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Research Article

SPECTRUM OF OBSTRUCTIVE JAUNDICE IN HILLY STATE OF HIMACHAL PRADESH

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A R T I C L E I N F O

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A B S T R A C T

Obstructive jaundice is a surgical problem that occurs when there is an obstruction to the passage of bile from the liver cells to the intestine. Obstructive jaundice is a common surgical problem posing a diagnostic and therapeutic challenge. Obstructive jaundice has vast and variable etiological spectrum. 105 patients with obstructive jaundice were studied at IGMC Shimla Himachal Pradesh. Benign causes are seen in comparatively younger age group compared to malignant causes. The commonest cause in malignant cases was Cholangiocarcinoma with other causes such as carcinoma head of pancreas, gall bladder cancer, periampilaary carcinoma and metastasis at portahepatis. In benign cases the commonest cause was choledocholithiasis followed by benign CBD stricture, choledochal cyst and mirzzi type 4 syndromes. Imaging studies like USG, CECT and MRCP have high diagnostic accuracy and specificity in present setup. Many malignant cases still present late. Early diagnosis and treatment is important in prognosis of obstructive jaundice.

INTRODUCTION

Jaundice is defined as yellowish discoloration of skin, sclera and tissues resulting from the deposition of bilirubin. The term jaundice is taken from the French word jaune which means yellow[1]. Obstructive jaundice can be due to benign conditions such as (gall stones, CBD stricture and rarely choledochal cyst) and malignant conditions such as Carcinoma head of pancreas, periampullary carcinoma and cholangiocarcinoma.
Obstructive jaundice is a clinical problem requiring early diagnosis and treatment of the entity so as to decrease morbidity and mortality due to disease. An accurate history remains the most important factor in arriving at a reasonable diagnosis in the jaundiced patient. Common duct stones are more common in women and malignant obstruction is more common in men. Symptoms of obstructive jaundice include, jaundice with or without pain, dark urine, prurituis, pale stools, anorexia and weight loss. On examination icterus is present. There may be presence of scratch marks, palpable gall bladder, any other lump in abdomen and tenderness The diagnostic investigations should reveal the level, the degree and the nature of any block in the biliary tract. The pattern of abnormal tests including elevated total and direct bilirubin level, elevated serum alkaline phosphatase levels, normal or mildly elevated serum glutamicoxaloacetic levels and absence of urinary or faecalurobilinogen are all suggestive of liver dysfunction due to extrahepaticbiliary obstruction.

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The needs for radiological imaging in obstructive jaundice are: - to confirm the presence of biliary system obstruction (i.e., to discriminate surgical versus medical jaundice), to determine the level of the obstruction, to identify the specific cause of the obstruction, and to provide complementary information relating to the underlying diagnosis (e.g., staging information in cases of malignancy).The radiological investigations available for the diagnosis of obstructive Jaundice can be categorized into non-invasiveultrasonography, CT scan & MRCP and invasive ERCP and PTC.[2,3]

No such study has been undertaken in our institute in the past to study epidemiologic profile of patients with surgical jaundice and it is the intention of the present study to detect distribution of various pathologies in patients presenting with obstructive jaundice at a tertiary level hospital in hilly state of Himachal Pradesh.

MATERIAL AND METHODS

This study was conducted on the patients who were admitted in Dept of Surgery IGMC Shimla during the period of 1 year between1st July 2016 to 30th June 2017.

Inclusion Criteria

Patients who presented with obstructive jaundice in Department of Surgery were included in the study.

Exclusion Criteria

1. Age less than 18 years.
2. Patients having unconjugated hyperbilirubinemia.
3. Pregnant females.

Obstructive jaundice was diagnosed according to the presenting symptoms, signs on physical examination, raised serum bilirubin, alkaline phosphatase and radiological evidence of dilated biliarytract and cause for obstruction in the biliary tract.

