

# Etiological Spectrum of Obstructive Jaundice in a Tertiary Care Hospital

Bimal Chandra Roy<sup>1</sup>, Prosannajid Sarkar<sup>2</sup>, Md. Shafiul Alam<sup>3</sup> and Saimun Naher<sup>4</sup>

<sup>1</sup> Rangpur Medical College Hospital, Rangpur, Bangladesh

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## Abstract

Background: Jaundice due to biliary obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. As patients with obstructive jaundice have high morbidity and mortality, early diagnosis of the cause of obstruction is very important especially in malignant cases, as resection is only possible at that stage. Objectives: To determine the etiological spectrum of obstructive jaundice in a tertiary care hospital. Methods: Cross sectional observational study was done in this study. A detailed history and thorough physical examination followed by investigations including liver function test, ultrasonography of whole abdomen in some selective cases CT scan was done. The data had collected in a pre designed data collection sheet.

**Index terms**— obstructive jaundice, etiological spectrum, tertiary care hospital, morbidity and mortality.

## 1 I. Introduction

Obstructive jaundice is a common surgical problem that occurs when there is an obstruction to the passage of conjugated bilirubin from liver cells to intestine. It is among the most challenging conditions managed by general O Abstract-Background: Jaundice due to biliary obstruction may be caused by a heterogeneous group of diseases that include both benign and malignant conditions. As patients with obstructive jaundice have high morbidity and mortality, early diagnosis of the cause of obstruction is very important especially in malignant cases, as resection is only possible at that stage.

Objectives: To determine the etiological spectrum of obstructive jaundice in a tertiary care hospital.

Methods: Cross sectional observational study was done in this study. A detailed history and thorough physical examination followed by investigations including liver function test, ultrasonography of whole abdomen & in some selective cases CT scan was done. The data had collected in a pre designed data collection sheet.

Results: 29 patients (58%) had malignant obstructive jaundice and 21 patients (42%) had benign causes of obstructive jaundice. Amongst the malignancies, carcinoma head of the pancreas was the commonest, 15 patients (30%) followed by the carcinoma gall bladder 8 patients (16%). Regarding the benign cause's choledocholithiasis was most common cause, 11 patients (22%) followed by 4 patients (8%) stricture of common bile duct. Amongst the common symptoms anorexia, weight loss and clay colored stool were more frequent in patients with malignant disease and abdominal pain and fever were in benign conditions. Conclusion: Obstructive jaundice in our setting is more prevalent in females and the cause is mostly malignant. Carcinoma head of pancreas is the commonest malignancy while choledocholithiasis is the commonest benign cause. morbidity and mortality in these patients will better guide appropriate management. 13

## 2 II. Objective of the Study

The main objective of this study was to determine the etiological spectrum of obstructive jaundice in a tertiary care hospital.

### 3 III. Materials and Methods

A Cross sectional observational study was done in the Department of Surgery, Rangpur Medical College Hospital, Rangpur, during July-2012 to June-2014. Patients of obstructive jaundice admitted in different surgical wards of Rangpur Medical College Hospital, Rangpur were included in this study. The sample size was 50. Purposive sampling method was used as per inclusion and exclusion criteria. All patients were given an explanation of the study and informed written consent was taken. None of the names were used in the data bases.

After proper counseling a detailed history was taken and a thorough physical examination was done to detect the causes of obstructive jaundice. Routine investigations including ultrasonography of whole abdomen specially hepatobiliary system & pancreas to detect the cause & level of biliary obstruction and liver function test. When cause of biliary obstruction could not be ascertained by sonographically then CT scan was done with all possible means a pre-operative diagnosis was made. The final diagnosis was based on peroperative findings and histopathological findings of the resected specimen.

Data was collected by pre design data collection sheet. Appropriate statistical analysis of the data was done using computer based SPSS (Statistical Program for Social Science) version-16.0. For comparison of data Chi-square probability test was performed. For each analytical test level of significance was 0.05 and  $p < 0.05$  was considered significant. The study was done with existing facilities in Rangpur Medical College Hospital.

