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A STUDY ON CLINICAL PROFILE AND MANAGEMENT OF OBSTRUCTIVE JAUNDICE

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ABSTRACT

Background: Jaundice is a frequent manifestation of biliary tract disorders and the evaluation and management of obstructive jaundice is a common problem faced by the general surgeon. Obstructive jaundice of varied etiology is one of the causes of admission to hospitals across Guwahati Medical College & Hospital. To diagnose the cause, site of obstruction and management of a case of surgical jaundice is indeed a challenging task for the surgeon. Hence, a comprehensive study of the etiology, clinical presentation and management of obstructive jaundice is of paramount importance in the appropriate management of these patients. **Aim:** This study evaluates the age and sex distribution, clinical presentation, aetiology, and the different modalities of treatment of obstructive jaundice. **Methods:** This retrospective study was conducted in Guwahati Medical College and Hospital, Assam from June 2020 to June 2021. 100 cases of surgical jaundice of different age group were selected randomly. A detailed history and clinical examination was done and appropriate investigations recorded. Patients were assessed preoperatively and later subjected to surgery or palliative procedure depending on the need. Postoperatively, patients' condition was assessed. Patients were followed up for mean period of 6 months where patients underwent surgical intervention/ERCP. Jaundice is a common problem in medical and surgical gastroenterological practice. Its cause can often be correctly anticipated clinically but usually investigations are required for confirmation. It could be because of a variety of causes and is less commonly seen outside the gastroenterology and hepatobiliary surgery.[3] Regarding surgical obstructive jaundice (jaundice due to intra or extrahepatic organic obstruction to biliary outflow), can present problems with the diagnosis and management.[4] **Result:** The occurrence of surgical jaundice was maximum in the 30-60 year age group and mean age was 45.5 years. All patients presented with icterus and ultrasonogram was the most common investigation of choice. Most common cause of obstruction was choledocholithiasis (58%) followed by malignancy (22%). ERCP with stone retrival/stenting was done in majority of patients (25). **Conclisions**: Commonest symptom of surgical jaundice in this study was jaundice as per history. Commonest cause for surgical jaundice was found to be choledocholithiasis. For CBD calculi, ERCP stone extraction and CBD exploration with cholecystectomy and drainage procedure was done by T tube or choledochoduodenostomy.

KEYWORDS: Obstructive Jaundice, Choledocholithiasis, ERCP CBD exploration, T-tube drainage, Choledocho-duodenostomy.

INTRODUCTION

Obstructive jaundice is strictly defined as a condition occurring due to a block in the pathway between the site of conjugation of bile in liver cells and the entry of bile into the duodenum through the ampulla. The block may be intrahepatic or extra hepatic in the bile duct.[1] Despite the technical advances, the operative modes of management of obstructive jaundice were associated with very high morbidity and mortality. Yet, during the last decade significant advances have been made in our understanding with regard to the pathogenesis, diagnosis, staging and the efficacy of management of obstructive jaundice.[2] The surgical jaundice can be caused by the obstruction of the bile duct as with gall stones,[5] strictures, malignancy.[5,6] such as cholangiocarcinoma (in which the jaundice is persistent and progressive),[7] periampullary carcinoma, carcinoma gall bladder6 and carcinoma head of pancreas.[6,8,9] Various rare causes like the castle Mann disease; Caroli's syndrome,[10] and metastatic liver tumor,[18] have also been reported. The

symptoms of obstructive jaundice include jaundice with or without pain, dark urine, pruritis, pale stools, weight loss and anorexia.[6] Obstructive jaundice is characterized by the raised levels of serum alkaline phosphatase rather than aspartate transaminase.[11,12] There are various investigations which could be carried out for the diagnosis of obstructive Jaundice like ultrasonography,[8] which can pick up gall stones, dilated intra-extra hepatic channels, any mass in the abdomen and presence of fluid in the peritoneal cavity, but the Gold standard is Endoscopic Retrograde Cholangiopancreatography (ERCP).[7,13] ERCP can pick up choledocholithiasis, strictures of CBD, any obstruction of the CBD as well as helps in taking the brushing cytology. Computerized tomography, Endoscopic ultrasound, Percutaneous Transhepatic Cholangiopancreatography (PTC) and Magnetic Resonance Cholangiopancreatography (MRCP) can also be used when required.[14] The serial LFT's though done at various centres remained unsuccessful to differentiate the medical Jaundice from Organic causes.

