INTRODUCTION:

Patients with complete biliary obstruction have clinical jaundice, whereas patients with intermittent biliary obstruction may present with pain, pruritus, fevers and biochemical changes without developing clinical jaundice. Patients with chronic incomplete obstruction eventually can develop hepatic fibrosis and biliary cirrhosis.

Two third of cases of obstructive jaundice are caused by benign diseases like calculus diseases of biliary tract, Choledochol cyst, pancreas divisum, annular pancreas, primary sclerosing cholangitis and post-operative or post pancreatitis strictures.

Malignant diseases like carcinoma head of pancreas, Periampullary carcinoma, and cholangiocarcinoma and gall bladder malignancies are responsible for the rest.

Surgery as the modality of treatment for jaundice is not fully acceptable to a large majority of population in our part of the country. May be because of high belief in ayurvedic medicine, which is accepted as the best remedy for jaundice, and probably due to lower incidence of obstructive jaundice in our population in the past. Anyhow there is an increasing evidence of obstructive jaundice especially malignant obstructive jaundice. Surgeons thus face an increasing number of patients with obstructive jaundice reaching them in a fairly advanced stage.

The fundamental problem met with in dealing with a patient with prolonged jaundice is the accurate diagnosis of its cause whether obstructive or not and if obstructive what exactly its cause.

In managing malignant obstructive jaundice the problem of diagnosis becomes an acute one because jaundice caused by mechanical obstruction to common bile duct should be surgically remedied whereas in the absence of mechanical block of bile duct treatment becomes medical.

The accurate diagnosis of mechanical obstruction to CBD becomes difficult at times because the clinical features and biochemical investigation may be atypical. Intrahepatic cholestasis gives rise to clinical features and laboratory data similar to mechanical block of common bile duct. Many times hepatocellular damage and mechanical obstruction coexist making the diagnosis much more difficult. Treatment of malignant obstructive jaundice is challenging. Surgical treatment ranges from definitive surgical procedures to palliative procedures. Non operative management includes endoscopic stenting, and interventional radiological procedure like PTBD. All these procedures are done because of relative inaccessibility of the extrahepatic biliary tree and pancreas.

AIMS & OBJECTIVES:

1. To analyse the incidence of benign and malignant causes
for obstructive jaundice in our hospital.
2. To analyse the age and sex distribution.
3. To study various clinical presentations.
4. To evaluate various management modalities.
5. To evaluate the histopathology of resected specimen.

MATERIALS AND METHODS:

The study was carried out in Govt. Stanley Medical College Hospital, Chennai.

This is a facility based prospective descriptive study involving all patients with obstructive jaundice. The relevant data shall be collected by using:

- Detailed history
- Hematological investigations: complete hemogram, liver function tests including serum alkaline phosphatase serum proteins and albumin, blood urea, serum electrolytes.
- Radiological investigations like as USG Abdomen and CECT abdomen scan to find malignancy when required
- MRCP and ERCP to asses pathology of biliary tree.
- Histopathological examination for the patients who underwent surgery
- Follow up of non surgical method s as stenting etc
- All the recorded variables will be tabulated and analysed with multivariate analysis and chi square test

SOFTWARE USED : SPSS ver20.0

SAMPLE SIZE : 50

SETTING:
Govt. Stanley Medical College
Chennai-1.

DESIGN OF STUDY:
FACILITY BASED PROSPECTIVE DESCRIPTIVE STUDY

PERIOD OF STUDY:
NOVEMBER 2013 TO DECEMBER 2015

INCLUSION CRITERIA:
1. All patients with obstructive jaundice due to extra hepatic biliary obstruction as diagnosed by MRCP and ERCP

EXCLUSION CRITERIA:
1. Patients with obstructive jaundice due to intra hepatic calculi and stricture
2. Patients with hemolytic and hepatocellular jaundice.
3. Patient aged <20 yrs and >80 yrs of age

TABLES AND CHARTS:

TABLE 1. AGE DISTRIBUTION

<table>
<thead>
<tr>
<th>Age group (in years)</th>
<th>No of patients</th>
<th>Percentage of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-30</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>31-40</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>41-50</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>51-60</td>
<td>19</td>
<td>38%</td>
</tr>
<tr>
<td>61-70</td>
<td>11</td>
<td>11%</td>
</tr>
<tr>
<td>71-80</td>
<td>3</td>
<td>6%</td>
</tr>
</tbody>
</table>

Most common in 5th and 6th decade of life
TABLE 2: SEX DISTRIBUTION

<table>
<thead>
<tr>
<th>SEX</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>19</td>
<td>38%</td>
</tr>
<tr>
<td>female</td>
<td>31</td>
<td>62%</td>
</tr>
</tbody>
</table>

In our study FEMALES are affected more than MALES about Male : Female Ratio is 2:3

TABLE 3: ETIOLOGICAL CLASSIFICATION

<table>
<thead>
<tr>
<th>S.NO</th>
<th>ETIOLOGY OF OBSTRUCTIVE JAUNDICE</th>
<th>NO OF PATIENTS</th>
<th>% OF PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MALIGNANCY</td>
<td>31</td>
<td>62%</td>
</tr>
<tr>
<td>1</td>
<td>Periampullary carcinoma</td>
<td>16</td>
<td>32%</td>
</tr>
<tr>
<td>2</td>
<td>Carcinoma head of pancreas</td>
<td>9</td>
<td>18%</td>
</tr>
<tr>
<td>3</td>
<td>cholangiocarcinoma</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>4</td>
<td>Carcinoma gall bladder</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>5</td>
<td>Extra neous compression</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>BENIGN</td>
<td>19</td>
<td>38%</td>
</tr>
<tr>
<td>1</td>
<td>Choledocholithiasis</td>
<td>14</td>
<td>28%</td>
</tr>
<tr>
<td>2</td>
<td>CBD Stricture</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>3</td>
<td>Choledochal cyst</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>
Most common cause for obstructive jaundice is MALIGNANCY forming around 62% of cases especially Carcinoma Periampullary region forms 32% of patient group.

In case of benign etiology choledocholithiasis form the main role of around 73%
TABLE 3- MANAGEMENT MODALITIES

<table>
<thead>
<tr>
<th>S.NO</th>
<th>MANAGEMENT</th>
<th>NO OF PATIENTS</th>
<th>% OF PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRIPLE BYEPASS</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>2</td>
<td>WHIPPLES PROCEDURE</td>
<td>10</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>ERCP/STENTING</td>
<td>8</td>
<td>16%</td>
</tr>
<tr>
<td>4</td>
<td>CBDE+CDJ</td>
<td>7</td>
<td>14%</td>
</tr>
<tr>
<td>5</td>
<td>CBDE+T tube</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>6</td>
<td>PTBD+PALLIATIVE</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>7</td>
<td>HEPATICOJEJUNOSTOMY</td>
<td>2</td>
<td>4%</td>
</tr>
</tbody>
</table>
In case of management, surgery forms major role in both benign as well as malignant cases. Around 78% of cases are treated by surgery and remaining 22% cases are treated by non-surgical modalities.

RESULTS AND OBSERVATIONS:

We studied 50 patients of Obstructive jaundice with extra hepatic cause in our wards in Govt. Stanley Medical College Chennai 01, from November 2013 to June 2015. Among 50 patients, 38% were male and 62% were female. The mean age group was 54.19 yrs. The age range from 21 to 84 years and more common in fifth and sixth decade of life. The average duration of illness was 4.8 months, the range being 10 days to 12 months. The mean duration of hospital stay was 18 days that range between 15 days to 60 days. All patients had icterus (100%). 55% of patients had pain abdomen, of which 42% of patients had typical colicky type of abdominal pain. 44% of patients had fever, of which 31% of patients were associated with chills and rigors. Symptoms of complete biliary tract obstruction, clay coloured stools and high coloured urine presented in 30% of patients. Cachexia was seen in 29% of patients. Gall Bladder was palpable in 52% of patients, of which most were due to pancreatic and periampullary malignancies. The mean serum bilirubin value was 12.5 mg%. The range between 2.0-28 mg%. The average ALP value was 420.85 IU, and the range between 108-1230 IU. Urine examinations showed absent in urobilinogen in 42% of patients. Serum albumin range was 2.5-5.5 gm.%. In More than 50% of patients, the A:G ratio was reversed. Ultra sonogram revealed IHBR dilatation in 90% of pts. Therapeutic ERCP done in patients of CBD stone disease. After therapeutic ERCP laparoscopic/open cholecystectomy was done in all 16% patients. Preoperatively all patients received three doses of Vit K and fresh frozen plasma in selective patients. Coagulation profile was monitored by measuring PT and INR. In our study we observed the most common cause of biliary tract obstruction was due to periampullary carcinoma accounting for. Among these most of the patients were females (16 pts., 32%). The second most common cause was choledocholithiasis (28%), followed by ca head of pancreas (18%). More common in fifth decade of life. Other rare causes of obstructive jaundice observed in our study were Stricture CBD (6%), Cholangiocarcinoma (4%), Carcinoma Gall Bladder (6%), Choledochol cyst (4%) and carcinoma of Stomach with porta hepatitis metastasis (2%).

CBD stones are treated by therapeutic ERCP/Stenting, CBD Exploration and biliary enteric anastomosis or T Tube Drainage. Among these CBDE/T tube/CDJ was most commonly done (20%). Among the malignant causes, curative resection (Whipples procedure) was done in 4 patients of Ca Head of Pancreas and 6 patients of Periampullary carcinoma (20%). Most of the patients with Ca head of Pancreas and periampullary carcinoma were locally advanced and treated by Palliative bypass procedure (30%).

MANAGEMENT STRATEGY
2 patients expired in our study group. All expired patients had biliary tract obstruction due to malignant aetiology. The most common complication noticed in operated patients was biliary fistula.

Fistula is more common following palliative procedure for malignant aetiology. Patients with benign diseases are on regular follow up and they doing well.

The histopathology report of pancreatic cancer consists of well differentiated adenocarcinoma (30%), moderately differentiated in (30%) and poorly differentiated (40%). None of the patients with carcinoma Gall bladder were operated. Biliary obstructions in these patients were relieved by ERCP/Stenting/palliative chemotherapy.

In our study 3 of patients were due to stricture in the biliary tract. Of these 2 patient had terminal CBD stricture underwent non surgical procedure as STENTING and 1 patient had mid CBD stricture underwent cholecodchojejunostomy . For CBD stone, for which CBD exploration and Choleodochojejunostomy was done. In our study all the patients with stricture was due to chronic calcific pancreatitis/ endoscopic procedure.

Out of 50 patients, 4% patients were due to Choledochol cyst. For which Total cyst excision and biliary enteric anastomosis was done.

DISCUSSION:

Jaundice is a most challenging problem for any person, more so when people are ignorant of the on-going severe underlying disease. Because of the self-medication and the natural treatment the presentation is very late in suffered patients. Specific symptoms will not occur in early stage of the disease. It will occur after the disease becomes locally advanced or involving adjacent vital structures.

Comparing the other studies done elsewhere, the observation in our study implies, the overall incidence of obstructive jaundice was same in both male and female. The mean age of incidence of surgical jaundice is 51 yrs. But the incidence of Periampullary carcinoma and choledocholithiasis was more common in females. The most common cause of malignant obstructive jaundice was periampullary carcinoma, which is more common in female population especially in fifth and sixth decade of life.