RESULTS

The results obtained in the present study were analyzed as follows, 105 patients with obstructive jaundice were studied.
The age of the patients ranged between 18 to 85 years. Mean Age of presentation was 59.46±13.28 years. It was observed that as the age advanced number of malignant cases increased while benign cases were more common in younger age group.
Of total 105 patients 66 were female and 39 were male with female to male ratio was 1.69:1; Female predominance was seen in the present study. Twenty six males (66.67%) and Forty two females (63.64%) had a malignant cause for obstructive jaundice. Benign cause for obstructive jaundice was found in 13 males (33.33%) and 24 (36.36%) female patients respectively.

In this study all the patients had jaundice i.e. 100% as the chief presenting complaint and was associated with high colored urine, clay colored stools and itching in 85 (80.95%), 77 (73.33%) and 66 (62.85%) of patients respectively. Pain was present in 65 (61.90%) patients. Jaundice was associated with loss of appetite and loss of weight in 56 (53.33%) patients and vomiting was present in 23 (21.9%) patients and fever was present in 9 (8.57%) patients. On physical examination 26(24.8%) patients had palpable gall bladder, 20(19%) patients had lump in RHC and 19 (18.1%) patients had palpable liver.
In this study bilirubin levels had highest and lowest value of total bilirubin was 39.84mg/dl and0.7mg/dlrespectively with maximum and minimum value of direct bilirubin 18.64mg/dl and 0.15mg/dl respectively. Meanbilirubin values were 15.77±9.87mg/dl for total bilirubin and8.52±5.14mg/dl for direct bilirubin respectively. In liver enzymes transaminases (ALT and AST) were mildly increased where as alkaline phosphatase was raised more than three times in most of the cases.

Ultrasonography was able to diagnose dilatation of biliary system in 92(87.6%) patients. Distended Gallbladder was present in 58(55.2%) patients and Stones in gallbladder were present in 54(51.4%) patients. Choledocholithiasis was reported in 24(22.8%) patients and pancreatic lesion in 13(12.4%) patients.

CECT was performed in 74 patients and was able to delineate level of obstruction and cause of obstruction in 57 (77.02%) patients with cause of obstruction being Cholangiocarcinoma, carcinoma head of pancreas, periampullary carcinoma, choledocholithiasis and mets at portahepatis.

MRCP was performed in 64 patients and was able to delineate level of obstruction and cause of obstruction in 51(68%) patients. Various causes identified were choledocholithiasis, cholangiocarcinoma, ca head of pancreas, periampullary carcinoma and benign bilary stricture.

After all the investigations final diagnosis was made and it revealed that malignancy was more common cause of jaundice as compared to beingn disease with 68 cases out of 105 being malignant and 37 being benign.

Table 1 Malignant and Benign Causes

	No of patients	Percentage (%)
Malignant	68	64.76
Benign	37	35.24
Total	105	100

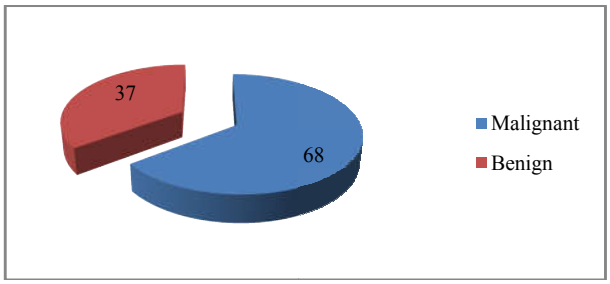

Fig 1 Malignant and Benign causes

Among the malignant causes Cholangiocarcinoma was the Commonest diagnosed in 26(24.76%) followed by Carcinoma Head of pancreas 17(16.19%), Carcinoma Gallbladder 15(14.28%), periampullary carcinoma 10(9.52%) and metastasis at portahepatis in 2(1.9%) respectively. In benign diseases choledocholithiasis is the most common cause with CBD stones was present in 29(27.61%) patients. Benign CBD stricture present in 3(2.85%) patients. One (.9%) patient was diagnosed to have choledochal cyst with choledocholithiasis, ruptured hydatid cyst and Mirizzi's type 4 respectively.

