e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2023; 15(12); 146-151

Original Research Article

Study the Role of Different Modalities in Making Diagnosis the Etiologies of Obstructive Jaundice

Abhay Shanker[1], Tushar Saini[2], Lajpat Agrawal[3], Rakesh Kumar Singh[4]

[1]Senior Resident, Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India
[2]Senior Resident, Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India
[3]Senior Resident, Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India
[4]Associate Professor, Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India

Received: 11-08-2023 Revised: 13-09-2023 / Accepted: 15-10-2023
Corresponding author: Dr. Lajpat Agrawal
Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to assess the role of different modalities in making diagnosis the etiologies of obstructive jaundice.

Methods: The present study was conducted in the surgical wards of Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India. The time period of the study was from April 2022 to March 2023. 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). U.S.G. detects (caused level of obstruction) in 14/26 = 53.8% of cases of obstructive Jaundice and 9/15 = 60% of cases of CBD stones. 2 patients with CBD stone (as found later on exploration) has a clinical diagnosis of peri ampullary neoplasm/ malignant Jaundice in whom CT scan was done; The Findings of CT in 2 such patients. “Classical Target Sign”: ½ Echogenic Debris in Lower 1/3 CBD 2/2 CBD Dilatation 2/2. Thus CECT has a detection rate of CBD stone as 100% (2/2).

Conclusion: The result of this study suggested that early diagnosis and treatment plays an important role in the prognosis of patients with obstructive jaundice. Primary closure of the common bile duct is safe and cost effective alternative to routine T-tube drainage after open Choledocholithotomy and associated with low complication rates.

Keywords: Benign, cholestatic jaundice, malignant, MRCP and USG.

Introduction

Obstructive Jaundice is a common problem that occurs when there is an obstruction to the passage of conjugated bile from liver cells to intestine. [1] Endoscopic retrograde cholangiopancreatography (ERCP) has become the one of treatment modality for patients with obstructive jaundice because of its therapeutic capabilities. The success rate of ERCP for treatment is highly variable ranging from 50% to 96% depending on the operator, endoscopic aspect, disease severity, and anatomical abnormality. [2,3] Jaundice due to biliary obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. [4] The common etiologies of obstructive jaundice have been reported to vary from one center to another and from one individual to another. [4,5] The morbidity and mortality related to obstructive jaundice depends upon the causes of obstruction. [6]

Jaundice due to biliary obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. [4] The common etiologies of obstructive jaundice have been reported to vary from one centre to another and from one individual to another. [4,7] Obstructive jaundice is not a definitive diagnosis and early investigation to elucidate the precise

etiology is of great importance because pathological changes (e.g. secondary biliary cirrhosis) can occur if obstruction is unrelieved. A vast array of invasive and non invasive diagnostic tests is available to diagnose and establish the etiology of surgical obstructive jaundice. [8]

The outcome of treatment of obstructive jaundice may be poor especially in developing countries where advanced diagnostic imaging and therapeutic facilities are not readily available in most centers.5 The mortality and morbidity of biliary obstruction are dependent on the cause of the obstruction, and the assessment of any factors which influence the morbidity and mortality in patients with obstructive jaundice in each society is necessary. It has been reported that obstructive jaundice continues to be associated with significant morbidity and mortality despite recent advances both in preoperative diagnosis and postoperative care. [9-11] Understanding factors responsible for increased morbidity and mortality in these patients will better guide appropriate management and lead to improved survival. [11]

The aim of the present study was to assess role of different modalities in making diagnosis the etiologies of obstructive jaundice.

Materials and Methods

The present study was conducted in the surgical wards of Department of Surgical Gastroenterology, IGIMS, Patna, Bihar, India. The time period of the study was from April 2022 to March 2023.. 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 Extra hepatic 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. [12-14]

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 ofcauses / 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: Evaluation of Role of USG in Benign causes of Jaundice

	U.S.G. (only) helpful in arriving conclusion	At Operation
CBD Stones	9	15
CBD stricture	1	4
Hydatid Disease	2	2
Primary sclerosing cholangitis	0	1
Choledochal cyst	0	1
Mirizzi Syndrome	0	1
Chr. Fibrosing P.	2 [14/26]	2

U.S.G. detects (caused level of obstruction) in 14/26 = 53.8% of cases of obstructive Jaundice and 9/15 = 60% of cases of CBD stones.