MATERIALS AND METHOD

This was a prospective study conducted in the department of surgery of Guwahati medical college and hospital from June 2020 to May 2021. The study was approved by hospital ethics committee. It is a time bound study with 100 cases. All patients are admitted in the department of General Surgery, GMCH with obstructive jaundice have been taken into the study.

Inclusion Criteria: 1. Patients admitted and positively diagnosed as obstructive jaundice by clinical history and examination, investigations like liver function test and imagine test is included in this study. 2. Operation of obstructive jaundice case only.

Exclusion Criteria: The following type of patients are excluded from this study: 1. Patient below 15 years of age. 2. Patient jaundice due to causes other than obstructive pathology like haemolytic or hepatocellular jaundice or intrahepatic case of obstructive jaundice.

All the patients are subjected to detail history, clinical examinations which include liver function tests to see the total bilirubin level, conjugated bilirubin and the level of serum alkaline phosphatase and serum glutamic pyruvate transaminase (SGPT), serum glutamic oxaloacetic transaminase (SGOT), total serum proteins, serum albumin.

Other laboratory investigations are included haemoglobin estimation, total count, platelet count, prothrombin time, Intrnational Normalized ratio (INR), blood urea serum creatinine, serum electrolytes.

Abdominal ultrasound is the only diagnostic imagine done in all patients to look for the abnormality of intra and extra-hepatic biliary channels, the common bile duct and the presence of causative factors like gallstone, tumours, lymph node, worms or any abdominal mass. CT scan is to be advised in long term hepatic disease. Advance diagnostic imagine like endoscopic retrograde cholangiopancreaticography (ERCP), percutaneous cholangiography, magnetic resonance cholangiopancreticography (MRCP) are included in this study. Though PTC done in selected patients. The patients have assessed preoperatively, intraoperatively, post operatively, and the findings has been recorded in a pre-test structured questionnaire. Details that are recorded include patients biodata, duration of jaundice, cause of obstructive jaundice, laboratory findings, post-operative complications, length of hospital stay, and mortality. Nature of obstructive jaundice has been analysed on the basis of Banjamine classification, Courvisier's law, Mirrizzise syndrome etc in detail.

Surgical procedure: All the surgeries were done by consultant and under general anesthesia. Some of the patient underwent ERCP stone extraction. Open choledochotomy with primary closure or with t tube insertion is done. Some of the patients underwent choledocholduo-denostomy and choledochojejunostomy on the basis of diseases. Some of the patient underwent Whipples procedure. All the patients of lap choledochotomy have undergone primary closure of the CBD.

Statistical Analysis: Data were entered in the Microsoft Excel spreadsheet version 2013 and analyzed. Quantitative variables were described in the form of means and standard deviations. Qualitative variables were described in the form of frequency and percentages. Data representation was done in tables as represented below.

RESULTS

The result obtained in the present study were analysed as follows- 100 patients with obstructive jaundice were studied for the period of one year. The average age was 45.5 years. 68% of the patients are between the age group of 30-60 years.

Age	No of the patient	Percentage%
12 - 19	4	4
20 - 29	12	12
30 - 39	18	18
40 - 49	30	30
50 - 59	20	20
60 - 69	12	12
70 - 79	4	4

There were 52 (52%) males and 48(48%) females in the present study with slightly male predominance. Male female ratio is 1:0.92.

Sex	No of patients	Percentage%
Male	52	52
Female	48	48

Among the 100 cases in this present study 78 patients of presented with benign causes, out of which choledocholithiasis was commonest 58. 22 cases presented with malignant cause of surgical jaundice, the commonest cause was head of pancreas 10.

Bening cause	**Total**	**Male**	**Female**
choledocholithiasis	58	22	36
Bening biliary stricture	10	8	2
Choledocal cyst	6	2	4
Biliary worm	4	3	1
Malignant cause			
Ca head of pancreas	10	8	2
Periampulary ca	6	5	1
Cholangiocarcinoma	4	2	2
Ca GB with 2^0 in liver	2	2	0

Jaundice was seen in 100 patients (100%). The duration of jaundice was varied from 5 days to 3 months. The pain abdomen was present in 96 cases (96%). The pain was felt in the epigastrium and right hypochondrium also. Dark colour urine was seen in 92 cases (92%). Itching was noticed in 54 cases (54%). Abdominal mass seen in 22 cases (22%). Loss of appetite was seen in 32 cases (32%). Loss of weight was seen in 31 cases (31%). Fever with chill was found in 50 cases (50%). Pale colour stool was seen in 90 cases (90%).

