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Original Research Article

Evaluation of Cases of Surgical Jaundice Correlating Imaging Investigations and Operative Findings

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Abstract

Aim: The aim of the present study was to assess the clinical history and presentation of obstructive jaundice.

Methods: The present study was conducted in the surgical wards of Department of Surgery, Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, Bihar. The time period of the study was from October 2018 to August 2020. The total number of patients was 56. The subject selection was random and only Adult cases were selected for the study. No special consideration of sex of the subjects was considered. Other causes of Jaundice were excluded and only those which can be corrected by surgical intervention were included.

Results: Most of the patients were in mean age of 21- 30 whereas for malignant disease patients were in mean age of 51- 60 (46.66%). The youngest patient was 18 years female presenting with CBD stone whereas the oldest patients was male patient of carcinoma head of pancreas aged 78 years. 65.38% were females in the group. In the present study, Male: Female Ratio was 1:5:1 in malignant cause of jaundice. The clinical examination of patients of Jaundice was based on detailed analysis of Symptoms and sizes of patients, accounting for prevalence of symptoms signs with study on prevalence of uncommon symptoms (as pain radiating to back). For, benign causes of Jaundice CBD stones are the commonest. CBD stone were 33% of all cases (5 of CBD Stones out of 15 cases) in the study. In cases CBD Benign stricture – 2 cases out of 4 presented with cholangitis (50%). 23/26 patient of Benign causes of Jaundice were persistent in nature and 22/30 (73.3%) showed progressively increasing Jaundice.

Conclusion: The diagnosis of Jaundice depends upon taking detailed clinical history and examination performing baseline investigations to confirm cholestatic jaundice and to use diagnostic tests as and when necessary to detect cause and level of Jaundice. A definite planned management protocol with attention to correct choice of investigations should be adopted in planning treatment of a patient of obstructive jaundice.

Keywords: Benign, Cholestatic Jaundice, Malignant, MRCP and USG.

Introduction

Obstructive jaundice, otherwise called surgical jaundice, is a common condition globally. [1-3] Common causes of obstruction of the extrahepatic biliary tree in adult patients include choledocholithiasis, chronic pancreatitis, as well as neoplasms of the pancreas, gallbladder, biliary tract, or the ampulla of Vater. Other less prevalent causes include metastasis to the porta hepatis, hepatic tumour adjacent to the hilum, perihepatic lymphadenopathy, sclerosing cholangitis and other forms of cholangitis. [3,4]

Obstruction is characterized by conjugated hyperbilirubinemia. Unconjugated Bilirubin can be elevated in late cases of hepatocyte degeneration. The most widely used and perhaps the most sensitive measure of biliary obstruction is alkaline phosphatase. a tall building and where there is a segmental obstruction, this happens. A specific for intrahepatic obstruction may be an isoenzyme of gamma glutamyl residue. The elevation of AIK phosphates lasts even after the obstruction is removed. The cause of constant elevation is

unknown. Surgical experience, whether recent or distant, may be a factor in the development of jaundice (Lamont and Isselbacher, 1973). [5]

However, USG is operator dependent and has a limitation in patients with obesity and those with large amount of bowel gas. Computed tomography (CT) is a reliable modality and provides good definition of lesions and facilitates visualization of the entire extent of pancreatic pathology. [6] The range of application of CT has been partially restricted by MRCP. This techniques have greatly evolved, providing high resolution images of the biliary tree with short exam duration, while remaining noninvasive without contrast medium injection. [7] MR Cholangiography was introduced by Wallner et al in 1991. Authors used the rapid sequence gradient echo acquisition with three-dimensional post processing technique to evaluate the biliary system in five healthy volunteers and 13 patients of obstructive jaundice. The results were compared with other imaging modalities (US, CT scan and conventional radiographs obtained during PTC or ERCP) and concluded that MR Cholangio pancreatography has the capability for noninvasive imaging of the biliary tree in patients with obstructive jaundice but improvement in technique is needed to overcome limited spatial resolution and low signal to noise ratio. [8]

The aim of the present study was to assess the clinical history and presentation of obstructive jaundice.

Materials and Methods

The present study was conducted in the surgical wards of Department of Surgery, Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, Bihar. The time period of the study was from October 2018 to August 2020. The total number of patients was 56. The subject selection was random and only Adult cases were selected for the study. No special consideration of sex of the subjects was considered. Other causes of Jaundice were excluded and only those which can be corrected by surgical intervention were included.

Most of the necessary investigations (special / baseline) were done within facilities available presently (in the study period) in collaboration with various departments of Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, Bihar. The study undertaken was mostly prospective with some cases being both Retrospective & Prospective. All the results were later statistically quantified. All the patients studied according to a set proforma which included history, clinical examination, investigation which were later correlated with operative findings.