Table 6: USG findings

U.S.G. findings	No of patients	Operation
MASS in Gallbladder	10	12
Stone in Gallbladder	12	12
Liver invasion	8	9
Ascites	5	6
Not informative regarding growth	4	X

USG predicts MASS in Gallbladder FOSSA IN10/12 (83.3%) patients.

Table 7: Role of CT scan

Findings	No of patients
Liver Cyst	2
CBD Dilated	2
Echogenic Debris in CBD	1

2 patients with CBD stone (as found later on exploration) has a clinical diagnosis of peri ampullary neoplasm/ malignant Jaundice in whom CT scan was done; The Findings of CT in 2 such patients. “Classical Target Sign”: ½ Echogenic Debris in Lower 1/3 CBD 2/2 CBD Dilatation 2/2. Thus, CECT has a detection rate of CBD stone as 100% (2/2).

Discussion

Obstructive jaundice poses diagnostic and therapeutic challenges to general surgeons and contributes significantly to high morbidity and mortality. [15] The challenge is even more conspicuous in developing countries like Tanzania where delayed presentation of the disease coupled with lack of modern diagnostic (e.g. CT scan, PTC, ERCP and MRCP) and therapeutic facilities (e.g. T-tubes) are among the hallmarks of the disease. [16]

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. In this study, both the benign and

malignant obstructive jaundice were found to be more common in females than in males, which is in conformity with the results of other researchers. [17,18] Female preponderance in both the benign and malignant obstructive jaundice has been ascribed to high prevalence of gall stones in them which is reported to be a risk factor for many benign and malignant conditions causing biliary obstruction. [19-21]

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). U.S.G. detects (caused level of obstruction) in 14/26 = 53.8% of cases of obstructive Jaundice and 9/15 = 60% of cases of CBD stones. 2 patients with CBD stone (as found later on exploration) has a clinical diagnosis of peri ampullary neoplasm/ malignant Jaundice in whom CT scan was done. Björnsson et al [22] in their study, they found pancreatic cancer and cholangiocarcinoma were the most common cause of obstructive jaundice. The age group among the malignant obstruction was ranging 61 years to 81 years. Shalini et al [23] also found in their study carcinoma of head of pancreas (66.7%) was the most common cause of overall obstructive jaundice and choledocholithiasis (33.3%) was the common cause among benign disease. Lindberg et al [24] studied 64 cases of bile duct obstruction and observed gallstones disease in 29 patients, pancreatitis in 1 patient, sclerosing cholangitis in 2 patients, pancreatic carcinoma in 18 patients, bile duct carcinoma in nine patients, and gall bladder carcinoma in five patients. Kajal Kumar Patra et al [25] found that the most common age group among obstructive jaundice was between 31 years to 70 years and the most common etiology was choledocholithiasis followed by carcinoma of head of pancreas. However, in our study, the most common etiology was choledocholithiasis while the most common malignant etiology was carcinoma of gall bladder in association with gallstones.

The Findings of CT in 2 such patients. “Classical Target Sign”: ½ Echogenic Debris in Lower 1/3 CBD 2/2 CBD Dilatation 2/2. Thus CECT has a detection rate of CBD stone as 100% (2/2).

Conclusion

Obstructive jaundice is a common surgical problem in our setting and poses diagnostic and therapeutic challenges. It is more common among females with malignant causes being more prevalent. The benign jaundice is seen in young patients while malignant causes in elder age group. Carcinoma of the head of pancreas is the commonest malignant cause of jaundice whereas stones in the bile duct the commonest benign etiology. Most of patients with malignant obstructive jaundice present late with advanced disease and the only treatment modality for these patients was palliative surgery. The majority of patients with Choledocholithiasis were treated with Choledocholithotomy and primary closure of the common bile duct. The result of this study suggested that early diagnosis and treatment plays an important role in the prognosis of patients with obstructive jaundice. Primary closure of the common bile duct is safe and cost effective alternative to routine T-tube drainage after open Choledocholithotomy and associated with low complication rates.

