

Frequency of Stones, Strictures and Carcinoma Head of Pancreas in Patients with Obstructive Jaundice

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ABSTRACT

Objective: The objective of this study is to know the frequency of choledocholithiasis, biliary stricture and carcinoma head of pancreas among patients having obstructive jaundice.

Study Design: Cross-sectional, descriptive study

Place and Duration of Study: This study was conducted at the Department of Gastroenterology, four Medical units and four Surgical units at Bahawal Victoria Hospital Bahawalpur from January 2019 to June 2019.

Materials and Methods: A total of 201 patients diagnosed as obstructive jaundice with serum bilirubin level of greater than 3 mg/dl were included. The Intra and Extra hepatic biliary channels, presence of gall stones, common bile duct and any abdominal mass were seen by ultrasonography abdomen. Endoscopic retrograde cholangiopancreatography also done in patients with obstructive jaundice. Data regarding choledocholithiasis, carcinoma head of pancreas and biliary stricture was collected.

Results: This study included age range from 40 to 70 years with mean age of 52.24 ± 5.34 years. Majority of the patients were between 51 to 60 years age groups i.e. 57.8%. Majority of patients were females (62.7%). Mean weight was 78.78 ± 12.52 Kg and mean BMI was 26.293 ± 2.87 kg/m². The frequency of choledocholithiasis was 33.3%, carcinoma of head of pancreas 30.8% and biliary stricture was 7%.

Conclusion: The results concluded that Choledocholithiasis is the commonest benign etiology among patients with obstructive jaundice. It is more prevalent in females. This study shows that early diagnosis and intervention has significant role for the prognosis of patients with obstructive jaundice.

Key Words: Obstructive Jaundice, Choledocholithiasis, Carcinoma head of pancreas, Biliary stricture

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INTRODUCTION

The deposition of bilirubin pigment in sclera, mucous membranes and skin causes yellowish discoloration known as jaundice.¹ The biliary obstruction at any level from liver up to gall bladder and small intestine results in obstructive jaundice.² Obstructive jaundice could be intra-hepatic or extra hepatic. The most common intrahepatic causes are cirrhosis, hepatitis and hepato-cellular carcinoma.³

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The intra-ductal and extraductal obstruction are further subdivision of the extra hepatic causes. Choledocholithiasis, biliary strictures, neoplasm, primary sclerosing cholangitis and worm infestation (parasites) can leads to intraductal obstruction. The biliary channels compression externally by pancreatitis, neoplasm and cystic duct stones with gall bladder distension consequently can cause extra ductal obstruction.⁴⁻⁶

Treatment of symptomatic gallstone disease by laparoscopic cholecystectomy (LC) in late 1980's is associated with high incidence of BDIs than open cholecystectomy (OC). The incidence of BDIs shows a rise from 0.1-0.2% to as high as 0.8-1.4% in different studies.⁷ Although learning curve effect decreases the incidence of complications but it is still at least twofold compared to OC.⁸ Obstructive jaundice is concerning usually with the conditions like: Tumors (Carcinoma head pancreas, cholangiocarcinoma), Parasitic Infections (Hepato-biliary complicated hydatid disease, Ascariasis), Benign Stricture, Acute inflammation (cholangitis, Mirizzi syndrome). Congenital disease (Choledochal cyst).⁹

Pancreatic tumors that cause biliary obstruction usually arise from the head and periampullary pancreatic region due to the fact that the bile duct courses through the

pancreatic head. The jaundice may show more advanced-stage disease due to malignancies in ampullary region which leads to biliary obstruction in 64-77% of cases.^{10, 11} The narrowed common bile duct leads to bile duct stricture which may prevent the bile flow into the intestine. Chalya PL and his associates have found the frequency of Choledocholithiasis by 62.5%, Biliary stricture by 25% and Carcinoma head of pancreas by 64.7% in patients with obstructive jaundice.¹² Another study reported by Siddique K and his associates in patients with obstructive jaundice showed that frequency of Choledocholithiasis 35%, Carcinoma head of pancreas 30% and Biliary stricture 5%.¹³

The data regarding the frequency of Choledocholithiasis, Biliary stricture and Carcinoma head of pancreas in Pakistani cohort studies is limited. The different causes at various centers shows a big discrepancy and it is very important to know the nature of obstruction and its existence because a bad-chosen treatment can lead to high morbidity and mortality in local population.