### 4 IV. Results

The mean age was 50.40 (29-70years),  $SD \pm 10.92$ . Majority of benign cases was seen in 31-40 years of age, while the malignant cases were more common above 50 years old. Female are more prevalent both in benign and malignant. The male to female ratio for benign jaundice was 1:1.33, while it was 1:1.23 for the malignant obstructive Jaundice. 37 (74%) number of the patients in this study belong low socioeconomical conditions. Among them malignant patients are more (42%).

### 5 Among distribution of various causes

#### 6 n=number of patient

Benign in 21 (42%) cases, whereas 29 (58%) patients had malignant cause. Choledocholithiasis was the commonest benign cause whereas carcinoma head of the pancreas was commonest in malignant group.

Among distribution of association of symptoms and signs with diagnosis, itching was present in 32 patients (64%). In benign-66.66% and 62.02% in malignant condition which is statistically not significant. Clay coloured stools was present in 35 patients (70%). In benign condition, it was 11patients (52.38%) and in malignant condition 24 patients (82.75%) and statistically significant. Pain abdomen was present in 27 patients (54%). 19 patients (90.47%) with benign and 8 patients (27.58%) with malignant etiology presenting with this symptom. Pain is predominantly present in case of benign diseases and it was statistically significant. Anorexia was present in 29 patients (58%). In benign condition it was 5 patients (23.80%) and in malignant condition it was 24 patients (82.75%) and statistically significant in case of malignant.

Weight loss was present in 30 patients (60%). In benign condition it was 4 patients (19.04%) and in malignant condition it was 26 patients (89.65%) and statistically significant for a malignant etiology. Fever was present in a total of 27 patients (54%) with benign condition 17 patients (80.95%) and malignant condition 10 patients (34.48%) which was statistically significant for benign disease. Gall bladder was palpable in 14 patients (28%). In patients with benign condition 1 patients (4.76%) and malignant condition 13 patients Volume XV Issue IV Version I In evaluation of imaging techniques for diagnosis, all patients underwent USG, 41 patients (82%) revealed cause of obstruction but in case of 9 patients (18%) exact cause of obstruction could not be ascertained and 12 patients underwent CT scan, most of them were malignant cases and detect accurate cause of obstruction in 11 patients (91%). Sensitivity of ultrasonogram was 82% but CT scan 91%. Almost all benign cases diagnosed were made correctly preoperatively but in malignant, some cases confirmed diagnosis made after histopathology.

Regarding treatment, all choledocholithiasis patients were treated by choledocholithotomy and insertion of T-tube. After laparotomy 4 cases of carcinoma gall bladder were found such an advanced stage that only biopsy specimen were taken, other 4 cases of carcinoma gallbladder were treated with extended cholecystectomy, other than this all malignant cases were treated as palliative surgery like double or triple bypass. Maximum palliative surgery done by double bypass procedure in the form of hepaticojejunostomy and jejunojejunostomy.

### 7 V. Discussions

The mean age of the patients with the benign or malignant etiology of obstructive jaundice was 50.40 (29-70years),  $SD \pm 10.92$ . Most of the patients with the benign jaundice were between 31-40 years of age while malignant causes were more common in the older patients and were maximally seen  $>50$  years of age. The increased incidence of malignant obstructive jaundice with the increasing age has also been reported by various study. 6,14,15 In this study, both the benign and malignant obstructive jaundice are found more commonly amongst the females than males. The male to female ratio for benign jaundice was 1:1.33, while it was 1:1.23 for the malignant obstructive Jaundice. The increased incidence of obstructive jaundice amongst the females is due to the fact that gall stones are frequently found in them. 16,17 Some study support this findings. 14,16