The initial assessment regards the detailed History & Examinations. The history was in details with regards to onset, duration, progress, wt loss, pain, cholangitis, lump. The clinical examination gives a detailed evaluation with regards to palpable gallbladder, lump abdomen, asites, metastatic spread. After the clinical Diagnosis has been made, the following investigations were done serially.

1. Investigations To Confirm That the patient has Obstructive Jaundice.

a. Bl-for Liver Function Test

i. Serum Bilirubin [Direct / Indirect]

ii. Serum Albumin

iii. Serum Alkaline phosphatase

iv. Serum SGOT, SGPT.

v. PROTHROMBIN TIME.

vi. Carbohydrate antigen (CA-19-9)

vii. Gamma Glultamyl Transpeptidase (GGT)

viii. Coagulation Profile

b. Urine for Urobilinogen.

c. Stool for Stercobilinogen.

2. Imaging Investigations to Confirm Evaluate Obstructive Jaundice.

a. Ultrasonography of whole Abdomen with Emphasis on Hepatobiliary system.

This was done in all cases as a baseline investigation and to see the dilatation of intra hepatic biliary radicals and Dilatation of Extrahepatic Biliary Radicals and to detect localize the site and nature of pathology.

b. Contrast Enhanced Computed Tomographic Scan. [CECT]

CECT was done in selected cases only where U.S.G. could not adequately verify Actual site & nature of Pathology.

c. Endo Scopic Retrograde Cholangio Pancreatogram.

(ERCP) : ERCP was done in cases in which the U.S.G and/or CT scan was unsatisfactory particularly where Clinically malignant disease of Ampulla or Vater / Pancreatic head / Distal CBD was thought with Biopsies taken during such procedures.

d. MRCP Magnetic Resonence Cholangio Pancreatography selectively done in cases where USG / CT failed to evaluate / unsatisfactory particularly when a malignant case of biliary obstruction was thought of and also in proximal

obstruction where interpretation of results of ERCP (in absence of PTC) was difficult.

e. PTC could only be done in very few cases due to invasiveness of the procedure and inherent hazards of the procedures. Simultaneous percutaneous biliary drainage was established thereafter to relieve biliary obstruction.

Endoscopic Ultrasonography (EUS)

Being increasingly used for patients with low bile duct obstruction particularly due to Periampullary carcinoma. The advantages includes better local staging, possibility of tissue diagnosis using guided FNA, and increased accuracy for diagnosing nodal disease. The disadvantages include expense, and operator dependence. EUS has more sensitivity in detecting bile duct stones. Compared with ERCP, EUS is semi-invasive with almost no procedure related complications and negligible failure rate. EUS offers higher resolution than MRCP and is therefore better able to detect small stones.

HIDA Scan (hepatobiliary iminodiacetic acid) Percutaneous Transhepatic Cholangiography (PTC): PTC is a widely available imaging technique for the detection of ductal calculi especially intra hepatic ductal calculi because of generally better ductal filling. PTC provides a better delineation of the type of stricture and intrahepatic biliary anatomy than MRCP but the disadvantage is that it cannot image any excluded ductal system. It is an important investigation for diagnosis and preoperative evaluation of hilar cholangiocarcinoma. [9-11]

Ttube Cholangiography

T-tube cholangiography in almost all the cases of choledocotomy (for CBD stones) T-tubes cholangiogram was done on 10th post op. day.

Results

Table 1: Patient details

Age (in years)	**Benign**	**Malignant**	**Total**
0-10	0	0	0
11-20	2	0	2 (3.5%)
21-30	8	0	8(14.8%)
31-40	7	3	10 (17.8%)
41-50	5	5	10 (17.85%)
51-60	3	14	17 (30.35%)
61-70	1	6	7 (12.5%
71-80	0	2	2 (3.5%)
Total	26	30	56
Benign cause of J	**Male**	**Female**	**Total**
CBD stone	4	11	15
CBD stricture	1	3	4
Primary sclerosing cholangitis	1	0	1
Chronic pancreatitis	1	1	2
Mirizzi Syndrome	1	0	1
Hydatid Disease	1	1	2
Choledocal cyst	0	1	1
Total	9(43.61%)	17 (65.38%)	26

Most of the patients were in mean age of 21- 30 whereas for malignant disease patients were in mean age of 51-60 (46.66%). The youngest patient was 18 years female presenting with CBD stone whereas the oldest patients was male patient of carcinoma head of pancreas aged 78 years. 65.38% were females in the group. In the present study, male: Female ratio (1:5) for Benign dis.