	Icterus	**Pain abdomen**	**Mas abdomen**	**Itching**	**Fever& chill**	**loss of appetite**	**Loss of weight**	**steatorrhea**	**Dark urine**
Benign	78	78	2	35	50	10	11	70	72
Malignant	22	18	20	19	0	22	20	20	20
Total	100	96	22	54	50	32	31	90	92

Serum bilirubin level was elevated in 100 cases. Among these serum bilirubin level < 5 mg/dl in 3 benign cases, 5-10 mg/dl in 48 benign cases and 5 in malignant cases, 11-20 mg/dl in 25 benign and 13 malignant cases, 21-30mg/dl in 2 benign and 4 malignant cases.

Bilirubin mg/dl	**Total cases**		**Percentage**
	Benign	**Malignant**	
< 5	3	0	3
5 - 10	48	5	53
11 - 20	25	13	38
21 – 30	2	4	6

Ultrasonography were done in all the cases showed dilated common bile duct in 69% cases, and dilated intrahepatic biliary radicals in 38% cases, CBD stone in 58% cases, distended GB in 41% cases, mass in pancreas in 12% cases, ascites in 10 cases. Chest X-ray was done in all patients and was found pleural effusion in 1 cases and rest were all normal findings.

	Dilated CBD	**Dilated biliary radicals**	**Distended GB**	**Stone in GB**	**Mass in pancreas**	**Ascites with liv met**
Benign	51	28	21	58	0	2
Malignant	18	10	20	0	12	8
Total	69	38	41	58	12	10

In case of Ca head of pancreas out of 7 cases mass was detected by CECT in 7 cases, regional lymph node involvement was present in 4 cases vascular involvement in 2 cases, liver metastasis in 1 case and distant metastasis in 1 case. In case of periampullary Ca out of 5 cases mass was detected in 5 cases, lymph node

involvement in 4 cases, vascular involvement in 1 cases and liver metastasis in 1 case.

CT findings	Ca head of pancreas	Periampulary ca
Pancreatic Mass	7	5
LN involvement	4	4
Vascular involvement	1	1
Liver meta.	1	1
Distant meta.	1	0

Out of 58 choledocholithiasis cases ERCP with stone retrival/stenting were done in 25 (43%) cases, open cholecystectomy with CBD exploration were done in 15(26%) cases and open cholecystectomy with CBD exploration with T tube insertion were done in 12(21%) cases and laparoscopic CBD exploration were done in 6 (10%) cases.

Open cholecystectomy with hepatico-jejunostomy were done 10 cases Biliary Stricture and 2 cases in biliary worms. Excision of cyst with hepaticojejunostomy were done in 6 cases of choledochal cyst. Open cholecystectomy with choledocho-duodenostomy were done 2 cases of biliary worms.

Sl no	Procedure	No of cases
1	ERCP stone retrival/stenting	25
2	OC+CBDE (open)	15
3	OC+CBDE + T tube (open)	12
4	Lap CBD exploration	6

	OC+CD	OC+HJ	EXCISION OF CYST+HJ
Benign biliary stricture	0	10	0
Choledocal cyst	0	0	6
Biliary worms	2	2	0

Whipples pancreaticoduodenetomy was performed on 1 case of carcinoma head of the pancreas and 1 case of periampullary carcinoma. Choledocho jejunostomy and Gastro jejunostomy was performed on 4 cases of cholangiocarcinoma, 9 cases of carcinoma of head of the pancreas and 5 cases of periampullary carcinoma. 2 carcinoma GB with secondaries in liver cases referred to State Cancer Institute Guwahati for palliation.

	Whipples procedure	CJ+GJ
Cholangiocarcinoma	0	4
Ca head of pancreas	1	9
Periampullary carcinoma	1	5

DISCUSSION

Obstructive jaundice is a frequent condition of biliary tract disorders and the evaluation and management of the jaundice patient is a common problem facing the General Surgeon. In this present clinical study of 100 cases of obstructive jaundice, the age distribution range between 12 to 79 years. The mean age was 45.5 years and there were 52 male patients and 48 female patients. In the present study of 100 cases of obstructive jaundice there was slight male predominance at sex ratio of 1: 0.92 which correlates with similar studies by Tripath et al.[15] 1:0.94 and Lawal et al. (1998) 1:0.78. A study done by Zubair Afzal khan,[16] there was male predominance 1:0.80 and in their study elder age group were more commonly affected.

