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A Clinical Study of Presentation Evaluation and Management of Obstructive Jaundice in Osmania General Hospital"

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I. Introduction

Jaundice is a frequent manifestation of biliary tract disorders and the evaluation and management of obstructive jaundice is a common problem faced by the general surgeon.

Obstructive jaundice is strictly defined as a condition occurring due to a block in the pathway between the site of conjugation of bile in liver cells and the entry of bile into the duodenum through the ampulla. The block may be intrahepatic or extrahepatic in the bile duct.[1]

Despite the technical advances, the operative modes of management of obstructive jaundice were associated with very high morbidity and mortality. Yet, during the last decade significant advances have been made in our understanding with regard to the pathogenesis, diagnosis, staging and the efficacy of management of obstructive jaundice.[2]

Obstructive jaundice of varied etiology is one of the causes of admission to hospitals. To diagnose the cause, site of obstruction and management of a case of surgical jaundice is indeed a challenging task for the surgeon. Hence, a comprehensive study of the etiology, clinical presentation and management of obstructive jaundice is of paramount importance in the appropriate management of these patient

OBJECTIVES : The objectives of this study is :
a)obstructive Jaundice.
b)To study age and sex pattern in extra hepatic obstructive jaundice.
c)To study the different modalities of treatment of obstructive jaundice.

II. Methodology

Source of data : The materials for the clinical study were collected from cases admitted in Osmania medical college during June 2016 to November 2018.Ethical clearance has been obtained from research and dissertation committee/ ethical committee of the institution for this study.

Type of study : This is a cross sectional observational study of patients admitted and positively diagnosed as extra hepatic obstructive jaundice.

Inclusion criteria : Patients admitted and positively diagnosed as extra hepatic obstructive jaundice by investigation like ultrasonography and liver function test were included in this study.

Exclusion criteria : Patients with jaundice other than extra hepatic obstructive pathology like hemolytic jaundice, hepatocellular jaundice and intra hepatic obstructive jaundice were excluded from the study.

Method of collection of data : Clinical study of 30 cases of surgical jaundice of different aetiology were analyzed. Following admission individual cases were examined systematically and clinical data were recorded according to the proforma. Investigation like urine bilesalt, bile pigment, liver function test, ultrasonographic study of the abdomen were done in all the cases. The cases were followed upto discharge and thanupto 6 months.

Statistical analysis : Results are presented as mean, standard deviation and proportion.

III. Results

The results obtained in the present study were analyzed as follows, 30 patientswith surgical jaundice were studied.

Table 1: Age distribution among the surgical jaundice cases:

Age in years		**Number of patients**	**Percentage**
0	– 9	01	3.3%
10	– 19	01	3.3%
20	– 29	-	-
30	– 39	-	-
40	– 49	05	16.7%
50	– 59	08	26.7%
60	– 69	08	26.7%
70	– 79	07	23.3%

Interpretation ;The age group varied from 3 years to 75 years, the average age was 55.5 years,76% of patients are between the age group of 50 – 80 years.

Graph 1: Age distribution among the surgical jaundice cases

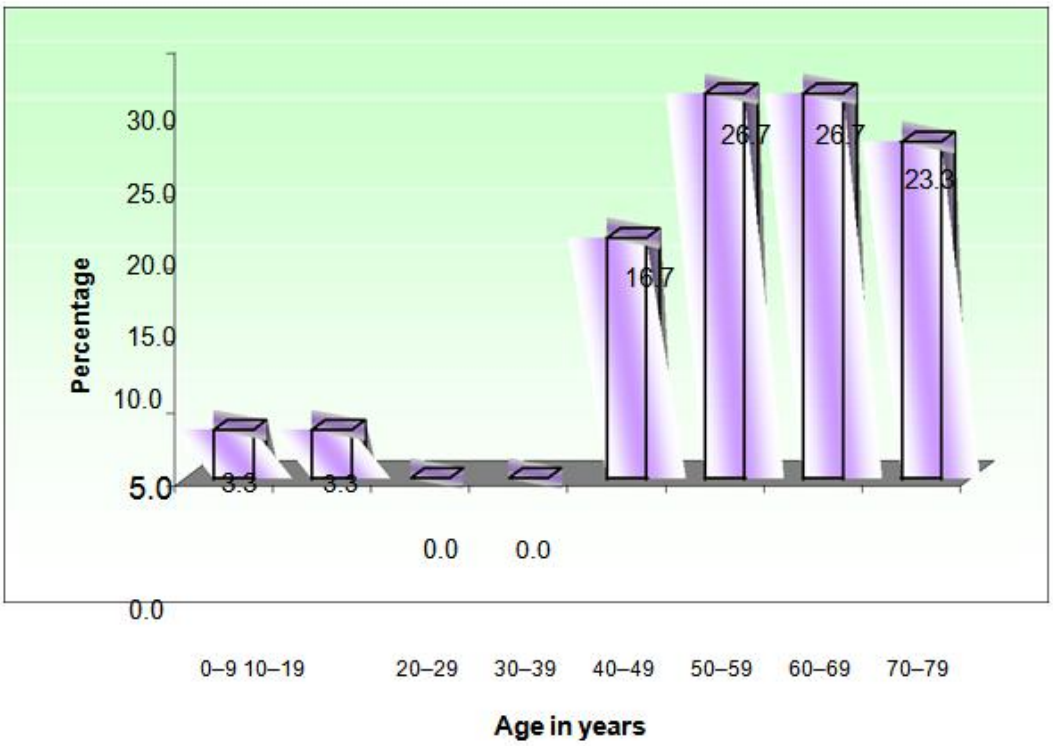


Table 2 : Sex distribution among the surgical jaundice cases

Sex	**Number of patients**	**Percentage**
Male	16	53.3%
Female	14	46.7%

Interpretation : There were 16 (53.3%) male and 14 (46.7%) female in our study with slightmale predominance