Table 2: Sex prevalence in malignant cause of jaundice

Malignant cause of J	**M**	**F**	**Total**
CA. G.B	4	8	12
Cholangio CA	5	2	7
CA head of pancreas	7	1	8
Periamp Tumor	2	1	3
	18 (60%)	12 (40%)	30

In the present study, Male: Female Ratio was 1:5:1 in malignant cause of jaundice.

Table 3: Signs and symptoms in benign cause of jaundice

Signs and symptoms	No of patients	%
Jaundice	26	100%
Pruritus	18	69.2%
Pain	21	80.76%
Deep Tenderness in Rt hypochondrium	17	65.38%
Lump Abdomen	1	3.8%
Hepatomegaly	3	11.5%

The clinical examination of patients of Jaundice was based on detailed analysis of Symptoms and sizes of patients, accounting for prevalence of symptoms signs with study on prevalence of uncommon symptoms (as pain radiating to back). For, benign causes of Jaundice CBD stones are the commonest.

Table 4: Clinical diagnostic accuracy in malignant cause of jaundice

Etiology	Clinical Diagnosis of causes / level of Obst. Done	Clinical Diagnosis of cases Not evident	Operation Findings
CBD stone	12	3	15
CBD stricture	4	0	4
Hydatid Disease	2	0	2
Mirizzi Syndrome	0	1	1
Choledocal cyst	0	1	1
Primary scl.Cholang	0	1	1
Chr. Pancreatitis	2	0	2
Total	20	6	26

CBD stone were 33% of all cases (5 of CBD Stones out of 15 cases) in the study. In cases CBD Benign stricture – 2 cases out of 4 presented with cholangitis (50%).

Table 5: Progression of benign and malignant

	Benign Jaundice	Malignant Jaundice
Persistant	23/26 (88.4%)	7 /30
ProgressivelyIncreasing	2/26	22/30 (73.3%)
Fluctuating	1/26	2/30

23/26 patient of Benign causes of Jaundice were persistent in nature and 22/30 (73.3%) showed progressively increasing Jaundice.

Table 6: Serum albumin in benign disease and malignant disease

Serum (gm%)	Benign disease	Malignant disease
> 3.5	17	12
3-3.4	5	14
2.5 – 2.9	3	3
2.0-2.4	1	1
<2	0	0

In benign jaundice, most of the patients had > 3.5 Serum (gm%) and in malignant most of the patients had 3- 3.4 Serum (gm%).

Discussion

Jaundice is a generic term for the yellow pigmentation of skin, mucous membrane and sclera that is caused by a heterogeneous group of disorders. During the last decade, our evolving ability has been to image the biliary tract and to establish the diagnosis for jaundice. Despite so many investigations still the mortality of patients undergoing surgical Treatment range 7-27%. [7] Obstructive jaundice is one of the most frequent and grave form of hepatobiliary disease. It can pose problems in diagnosis and management, particularly intrahepatic cholestasis. So, it is mandatory to determine preoperatively the existence, the nature and site of obstruction because an ill chosen therapeutic approach can be dangerous. Ultrasound is used as an initial modality to confirm or exclude duct obstruction, which it does with at least 90% accuracy. [12] However, USG is operator dependent and has a limitation in patients with obesity and those with large amount of bowel gas. Computed tomography (CT) is a reliable modality and provides good definition of lesions and facilitates visualization of the entire extent of pancreatic pathology. [6]

Most of the patients were in mean age of 21- 30 whereas for malignant disease patients were in mean age of 51- 60 (46.66%). The youngest patient was 18 years female presenting with CBD stone whereas the oldest patients was male patient of carcinoma head of pancreas aged 78 years. 65.38% were females in the group. In the present study,

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The elucidation of the rise (and Post-operative fall) of levels of serum Bilirubin correlate very well with disease progression in jaundice. This generally applies to benign causes of Jaundice. [13] In benign jaundice, most of the patients had > 3.5 Serum (gm%) and in malignant most of the patients had 3- 3.4 Serum (gm%). These results are comparable to international analysis. [14] The role of cholangiography has been well defined in this study for Benign diseases ERCP and MRCP both has an sensitivity (meaning 100%) from both ERCP & MRCP. [15]

Conclusion

The diagnosis of Jaundice depends upon taking detailed clinical history and examination performing baseline investigations to confirm cholestatic jaundice and to use diagnostic tests as and when necessary to detect cause and level of Jaundice. A definite planned management protocol with attention to correct choice of investigations should be adopted in planning treatment of a patient of obstructive jaundice.

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