

Etiology of obstructive jaundice and its correlation with the ethnic population of Sikkim

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ABSTRACT

Objective: The aim of the study was to find out the etiology of obstructive jaundice and its correlation with the ethnic population of Sikkim. **Material and Method:** The data of patients with obstructive jaundice admitted under the Department of Gastroenterology was collected retrospectively from March 2019 till February 2020. There were a total of 73 patients of obstructive jaundice patients, the benign etiology was found to be more common than malignant etiology. **Results:** The male-to-female ratio in our study was 0.35:1. The most common etiology of benign cause of obstructive jaundice was choledocholithiasis (95.83%) followed by common bile duct stricture (3.07%), Mirizzi syndrome (1.53%). The most common causes of malignant obstructive jaundice were carcinoma of gall bladder (62.5%) followed by carcinoma of periampullary region (12.5%), cholangiocarcinoma (12.5%), carcinoma of head of pancreas (12.5%). **Conclusions:** The most common etiology of obstructive jaundice in this study was choledocholithiasis. There was no any correlation of obstructive jaundice with ethnic population of Sikkim.

Keywords: Ethnic group, etiology, obstructive jaundice

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] There are some studies on the etiology of obstructive jaundice but none from the state of Sikkim. Lack of literature lead to this study. This study was done to find out the etiologies of obstructive jaundice among the ethnic population of Sikkim, India.

As per first colonial census of Sikkim 1891, there were thirteen ethnic races in the Kingdom of Sikkim groups namely Chettri, Subba, Bhutia, Tamang, Gurung, Biswakarma (BK) and others.^[7]

Material and Method

The data of the admitted patients of obstructive jaundice was collected retrospectively from the department of gastroenterology, Sir Thutop Namgyal Memorial Hospital (S.T.N.M.), Socheygang a tertiary care referral center

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Table 1: Details of therapeutic procedures

Total patients	Total ERCP	Biliary plastic stents	Pancreatic stents	Biliary metal stents	Patient refused further treatment	Post ERCP pancreatitis	Open Surgery
73	69	63	11	6	2	8	2

Table 2: Sex ratio

Total number of patients	Total number of Male patients	Total number of Female patients	Sex ratio (M:F)
73	19	54	0.35 :1

from March 2019 till February 2020. There were a total of 73 patients of obstructive jaundice during that period. Patients of hepatocellular jaundice, prehepatic jaundice and young patients with age less than 15 years were excluded. All patients have undergone complete blood counts, liver function tests, kidney function test, prothrombin time with internationalized ratio, hepatitis B surface antigen, anti-HCV antibody test, retrovirus test. Diagnosis of obstructive jaundice etiology was made with ultrasound of whole abdomen, magnetic resonance cholangiography (MRCP) and contrast-enhanced computed tomography (CECT) whole abdomen. ERCP was done in these patients only as therapeutic procedure.

Of 73 cases, 2 patients of advanced malignancy refused further interventions (one patient of gall bladder malignancy and other of carcinoma of head of pancreas), 3 cases of large common bile duct stone about 2 cm in size on MRCP, underwent open laparotomy and common bile duct exploration and therapeutic ERCP procedures was done in only 69 cases. 8 cases of ERCP developed mild to moderate post ERCP pancreatitis despite using rectal diclofenac 100 mg suppository and they were managed conservatively. Pancreatic plastic stent was placed in 11 cases due to repeated pancreatic duct cannulation, while biliary plastic stent was placed in 63 cases. Self-expanding biliary metal stent was placed in 6 patients, four patients of gall bladder malignancy, one each of periampullary carcinoma and cholangiocarcinoma [Table 1].

Results

In our study, the male-to-female ratio was 0.35:1 [Table 2]. The female patients were more in number as compared to male patients. The age group of the patients ranged from 23 years to 80 years with benign disease while age group from 40 years old to 73 years old patients were found with malignant disease. The most common etiology among benign causes was Choledocholithiasis (95.83%) followed by common bile duct stricture (3.07%), mirrizzi syndrome type 1 (1.53%). The most common malignant causes was carcinoma of gall bladder (62.50%) followed by periampullary cancer (12.5%), cholangiocarcinoma (12.5%), carcinoma of head of pancreas (12.5%). Among the ethnic group, the obstructive jaundice was common among Chettri ethnic group in both benign as well as malignant cause compared with the rest of other ethnic

groups. But this difference with other ethnic groups was not found to be statistically significant [Table 3].