MATERIALS AND METHODS

The study was Cross-sectional and carried out in the Department of Gastroenterology, four Medical units and four Surgical units at Bahawal Victoria Hospital Bahawalpur from January 2019 to June 2019 after taking ethical approval. The calculated sample size for the study at 95% level of confidence, 5% margin of error and 5% anticipated population proportion (biliary stricture)¹³ was 201. Male and female patients between 25-75 years of age with clinical diagnosis of obstructive jaundice and serum bilirubin level > 3mg/dl through non-probability consecutive sampling method were included in our study. Patients with liver cirrhosis and pregnant females were excluded from the study. Data was collected by using preformed, pretested questionnaire. Demographic information of patients (name, age, gender, weight, BMI) were noted. Trans-abdominal ultrasonography carried out for all patients to look for biliary channels, common bile duct, gall stones or abdominal mass. Endoscopic retrograde cholangiopancreatography (ERCP) was performed in patients of obstructive jaundice where it was indicated. Patients with mass on ultrasound in conjunction with dilated bile ducts and serum bilirubin level >3 mg/dl were taken as cases of obstructive jaundice. The presence of echogenic rounded focus with size ranges between 2 to > 20mm in bile duct on ultrasound was taken as choledocholithiasis. The short segment Bile duct with irregular and shouldered margins along with >1.5mm thickness and on arterial and or portal venous phase enhancement of duct walls on ERCP (Endoscopic retrograde cholangiopancreatography) was taken as biliary stricture. Presence of cancerous cells in histopathology report of the pancreatic cells taken by

ERCP was taken as carcinoma head of pancreas. The final diagnosis was concluded after the results of these investigations and histopathology. All procedures performed by a consultant gastroenterologist having post fellowship experience of at least 5 years. The analysis of data was done by statistical analysis program (SPSS version 22). The frequency and percentage were computed for qualitative variables like gender, different age groups, choledocholithiasis, biliary stricture and carcinoma head of pancreas. Mean \pm SD was presented for quantitative variables like age, weight and BMI. Effect modifiers like age, gender and BMI were controlled by stratification. Post stratification chi square test was applied $p < 0.05$ was considered statistically significant.

RESULTS

The study showed the age ranges from 40 to 70 years with mean age of 52.2 ± 5.3 years. Most patients were between 41 to 60 years age groups i.e. 84.6%. About two third patients were females i.e. 126 (62.7%). Mean weight of the patients was 78.9 ± 12.5 Kg and mean BMI of the respondents was 26.293 ± 2.87 kg/m². Choledocholithiasis was diagnosed in 67(33.3%) patients, biliary stricture in (7%) and carcinoma head of pancreas in 62(30.8%) patients with obstructive jaundice. Stratification of choledocholithiasis, biliary stricture and carcinoma head of pancreas in respect of age groups, gender and BMI are shown in Table 2.

Table- I: Age & Gender distribution of patients (n=201)

Variable	Frequency	Percentage
Age (years)		
25-40	12	5.9%
41-60	170	84.6%
61-75	19	9.5%
Gender		
Male	75	37.3%
Female	126	62.7%

Table No.2: Percentage of choledocholithiasis, biliary stricture and carcinoma head of pancreas among patients (n=201)

Variable	Frequency	Percentage
Choledocholithiasis		
Yes	67	33.3%
No	134	66.7%
Biliary Stricture		
Yes	14	7.0%
No	187	93.0%
Carcinoma Head of Pancreas		
Yes	62	30.8%
No	139	69.2%

BMI of patients showed a significant association with choledocholithiasis (p=0.001) and carcinoma head of pancreas (p=<0.001).