The second most common cause of malignant obstructive jaundice was carcinoma head of pancreas, which was more common in female population. The lowest age noted for a female patient is 21yrs,were diagnosed to be Choledochol cyst.underwent Excision and cholecodochojejunostomy was done. Comparing with S.Agal et al of Mumbai who studied 62 cases of malignant aetiology and M.Kannan et al of Chennai who studied 455 cases of both benign and malignant etiology there is more or less equal age incidence. The gallbladder felt in 52% of our patients while in Benjaemin series it was palpable in 50% of the icteric patients and 62.20% of those with pancreatic malignancies.

Evaluation of obstructive jaundice is common but challenging radiological problem. The aim of the imaging is to diagnose biliary obstruction by identifying dilatation of intra and extra-hepatic biliary channels; to delineate the level of obstruction. Ultrasonography is widely available, non-invasive and radiation free imaging modality. It is the initial modality for the detection of obstruction in the biliary tree. Ultrasound was performed in all our patients. It showed dilatation of intrahepatic biliary radicles in 84% of patients. CBD stones are treated by therapeutic ERCP/Stenting, CBD Exploration and biliary enteric anastomosis or T Tube Drainage.

Among these CDJ was most commonly done (12%) Comparing to other studies of Benjamin and Popper, our study revealed same curative rates in the management of other benign extrahepatic biliary tract obstructive lesions such as stricture of the Common Bile Duct and Choledochal cyst.

In our study, we did not perform any method of preoperative biliary drainage for any amount of bilirubin levels mainly in patients with malignant cause of biliary obstruction since various studies have shown no difference in the survival benefits with this procedure.

We had 5 deaths in the follow up and those under evaluation. These patients were mainly in their advanced stage of their disease and the underlying pathology was mostly advanced carcinoma CBD, carcinoma of the gallbladder, Pancreatic and peri ampullary malignancies.

CONCLUSION:

Most common etiology for obstructive jaundice is due to malignant pathology than benign disease.

The maximum of age incidence is between 51and 60 years (38%)  
Median age is 52.6 yrs  
Male : Female ratio is 2:3
There is a significant increase in the incidence of malignant obstructive jaundice. The most common cause of obstructive jaundice is periampullary carcinoma followed by choledocholithiasis. Periampullary carcinoma was most common in females & most of them in the late fifth and sixth decade of life. Choledocholithiasis was also more common in females. Carcinoma head of pancreas was more common in female population. Most of the malignant cases presented in late stages and underwent bypass procedures more than resection. Among the malignant causes, curative resection (Whipple's procedure) was done in 4 patients of Ca head of pancreas and 6 patients of periampullary carcinoma (20%). Most of the patients with Ca head of pancreas and periampullary carcinoma were locally advanced and treated by palliative bypass procedure (30%).

A palliative cholecystojejunostomy with gastrojejunostomy tops the list of operative procedures. Chronic calcific pancreatitis forms as a predisposing factor for developing carcinoma head of pancreas. Biliary tract obstruction due to metastasis is not uncommon. Palpable Gall bladder (52%) indicates the etiology to be malignant. USG followed by MRCP/ERCP and CECT scan are the investigation of choice. Patients with benign pathology had a better outcome and cure rate. Patients with carcinoma gall bladder were mostly inoperable, and underwent palliative treatment only. The preoperative biliary drainage does not have any survival benefit. 100% of patients complained jaundice, weight loss and anorexia. Mortality due to palliative procedures was 7% and morbidity patterns of wound infection is 10%, delayed gastric emptying is 6%. Median hospital stay for palliative procedures was 16 days. Mortality rate following Whipple's procedure was 7.8%.

**ABBREVIATIONS:**

- GB - Gall bladder
- CBD - Common Bile Duct
- IHBR - Intra Hepatic Biliary Radicals
- ERCP - Endoscopic Retrograde Cholangio Pancreatography
- MRCP - Magnetic Resonance Cholangio Pancreatography
- PTC - Percutaneous Transhepatic Cholangiography
- PTBD - Percutaneous transhepatic biliary drainage
- CBDE - Common Bile Duct Exploration
- CCJ/CDJ – Cholecystojejunostomy/Choledochojejunostomy
- HJ - Hepaticojejunostomy

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