References

1. Saddique M, Iqbal SA. Management of Obstructive Jaundice: Experience in a tertiary care surgical unit. Pakistan journal of surgery. 2007;1(23):23-5.
2. Sbeih F, Aljohani M, Altraif I, Khan H. Role of endoscopic retrograde cholangiopancreatography before and after laparoscopic cholecystectomy. Ann Saudi Med. 1998 Mar-Apr;18(2):117-9.
3. Mine T. Endoscopic Retrograde Cholangiopancreatography In Patients With Gastrojejunal Reconstruction. Digestive Endoscopy. 2005 Jan;17(1):97-8.
4. Roche SP, Kobos R. Jaundice in the adult patient. Am Fam Physician. 2004 Jan 15;69(2): 299-304.
5. Moghimi M, Marashi SA, Salehian MT, Sheikhvatan M. Obstructive jaundice in Iran: factors affecting early outcome. Hepatobiliary Pancreat Dis Int. 2008 Oct;7(5):515-9.
6. Acalovschi M. Cholangiocarcinoma: risk factors, diagnosis and management. Rom J Intern Med. 2004;42(1):41-58.
7. Moghimi M, Marashi SA, Salehian MT, Sheikhvatan M. Obstructive jaundice in Iran: factors affecting early outcome. Hepatobiliary Pancreat Dis Int. 2008 Oct;7(5):515-9.
8. Briggs CD, Peterson M. Investigation and management of obstructive jaundice. Surgery (Oxford). 2007 Feb 1;25(2):74-80.
9. Pitiakoudis M, Mimidis K, Tsaroucha AK, Papadopoulos V, Karayiannakis A, Simopoulos C. Predictive value of risk factors in patients with obstructive jaundice. J Int Med Res. 2004 Nov-Dec;32(6):633-8.
10. Nakayama T, Ikeda A, Okuda K. Percutaneous transhepatic drainage of the biliary tract: technique and results in 104 cases. Gastroenterology. 1978 Mar;74(3):554-9.
11. Buckwalter JA, Lawton RL, Tidrick RT. Bypass operations for neoplastic biliary tract obstruction. Am J Surg. 1965 Jan;109 :100-6.
12. Cahill, CJ, pain JA, Barileyne in hepatology 1989; 454-62 source: medline.

13. Tanaka N, Ryden S, S Berquist, pathophysiological function in obstructive jaundice" BJS 1985;6: 72-73.
14. Blaney SL, Feuron KGH, Wilmour WH et al "Risk factors in Jaundice" BJS. 1993; 535-537.
15. Ahmad I, Jan AU, Ahmad R. Obstructive jaundice. Journal of Postgraduate Medical Institute. 2001;15(2).
16. Bekele Z, Yifru A. Obstructive jaundice in adult Ethiopians in a referral hospital. Ethiop Med J. 2000 Oct;38(4):267-75.
17. Siddique K, Ali Q, Mirza S, Jamil A, Ehsan A, Latif S, Malik AZ. Evaluation of the aetiological spectrum of obstructive jaundice. J Ayub Med Coll Abbottabad. 2008 Oct-Dec; 20(4):62-6.
18. Syed N, Mohammad SA, Umair UI, Shafiq UR. Etiological spectrum of obstructive jaundice. Medical channel. 2010; 16:299-301.
19. Channa NA, Khand F, Bhanger MI, Leghari MH. Surgical incidence of Cholelithiasis in Hyderabad and adjoining areas (Pakistan).
20. Zarin M, Ahmed M, Gohar A, Waheed D, Khurram S, Aurangzeb M, Sartaj F. Incidence of gall stones in carcinoma Gall Bladder patients. Pak J Surg. 2005;21(1):19-22.
21. Ullah N, Gondal SK, Shahbaz RA. Carcinoma Gall Bladder; an incidence study at Services Hospital Lahore. Pakistan Postgrad Med J. 2000; 11:156-7.
22. Björnsson E, Gustafsson J, Borkman J, Kilander A. Fate of patients with obstructive jaundice. J Hosp Med. 2008 Mar;3(2):117-23.
23. Shalini T, Balaji Rohith M, Rajesh S. A clinical study of presentation evaluation and management of obstructive jaundice in Osmania General Hospital. J Dent Med Sci. 2019; 18:1–13.
24. Lindberg G, Björkman A, Helmers C. A description of diagnostic strategies in jaundice. Scand J Gastroenterol. 1983 Mar;18(2):257-65.
25. Patra KK, Saha S, Haldar S, Banerjee C. A prospective study on clinical profile and management of obstructive jaundice. Int J Health Clin Res. 2021; 4:233-6.