In this present study the most common benign cause of obstructive jaundice is choledocholithias 58% and malignant cause is carcinoma head of pancreas 10%. This present study is compared with various study like Siddique et al. was carcinoma head of pancreas 30%, carcinoma gallbladder 13.3%, cholangiocarcinoma 11.6%, periampullary carcinoma 1.66%, and choledocholithiasis 35%.[17]

In this present study the presenting symptoms and signs are jaundice 100%, abdominal pain 96%, loss of weight 31%, itching 54%, fever 50% and abdominal mass 22%.This result correlates with other study conducted by warren et al.(1983) on their study that the presenting sign and symptoms of obstructive jaundice as follows abdominal pain 82.8%, icterus 75.9%, loss of weight 82%, itching 41.1%, fever 4.9% and abdominal mass 16.7%.

There were significantly higher values of total bilirubin, direct Bilirubin and alkaline phosphatase in malignant conditions. It was found that total bilirubin in malignant obstruction varied from 7mg/dl to 26.6mg/dl. Alkaline phosphatase level value in case of obstructive jaundice

from 350 iu/l to 568 iu/l. Whereas in benign condition the total bilirubin level from 4 mg/dl to 21 mg/dl and alkaline phosphatase level from 260 iu/l to 430 iu/dl. Steer ML in Sabiston textbook of surgery has stated that the highest elevation in serum bilirubin are usually found in the patient with malignant obstruction was more than 20mg/dl. Pellegri et al has reported that average bilirubin values are higher in patient with obstruction caused by malignant disease.

In this present study shows on ultrasonographic findings as follows dilated biliary redicles 69%, dilated CBD 38%, CBD calculi 58% and mass abdomen 12%. Whereas Philipo Chalya et al found dilated biliary redicles 56.2%, dilated CBD 78.9% CBD calculi 58.1% and mass abdomen 72.4%.CECT findings in case of carcinoma head of pancreas shows pancreatic mass in 7 cases, lymph node involvement 4 cases, vascular involvement in 3 cases liver metastasis in 1 and distant metastasis in 1 case. In periampullary carcinoma cect findings abdominal mass 5 cases, lymph node involvement 4, vascular involvement 2, liver metastasis in 1 case. MRCP were almost similar to USG except biliary stricture which were not able to detect by USG.

Out of 58 cases of choledcholithiasis patient with obstructive jaundice due to CBD calculi underwent Cholecystectomy with CBD exploration 15 cases (26%) and CBD exploration with T-tube drainage done 12 (21%) cases. After intraoperative cholangiogram showed normal flow of dye into duodenum with no residual calculi or choledochoduodenostomy. Laparoscopic CBD exploration done in 6 (10%) cases. Definitive procedure done for benign CBD stricture following Cholecystectomy was Hepatico-Jejunostomy with enteroenterostomy in 10 cases and 2 cases of biliary worms. Open cholecystectomy with choledochoduodenostomy done in 2 biliary worms cases. In the present study the 6 cases of choledochal cyst was treated with cyst excision with roux en-y hepatico-jejunostomy, during follow up patient was healthy with no attack of fever, chills or jaundice. Obstructive jaundice due to malignancy, 18 underwent palliative procedure (cholecystojejunostomy and gastrojejunostomy) and 2 patients underwent definitive procedure (Whipple‘s procedure). The outcome of palliative procedures was good. Patients were free from jaundice.

CONCLUSION

- From our study of 100 cases of obstructive jaundice following conclusions can be made.
- Common presentation of surgical jaundice in this study is icterus.
- Palpable Gall bladder indicates the etiology to be malignant provided other co-relation in favour of malignancy.
- The most common cause of obstructive jaundice was Choledocholithiasis followed by bening biliary stricture and carcinoma head of pancreas.
- Choledocholithiasis was more common in females.
- Carcinoma head of Pancreas was more common in male population & most of them in the late fifth and sixth decade of life.
- Biliary tract obstruction due to metastasis is not uncommon.
- USG followed by MRCP/ERCP and CT scan are the investigation of choice.
- Role of Tumour markers (CA19-9, CEA) in the malignant cancer are to be seriously considered.
- Patients with benign pathology had a better outcome and cure rate.
- Patients with malignant pathology were mostly inoperable, and underwent palliative bypass procedures.
- The preoperative biliary drainage does not have any survival benefit.
- ERCP extraction of CBD stone followed by Laparoscopic cholecystectomy was the procedure adopted commonly in choledocholithiasis cases. Provided stone size were 1.5 cm or less.
- Wipple‘s operation done with success in malignant case.
- Choledochoduodenostomy was the option of choice in CBD stone.
- T tube application or primary closure were adopted as case after CBD exploration.

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