Table No.3: Stratification of choledocholithiasis, biliary stricture and carcinoma head of pancreas with respect to age, gender and BMI of patients (n=201)

Variables	Choledocholithiasis		P value
	Yes	No	
Age			
25-40	06 (50%)	06 (50%)	0.499
41-60	55(32.4%)	115(67.6%)	
61-75	6 (33.3%)	13 (68.4%)	
Gender			
Male	19(25.3%)	56 (74.7%)	0.063
Female	48(38.1%)	78 (61.9%)	
BMI			
<20	02 (20%)	08 (80%)	0.001
20-30	65(38.7%)	103(61.3%)	
>30	00 (0%)	23 (100%)	
Biliary Stricture			
		Biliary Stricture	
		Yes	No
25-40	01 (8.3%)	11 (91.7%)	0.941
41-60	12 (7.1%)	158(92.9%)	
61-75	01 (5.3%)	18 (94.7%)	
Gender			
Male	02 (2.7%)	73 (97.3%)	0.065
Female	12 (9.5%)	114(90.5%)	
BMI			
<20	01 (10%)	09 (90%)	0.364
20-30	13 (7.7%)	155(92.3%)	
>30	00 (0%)	23 (100%)	
Carcinoma Head of Pancreas			
		Carcinoma Head of Pancreas	
		Yes	No
25-40	04(33.3%)	08 (66.7%)	0.978
41-60	52(30.6%)	118(69.4%)	
61-75	06(31.6%)	13 (68.4%)	
Gender			
Male	26(34.7%)	49 (65.3%)	0.366
Female	36(28.6%)	90 (71.4%)	
BMI			
<20	01 (10%)	09 (90%)	<0.001
20-30	38(22.6%)	130(77.4%)	
>30	23 (100%)	00 (0.0%)	

DISCUSSION

The obstructive jaundice may lead to increase morbidity and mortality leading to a diagnostic and therapeutic challenge for gastroenterologists.¹⁴ In countries like Pakistan, due to limited health facilities and illiteracy patients presents very late when they develop advanced disease. Moreover, in different cities, the non-availability of advanced diagnostic modalities like ERCP, CT scan, MRCP, PTC and therapeutic facility like T-tubes is a big challenge.¹⁵

The results of our study showed that the incidence in middle aged patients of obstructive jaundice was seen more commonly. The most common cause was Choledocholithiasis in 33.3% while carcinoma head of pancreas in 30.8%. Khurram et al in his study showed choledocholithiasis as most common cause of biliary obstruction.¹⁶

The female gender in the study were amongst more common having stone disease; a finding similar to that of other workers.¹⁷ The females showed increased incidence of Obstructive jaundice because the gall stones are more commonly present among them.¹⁸⁻²⁰

The study done by Vargus and Astete amongst male patients undergoing ERCP showed that choledocholithiasis as first and carcinoma of common bile duct as third common diagnosis.²¹

Malignancies leading to obstruction of biliary channels are ampullary carcinomas, tumors of gall bladder extending into CBD, tumors leading metastasis (most common from gastrointestinal tract), cholangiocarcinoma and secondary lymphadenopathy at the level of porta hepatis.²¹ Both genders are equally affected by malignancies of Biliary channels.²² Choledochal cyst is the congenital cystic dilations of either or both intra and extra-hepatic biliary channels. The high prevalent areas are in Asia, like Japan, and are more common 3 to 4 times in females.^{15, 23} Our study showed that biliary strictures were present in 7% of cases. After cholecystectomy few other studies showed traumatic strictures and ligation of CBD as one of the commonest causes.^{24,26}

In developing countries like Pakistan, due to non-availability of advanced diagnostic and therapeutic modalities in every city, trans-abdominal ultrasonography is one of the non-invasive, easily available and best baseline imaging modalities in patients with obstructive jaundice because the results showed high sensitivity and specificity to find the cause.

CONCLUSION

It is concluded that obstructive jaundice more common in females. Choledocholithiasis was the most common cause in these patients. The results of our study suggest that early diagnosis and intervention had a significant role to reduce the morbidity and mortality along with improving the prognosis of patients with obstructive jaundice.

Author’s Contribution:

- Concept & Design of Study: Shahbaz Ahmed Qureshi, Sana Altaf
- Drafting: Anas Ahmed Qureshi
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- Revisiting Critically: Sadia Bashir, Javeria Shahbaz
- Final Approval of version: Shahbaz Ahmed Qureshi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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