Table 2 Causes of obstructive jaundice

Diagnosis	No of patients	Percentage (%)
Cholangiocarcinoma	25	23.80
Carcinoma Head of pancreas	17	16.19
Carcinoma Gall bladder	15	14.28
Periampullary Carcinoma	9	8.57
Metastasis at portahepatis	2	1.9
Choledocholithiasis	31	29.52
Benign CBD stricture	3	2.85
Choledochal cyst with CBD stone	1	.9
Ruptured H Cyst	1	.9
Mirzi Type 4	1	.9

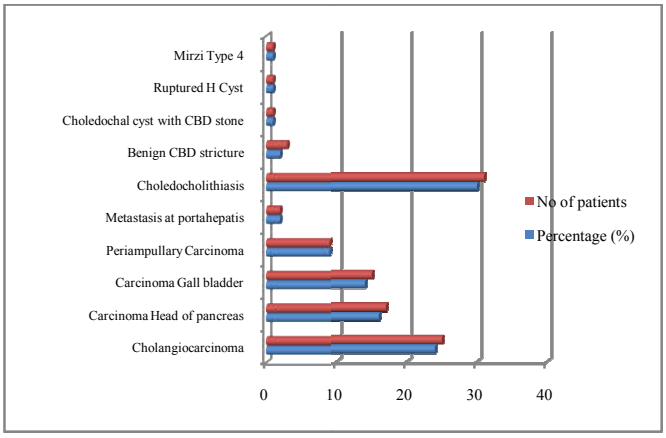

Fig 2 Causes of obstructive jaundice

DISSCUSION

This prospective study in defined population revealed the aetiological spectrum, clinical features and utility of imaging in obstructive jaundice in our setting over a period of 1 year, the jaundice is being proved by clinical evaluation laboratory and radiological investigations.

The age of the patients ranged between 18 years to 85 years with mean age of 59.46±13.28years. Majority of patients was in the age group between 41-70 years i.e. 75 (71.43%) patients. It was observed that out of total 105 patients, 68 patients had a malignant cause with mean age of 63.22 ± 11.46 years and 37 patients had a benign cause with mean age of 52.54 ±13.75 years. Umeshchandra DG *et al* reported the mean age of patients with malignant disease as 66.9 years, and with benign disease as 40.9years[4].These findings demonstrate that as the age advances malignant causes are more common as compared to benign etiologies which are more in young age. These findings also correlate with other studies.

In this study of 105 patients with obstructive jaundice, 66 were female and 39 were male patients with male to female ratio of 1:1.69. These results were comparable to other studies. SouryamaAnand *et al* in a study of 80 patients reported male to female ratio of 1:1.5.[5]

Among the symptoms along with jaundice (100%) generalized pruritis was present in 66 (62.9%) of the patients, pain present in 65 (61.9%) of the patients, vomiting was present in 23 (21.9%) and fever was present in 9 (8.6%) patients. Out of total 105 patients, 85 (80.95%) patients gave history of passage of high colored urine and clay colored stools were present in 77 (73.3%) of the patients. Weight loss and loss of appetite each was present in 56 (53.3%) patients. On clinical examination icterus was present in all the patients (100%) gall bladder was palpable in 24.7 % of patients and liver was palpable in 18.1% patients. There was hard lump in right hypochondrium in 19.0% patients. Tenderness was present in 37.1% patients. Results in the present study also correlate with similar results by Warren *et al*. who studied 191 patients of malignant jaundice and reported abdominal pain in 82.8%, loss of weight in 90%, pruritus in 41.3%, fever in 4.9% and lump on abdominal examination in 64.4%.[6]

The biochemical investigations done were liver function tests which showed high serum bilirubin and alkaline phosphatase levels. In this study the mean value of total bilirubin was 15.7±9.8 mg/dl and that of direct bilirubin was 8.52±5.1 mg/dl. The mean value of alkaline phosphatase was 777.85±814.47 IU/L.

Amongst the radiological investigations the ultrasound could pick up biliary obstruction i.e. dilated CBD in 87.65(92/105) patients and predicted cause of obstruction in 35.2% (37/105) patients. This was primarily because of some factors like obese patients who were poor ultrasound candidates, as well as to bowel gases which caused obscuration of distal CBD. Besides, smaller lesions beyond the resolving power of ultrasound were missed.