Discussion

Obstructive jaundice is characterized by presence of jaundice, itching, pain abdomen, vomiting, fever or cholangitis, in some cases depending upon the etiology, weight loss, clay color stool. The treatment and prognosis depends upon the etiology and level of biliary obstruction. The occurrence of the most frequent cholesterol stones is connected with the manner and place of living, nourishment, and sex.^[8] The benign etiology of obstructive jaundice are choledocholithiasis, common bile duct strictures, mirrizzi syndrome, impacted parasites in common bile duct, chronic pancreatitis while the malignant causes are carcinoma gall bladder, carcinoma of pancreas, hilar metastasis, periampullary carcinoma, cholangiocarcinoma.^[9]

This study was done to find out the most common etiology of obstructive jaundice both benign and malignant cause prevalent in the state of Sikkim. This study was also done to guide the primary care physicians to know the commonest etiology of obstructive jaundice in their day-to-day practice and also for early referral to tertiary care center for treatment and management of such patients.

Mangam *et al.*^[10] concluded in their study that males (54.71%) had more obstructive jaundice compare to females (45.28%). Gill HS *et al.*^[11] in their study, they found that the incidence of gall stones was more common in female than male. Kotwal *et al.*^[12] in their study concluded gallstones are common in Sikkim and North Bengal among dyspeptics and majority of these stones were cholesterol stones. The gallstones was more common in females and in patients with normal weight. In our study also female had more common bile duct stones than males. Ahsan Ali Laghari *et al.*^[13] in their study among 50 patients of Obstructive jaundice, males (62%) were more common than females (38%). Jaundice was the most common presentation and majority of patients had benign etiology 31 patients and 19 patients had malignant etiology of obstructive jaundice.

Björnsson *et al.*^[14] 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.*^[15] 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.*^[16] studied 64 cases of bile duct obstruction and observed gallstones disease in 29 patients,

Table 3: Etiology of obstructive jaundice and its correlation with ethnic population of Sikkim

Etiology	Chettri	Gurung	Tamang	Subba	Bhutia	BK	Others	Total	Statistically significance
Cholelithiasis (95.38%)	17	3	8	9	9	6	10	62	P=0.4295 Not significant, R/R=0.5846
Common bile duct stricture (3.07%)	1	0	1	0	0	0	0	2	
Mirizzi Syndrome (1.53%)	1	0	0	0	0	0	0	1	
Carcinoma of Gall Bladder (62.5%)	2	2	0	0	0	1	0	5	
Periampullary carcinoma (12.5%)	0	0	0	0	1	0	0	1	
Cholangiocarcinoma (12.5%)	1	0	0	0	0	0	0	1	
Carcinoma of pancreas (12.5%)	1	0	0	0	0	0	0	1	
Total	23	5	9	9	10	7	10	73	

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.*^[17] found that the most common age group among obstructive jaundice was between 31 years to 70 years and the most common etiology was cholelithiasis followed by carcinoma of head of pancreas. However, in our study, the most common etiology was cholelithiasis while the most common malignant etiology was carcinoma of gall bladder in association with gallstones.

Few studies related to ethnicity and gallbladder disease were done. Comparisons across studies suggest that the highest risk of gallstones occurs among American Indians with progressively lower risk among whites, blacks, and some Asian groups.^[18] Mexican American women also have a higher prevalence of gallstones than U.S. Hispanic women.^[19] In this study, there was no any correlation of ethnicity with obstructive jaundice.

In India, gallbladder carcinoma (GBC) is most prevalent in northern and northeastern states of Uttar Pradesh, Bihar, Orissa, West Bengal, and Assam.^[20] GBC is two times higher in women than men and is the leading digestive cancer in women in northern Indian cities.^[21] Six Cancer registries of the Indian Council of Medical Research (1990–96) show a 10 times lower incidence of GBC per 100 000 in South India compared with the North, the age-adjusted incidence rate for females being 0.8 in Chennai in the south and 8.9 in Delhi in the north.^[22] Gallstones were said to play a major role.^[23] Other risk factors are obesity, multiparity, and chronic infections.^[24]

In this study, the key points to highlight were that the benign cause was more common than malignant cause among obstructive jaundice prevalent in the state of Sikkim. Cholelithiasis was the most common etiology among benign etiology and while gall bladder carcinoma was the commonest malignant etiology. Both the conditions require early diagnosis and management of such cases.

Conclusion

Overall the most common etiology of obstructive jaundice was cholelithiasis while gall bladder carcinoma was the most common malignant cause in Sikkim which lies in the eastern

Himalayan region of India. Our study also concluded that there was no any association of ethnicity with obstructive jaundice in the state of Sikkim.

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Conflicts of interest

There are no conflicts of interest.

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