



AN OBSERVATION OF PATIENTS UNDERGOING COMMON BILE DUCT EXPLORATION FOR STONE IN RIMS, RANCHI

General Surgery

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ABSTRACT

Background- Diseases of biliary system are quite prevalent in surgical practice all over the world including India. Gallstones are the most common biliary pathology. Approximately 10-15% of patients with gallbladder stones will have associated common bile duct stones at the time of operation which may increase up to 18% for patients having gallstones for longer period.

Material & methods: The study conducted on 80 patients of cholelithiasis & choledocholithiasis selected from the Department of General Surgery, RIMS, Ranchi in period of May 2017 to June 2019.

Results- Out of these 80 cases, in 74 cases, common bile duct was explored. In remaining 6 cases, bile duct was not explored as during operation no stone could be felt in C.B.D. or the diameter of C.B.D. was not sufficiently dilated for exploration. Out of these 74 cases, in which the bile duct was explored, in 68 case stones were present. Out of the remaining 6 cases, in 2 cases bile duct was dilated due to growth in the head of pancreas and in 4 other cases no apparent pathology could be detected leading to dilatation of bile duct.

Conclusions- Common bile duct diseases in any way does not enhance mortality but patient is well prepared morbidity and hospital stay can also be minimized if proper drainage procedure is adopted.

KEYWORDS

Cholelithiasis, Choledocholithiasis, USG, MRCP, Biliary Drainage Procedures

INTRODUCTION-

Approximately 10-15% of patients with gallbladder stones will have associated common bile duct stones at the time of operation which may increase up to 18% for patients having gallstones for longer period. Between 5-7% of common bile duct stones found at operation may be unsuspected by preoperative evaluation and are discovered by cystic duct cholangiography during the cholecystectomy CBD stones are also defined as retained if these are discovered within 2 years of cholecystectomy, or recurrent if they are detected more than 2 years following cholecystectomy. Retained stones were most likely present at the time of cholecystectomy.

Common bile duct stones are the most common cause of obstructive jaundice and cholangitis. Choledocholithiasis may be asymptomatic for years, may pass spontaneously in duodenum or present as biliary colic or its complications such as acute or chronic cholangitis, obstructive jaundice, pancreatitis or secondary biliary cirrhosis.

The traditional indications for choledochotomy are:

- Palpable duct stones
- There is jaundice or history of jaundice or cholangitis
- The common bile duct is dilated
- The liver function tests are abnormal in particular the alkaline phosphatase is raised and
- Gallstone pancreatitis

The options for management of ductal calculi in patients with symptomatic gallstones are:

- Preoperative ERCP with Endoscopic sphincterotomy and stone extraction followed by laparoscopic cholecystectomy.
- Open Cholecystectomy and common bile duct exploration.
- Laparoscopic cholecystectomy and ductal clearance.
- Intra-operative (open or laparoscopic) cholangiography and if stone in CBD, post-operative ERCP and removal of stones.
- Choledochoscopy.
- Surgical internal biliary drainage procedure like transduodenal sphincterotomy, choledochoduodenostomy and choledoch ojejunostomy.

The correct treatment in the individual patient depends on five factors:

- The clinical setting
- The condition of the patients
- The caliber of the common bile duct
- The extent of stone load

- Level of local expertise in interventional radiology and endoscopic treatment and the experience of the surgeon in laparoscopic biliary surgery.

MATERIAL & METHODS-

The study conducted on 80 patients selected from the OPD and IPD in Department of General Surgery, RIMS, Ranchi in period of May 2017 to June 2019. They comprised of the patients suffering from acute and chronic cholecystitis, cholelithiasis with choledocholithiasis, choledocholithiasis, surgical jaundice, cholangitis patients having missed stones undergoing bile duct exploration and malignancy of the biliary tract and head of pancreas.

Pre-operative criteria for selection of cases for CBD exploration-

- Features of cholangitis
- Surgical jaundice
- CBD stone on USG
- Dilated CBD on USG
- Abnormal liver function tests particularly raised alkaline phosphatase and raised bilirubin particularly direct component.

Pre-operative preparation of the patients:-

- High carbohydrate and protein diet with low fat and plenty of oral glucose.
 - Antibiotics top control infection- Ampicillin, Ciprofloxacin, Cefuroxime, Metronidazole and Gentamycin.
 - Multivitamin orally or parenterally in therapeutic doses.
 - Blood transfusion (for selected patients)
- In jaundice patients- in addition to above, following steps were added.
- Vitamin K- 1 amp. IM daily.
 - 10% dextrose- 3 unit IV drip daily + vitamins and minerals in form of M.V.I infusion.
 - Fresh blood transfusion if needed.