CECT was able to detect obstruction accurately in 93.5% patients and level of obstruction in 91.9% patients. In a study by Satish K. Bhargava and *et al* the accuracy of conventional CT in determining the presence and level of obstruction has been 81 to 94% and 88 to 92% respectively.[7]

In present study MRCP has detected obstruction in 87.03% patients and cause of obstruction in 100% patients. These results are comparable to previous studies by Laurent Guibaud etal[8] and Kumar M etal[9] has shown that MRCP can diagnose bile duct obstruction in 91-100% of cases and level of obstruction in 85-100% cases. MRCP permits evaluation of the pancreaticobiliary tract, and gall bladder without the use of contrast material and is thus preferred in patients where use of contrast is restricted or contraindicated. It has a sensitivity of 95% and specificity of 95% for demonstrating the level and presence of biliary obstruction.

Majority of patients in this study had malignant obstructive jaundice, i.e. 64.8% (68/105) while the benign jaundice was seen in 35.2% (37/105).

Various other studies have been done for the evaluation of the etiological spectrum of obstructive jaundice and are compared with our study in the following table.(Table-3)

Table 3 Comparison of percentages of Malignant & Benign jaundice

Study	Malignant causes	Benign causes
Sharma MP *et al*[10], India	75.3%	24.7%
Siddique K *et al*[11], Pakistan	56.66%	43.33%
Moghimi M *et al*,[12] Iran	60.15%	39.85%
Huis M *et al*[13], Croatia	25.83%	74.17%
Hung JQ *et al*,[14]China	57.6%	42.4%
Verma S *et al*,[15] India	62.73%	37.27%
This study	64.8%	35.2%

It can be seen that our study is in agreement with most of other studies quoted above except the Croatian study which revealed the higher incidence of benign causes (choledocholithiais) possibly related to regional dietary and social factors.

In our study malignant obstructive jaundice was common with various malignancies being cholangiocarcinoma in 30 (28.6%) patients, followed by Carcinoma head of pancreas in 17 (16.2%) patients as the second most common malignancy to cause obstructive jaundice. Other causes were Carcinoma Gall bladder in 15 (14.28%) patients, periampullary Carcinoma in 4 (3.8%) patients and Metastasis at portahepatis in 2(1.9%) patients.

In present study 37 patients had benign cause for obstructive jaundice and choledocholithiasis in 32 (30.5%) patients, was the commonest benign cause and with other causes were benign biliary stricture 3 (2.85), choledochal cyst with choledocholihtiasis 1 (0.9%), and Mirizzi's type IV in 1 (0.9%) patient respectively responsible for benign cause of obstructive jaundice.

Table 4 Comparison of various studies done for etiological spectrum of obstructive jaundice

Study	Ca Pancreas	Ca Gall Baldder	Cholangiocarcinoma	Periampullary Carcinoma	Choledocholithiasis
Umeshchandra DG *et al*[4], India	40.0%		10.0%	6.67%	26.7%
Siddique K *et al*[11], Pakistan	30%	13.3%	11.7%	1.66%	35%
Sharma MP *et al*[10] , India	26.5%	28.7%	10.8%	9.8%	12.4%
Verma S *et al*[12], India	33.63%	18.2%	7.8%	10.4%	29.1%
Hung JQ *et al*[14], China	21.9%		3.63%	5.45%	
Huis M *et al*[13], Croatia	11.9%	3.3%		4.6%	74.2%
Present study	16.2%	14.3%	23.8%	8.6%	30.5%

CONCLUSION

Obstructive jaundice is a common surgical problem caused by heterogeneous group of diseases. It is not a definitive diagnosis and early investigations to elucidate the precise etiology are of great importance as pathological changes can occur. It has

been reported in various studies that malignant jaundice due to Carcinoma head of the pancreas is the commonest, this is not consistent with our study which showed Cholangiocarcinoma as the commonest malignancy presenting with obstructive jaundice and may reflect epidemiological differences in various parts with other malignancy causing obstructive jaundice being carcinoma head of pancreas, periampullary carcinoma, carcinoma gallbladder and metastasis at portahepatis. Choledocholithiasis was found to be the commonest cause of benign obstructive jaundice in all studies with other common causes being benign biliary stricture, choledochal cyst and Mirizi type IV syndrome for benign obstructive jaundice.

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