In case of nature, malignant obstructive jaundice was more common than benign, 58% Vs 42% which is in agreement with other studies reported elsewhere. 1,16,[18][19][20] but in contrast to Bekele et al 5 in Ethiopia who reported benign obstructive jaundice as the most common cause of obstructive jaundice. Regarding the benign causes choledocholithiasis was most common cause, 11 patients (22%) followed by 4 patients (8%) stricture of common bile duct, 2 patients (4%) post cholecystectomy CBD stone, 2 patients (4%) worm in CBD, 2 patients (4%) choledochal cyst. Choledocholithiasis was also found to be the commonest benign cause in others study. 14,[18][19][20][21] Amongst the malignancies, Carcinoma head of pancreas was the commonest, 15 patients (30%) followed by the carcinoma gall bladder 8 patients (16%), cholangiocarcinoma 4 patients (8%) and periampullary carcinoma 2 patients (4%). Similar incidence of various malignancies in patients of obstructive jaundice has been seen in various studies. 14,20,21 These observations reflect differences in etiological spectrum from one centre to another. Among the symptoms, pruritis was present in 32 patients (64%) which was near to equally in both the benign 14 patients (66.66%) and 18 patients (62.02%) in malignant cases. Clay coloured stools was present in 35 patients (70%). In benign condition, it was 11 patients (52.38%) and more commonly by patients with the malignant jaundice 24 patients (82.75%).

The pain in the abdomen was present in 27 patients (54%) and it was more frequently seen amongst the benign causes 19 patients (90.47%) and almost always present in every case of choledocholithiasis. While 8 patients (27.58%) with malignancy also had abdominal pain on presentation possibly due to advanced disease. 16 Anorexia was present in 29 patients (58%) and was more frequently seen amongst the patients of malignant jaundice, 24 patients (82.75%) and it was statistically significant. In benign condition it was 5 patients (23.80%). Weight loss was present in 30 patients (60%). In benign condition it was 4 patients (19.04%) and in malignant condition it was 26 patients (89.65%). Fever was present in a total of 27 patients (54%) with benign condition 17 patients (80.95%) and malignant condition 10 patients (34.48%) which statistically significant for benign etiology. Gall bladder was palpable in 14 patients (28%). The palpable gall bladder was appreciated in 13 patients (44.82%) with malignancy thus supporting the 'Courvoisier's law' 16,22 , and only 1 patients (4.76%) gall bladder palpable in cases benign condition. Amongst the radiological investigations ultrasonogram was the initial imaging investigation for all cases of obstructive jaundice to diagnose the cause of obstruction. Forty one patients (82%) USG revealed cause of obstruction but in case of 9 patients (18%) exact cause of obstruction could not be ascertained. CT scan has several advantages over USG. CT scan was done in patients mostly suspecting of malignancy in USG. Tumor size, its local, regional and distant spread can more accurately be determined by CT scan. CT scan done in 12 patients and detect accurate cause of obstruction in 11 patients (91%). ERCP cannot performed as because this facility was not available in our hospital. Though ERCP has been defined as a 'Gold Standard' for the diagnosis of obstructive jaundice. 23 The final diagnosis was then made based upon the results of histopathology and then results were drawn. Justification of treatment modalities in the biliary obstruction depend on the site and nature of obstruction. All choledocholithiasis patients were treated by choledocholithotomy and insertion of T-tube. In all cases of malignancies surgical resection were try to done but not possible as because malignant patients came to our hospital with advanced stage. This delayed presentation of patient to the physician probably due to social and cultural factors and also nature of the disease itself. So all malignant cases were treated as palliative surgery like double or triple bypass. Maximum palliative surgery done by double bypass procedure in the form of hepaticojejunostomy and jejunojejunostomy.

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## 9 VI. Limitations

We have some limitations of this study like, small sample size, as the study was hospital based cross sectional study-it is difficult to generalize the findings to the whole community population and ERCP has been defined as a 'Gold Standard' for the diagnosis of obstructive jaundice but this facility is not available in our hospital.

## 10 VII. Conclusion

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Figure 1:

Nature Causes	No. of pa- tients	Percentage (%)	Total (n=50)
Choledocolithiasis	11	22	
Post cholecystectomy biliary stricture	4	8	
Post cholecystectomy CBD stone	2	4	
Benign Worm in CBD	2	4	21
			42%
Choledochal cyst	2	4	
Carcinoma head of the Pancrease	15	30	
Carcinoma GB	8	16	29
Malignant Cholangiocarcinoma Periapillary carcinoma	3 3	6 6	58%

Figure 2:

## .1 Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

## .2 VIII. Acknowledgment

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