Laparotomy and study of underlying pathology-

- Pre-anaesthetic medication:- Inj. Atropine (0.6 mg) or inj. Glycopyrrolate (0.2 mg) - 1 amp. I.M. stat 1 hour prior to operation.
- Anaesthesia: Two I.V. lines set up in ward if patient is jaundiced, through one line 10% dextrose and through other line 10% mannitol started and patient is catheterized. General anaesthesia usually with nitrous oxide, oxygen and muscle relaxant e.g. Atracurium and Vecuronium was used and neostigmine for

- reversal of the effect of muscle relaxant.
- Laparotomy– Abdomen was usually explored through Kocher's incision. Abdominal viscera were explored for any further pathology. Particular attention is paid to the biliary tract and the findings were recorded follows:
 - Gall bladder: Size, change in colour, presence of adhesion, palpable stones, enlargement of the cystic lymph node, thickening of the gallbladder wall etc.
 - Cystic duct: Normally/Abnormally placed, normal/long/ short, dilated or narrow, whether stones present in the lumen or not.
 - Common bile duct: Presence of palpable stones, dilatation, presence of stricture, stenosis of sphincter of Oddi.
 - Any other associated pathology: Evidence of pancreatitis, peptic ulcer, tumor etc.
 - Any anatomical variation in the gallbladder, cystic artery, cystic duct, hepatic ducts, hepatic artery and the bile duct.

Operative procedures taken for the different disorders of biliary tract

- Gallstones with normal C.B.D-. Cholecystectomy and closure of the wound with drainage tube in the Morrison's pouch.
- Cholelithiasis: Exploration of the bile duct, removal of stones, establishment of its patency, followed by T-tube drainage, closure of wound with a closed drainage tube in the Morrison's pouch.
- Stenosis of the sphincter of oddi: Supraduodenal chledochotomy and transduodenal sphincteroplasty.
- Carcinoma of head of pancreas: Choledochoduodenostomy.

Post operative management:

- Sedation and analgesia with pentazocine or Diclofenac.
- Ryle's tube aspiration in selected cases.
- I.V. fluid in the form of 5% or 10% dextrose, saline, Isolyte G or M. R/L - the amount and rate adjusted according to the fluid balance chart and serum electrolyte analysis in special cases.
- Vitamin C 1000 mg and B. Complex 1 amp. added in the I.V. fluid daily. M.V.I. 1 amp. added in 5% or 10% dextrose.
- Antibiotics: For 48-72 hours postoperatively then orally.
 - Ciprofloxacin 100 ml I.V. 12 hourly.
 - Metronidazole 100 ml I.V. 8 hourly.
 - Ampicillin 500 mg I.V. 8 hourly.
 - Cefuroxime 750 mg I.V. 8 hourly.
 - Gentamycin 160 mg I.M. OD.

- Fresh blood transfusion (if needed)
- Vitamin K- 1 amp. I.M. daily in jaundiced patients.

Removal of drainage tube:-After 48-72 hours if no abnormal discharge.

OBSERVATION-

The important observations of the present work can be summarized as follows:

- 52 patients (65%) belonged to the age group of 21-40 years and 28 patients (35%) were above 40 years of age.
- Male and female ratio was 1:3.
- 56 patients (70%) belonged to rural area and 24 (30%) patients belonged to the urban area.
- 72 patients (90%) were non-vegetarian and found to consume high protein and high fat diet whereas 8 patients (10%) were vegetarian.
- Pain in right upper quadrant of abdomen was the commonest symptom (75.0%) and tenderness over the right hypochondrium was the commonest physical finding (75.0%). In 12.5% cases pain was on left lower quadrant of abdomen and in 10% cases pain was in epigastrium. Jaundice was present in 60 cases (75%).
- Serum alkaline phosphatase was high in 68 cases (85%).
- Prothrombin time was raised in 60 cases (75%).
- Plain X-ray abdomen was done in all cases but no radiopaque shadow could be detected in gallbladder area in any case.
- Ultrasonography of the hepatobiliary region was done in all cases. This showed true positive result in 60 cases (75%), false negative result in 8 cases (10%) and false positive result in 12 cases (15%).
- High calorie diet with excess of carbohydrates and proteins were added with restricted amount of fat, useful in raising the basal status of the patients. Vitamin K was also used with other vitamins particularly in jaundiced patients. Antispasmodics, antibiotics,

vitamins, liver protecting drugs and fresh blood transfusion were the measures by which the patients could tolerate the operative and postoperative trauma.

(xi) The different operative procedures adopted were as follows:

TABLE

Type of operation	No. of cases	Percentage (%)
Only cholecystectomy	6	7.5
Cholecystectomy and choledocholithotomy	48	60
Cholecystectomy & transduodenal sphincteroplasty	2	2.5
Cholecystectomy, choledocholithotomy and transduodenal sphincteroplasty	2	17.5
Cholecystectomy and Choledochoduodenostomy	14	5.0
Cholecystectomy and Choledochojunostomy after creating Roux-en-y	4	2.5
Only Choledochoduodenostomy	2	2.5
Only choledocholithotomy	2	

(xii) Bile was taken for the culture and sensitivity examination. The results were positive in 64 cases (80%) and the predominant organism isolated was *E. coli* in 36 cases (56.25%).

Postoperative and during follow up period there was neither any mortality nor any major complication.

CONCLUSIONS-

After going through all the stages, one can say that in common bile duct in any way does not enhance mortality if patient is well prepared and morbidity and hospital stay can also be minimized if proper drainage procedure is adopted.

With the recent advancement in antibacterial drugs, better hydration of patient which is going to have bile duct exploration, previous supplement of Vitamin K, adequate reservoir of carbohydrate in liver and better postoperative monitoring has made bile duct exploration virtually a safe operation.

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