quetta.

REFERENCES

1. Jun Bo Q, Li Hua X, Tian Min C. Small endoscopic sphincterotomy plus large-balloon dilation for removal of large common bile duct stones during ERCP. Pak J Med Sci, 2018; 29: 907–12.
2. Hartery K, Lee CS, Doherty GA. Covered self-expanding metal stents for the management of common bile duct stones. Gastrointest Endosc, 2017; 85: 181–6.
3. Ye X, Huai J, Sun X. Effectiveness and safety of biliary stenting in the management of difficult common bile duct stones in elderly patients. Turk J Gastroenterol, 2016; 27: 30–6.
4. Hong WD, Zhu QH, Huang QK. Endoscopic sphincterotomy plus endoprostheses in the treatment of large or multiple common bile duct stones. Dig Endosc, 2017; 23: 240–3.
5. Cotter JD, Magalhães J, Rosa B. Endoscopic retrograde cholangiopancreatography for suspected choledocholithiasis: from guidelines to clinical practice. World J Gastro End, 2014; 16(7): 128-34.
6. Gahagan JV, Maximus S, Whealon MD, Phelan MJ, Demirjian A, Joe VC. Analysis of endoscopic retrograde cholangiopancreatography after positive intraoperative cholangiogram: is it necessary. The American Surgeon, 2016; 82(10): 985-8.

7. Hauser G, Milosevic M, Stimac D, Zerem E, Jovanović P, Blazevic I. Preventing post-endoscopic retrograde cholangiopancreatography pancreatitis. World J Gastroenterol, 2015; 28, 21(4): 1069.
8. Rustagi T, Jamidar PA. Endoscopic retrograde cholangiopancreatography–related adverse events: general overview. Gastrointestinal Endoscopy Clinics, 2015; 25(1): 97-106.
9. Phillips E, Berci G, Barber K, Williams J. The role of choledochoscopy: the eternal problem of how to remove a CBD stone. Surgical innovation, 2015; 22(5): 540-5.
10. Wani S, Keswani R, Hall M, Han S, Ali MA, Brauer B, et al. A prospective multicenter study evaluating learning curves and competence in endoscopic ultrasound and endoscopic retrograde cholangiopancreatography among advanced endoscopy trainees: the rapid assessment of trainee endoscopy skills study. Clinical Gastroenterology and Hepatology, 2017; 15(11): 1758-67.
11. Koc B, Karahan S, Adas G, Tutal F, Guven H, Ozsoy A. Comparison of laparoscopic common bile duct exploration and endoscopic retrograde cholangiopancreatography plus laparoscopic cholecystectomy for choledocholithiasis: a prospective randomized study. Am J Surg, 2018; 206(4): 457-63.
12. Li DM, Zhao J, Zhao Q, Qin H, Wang B, Li RX, et al. Safety and efficacy of endoscopic retrograde cholangiopancreatography for common bile duct stones in liver cirrhotic patients.s J Huaz Univ Sci Tech, 2014; 34: 612-5.
13. Dhir V, Itoi T, Khashab MA, et al. Multicenter comparative evaluation of endoscopic placement of expandable metal stents for malignant distal common bile duct obstruction by ERCP or EUS-guided approach. *Gastrointest Endosc*, 2014; 4.
14. Wani S, Keswani R, Hall M, Han S, Ali MA, Brauer B, et al. A prospective multicenter study evaluating learning curves and competence in endoscopic ultrasound and endoscopic retrograde cholangiopancreatography among advanced endoscopy trainees: the rapid assessment of trainee endoscopy skills study. Clinical Gastroenterology and Hepatology, 2017; 15(11): 1758-67.
15. Koc B, Karahan S, Adas G, Tutal F, Guven H, Ozsoy A. Comparison of laparoscopic common bile duct exploration and endoscopic retrograde cholangiopancreatography plus laparoscopic cholecystectomy for choledocholithiasis: a prospective randomized study. Am J Surg, 2018; 206(4): 457-63.
16. Li DM, Zhao J, Zhao Q, Qin H, Wang B, Li RX, et al. Safety and efficacy of endoscopic retrograde cholangiopancreatography for common bile duct stones in liver cirrhotic patients.s J Huaz Univ Sci Tech, 2014; 34: 612-5.

17. Bansal BK, Misra MC, Rajan K, Kilambi R, Kumar S, Krishna A, et al. Single-stage laparoscopic common bile duct exploration and cholecystectomy versus two-stage endoscopic stone extraction followed by laparoscopic cholecystectomy for patients with concomitant gallbladder stones and common bile duct stones: a randomised controlled trial. Surg Endosc, 2014; 28(3): 875–85.