Graph 2: Sex distribution among the surgical jaundice cases

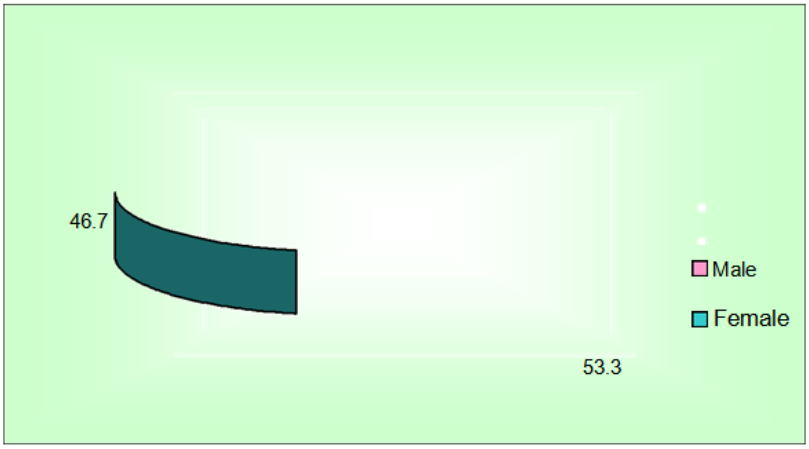


Table 3 : Causes of surgical jaundice cases

	Number of patients	Percentage
A. Malignant cause	**19**	**66.7%**
1. Ca head of pancreas	10	33.4%
2. Periampullary Ca	3	13.3%
3. Cholangiocarcinoma	3	10.0%
4. Secondaries in liver	2	6.7%
5. Porta hepatic metastases	1	3.3%
B. Benign causes	**11**	**33.3%**
1. Choledocholithiasis	7	23.3%
2. Benign biliary stricture	3	6.7%
3. Choledochal cyst	1	3.3%
Total	**30**	**100%**

Interpretation : Of the 30 cases in this study 19 patient presented with malignant causes (66.7%), out of which carcinoma head of pancreas was commonest in 10 (33.4%) cases, and out of 11 cases (33.3%) of benign cause of surgical jaundice, the commonest cause was choledocholithiasis in 7 cases (23.3%).

Graph 3: Causes of surgical jaundice cases

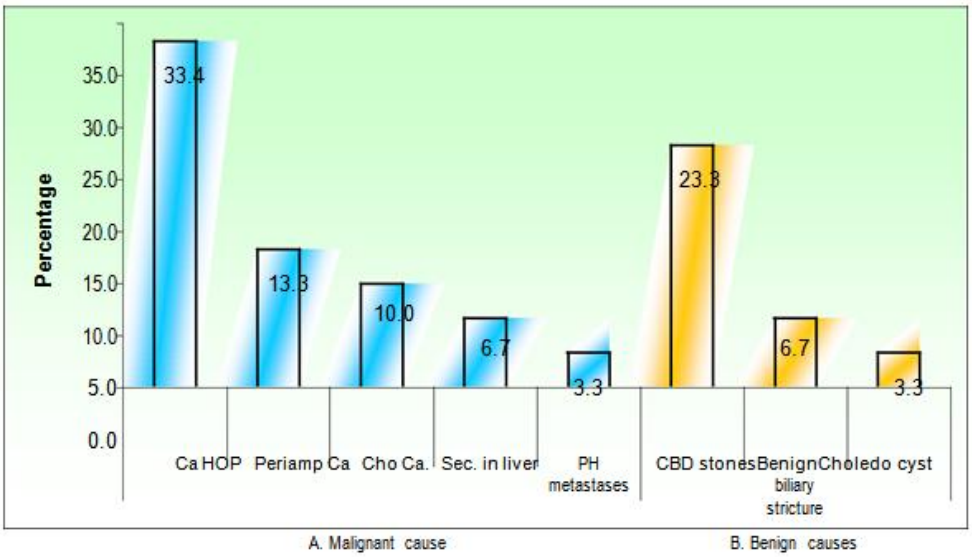


Table 4 : Clinical presentation in surgical jaundice causes

	Total cases	**Jaundice**	**Pain abdomen**	**Mass abdomen**	**Itching**	**Fever with chills**	**Loss of appetite**	**Loss of weight**	**Steatorea**	**Dark urine**
Malignant jaundice	19	18 (94.7%)	14 (73.9%)	5 (26.3%)	9 (47.4%)	2 (10.5%)	17 (89.5%)	17 (89.5%)	13 (68.4%)	13 (68.4%)
Benign surgical jaundice	11	10 (90.9%)	11 (100%)	1 (9.1)	5 (45.5%)	11 (100%)	1 (9.1%)	1 (9.1%)	8 (72.7%)	9 (81.8%)
	30	28 (93.3%)	25 (83.3%)	5 (16.7%)	14 (46.7%)	13 (43.3%)	18 (63.3%)	18 (63.3%)	21 (70%)	22 (73.3%)

Interpretation : In malignant jaundice the most common symptom was jaundice 94.7% loss of weight 89.5%. In benign surgical jaundice the commonest symptom was pain abdomen 100%, fever with chills 100% jaundice 90.9%.

d) Clinical presentation : Table no 4 - Jaundice was seen in 28 patients (93.3%) the duration of jaundice varied from 3 days to 3 months about 18 cases (6%) had jaundice of less than 1 month duration.Pain abdomen was present in 25 cases (83.3%). The pain was felt in the epigastrium and radiates to the right hypochondrium in 8 cases (26.7%). Pain was recurrent in 6 cases (20%) and continuous with minor fluctuation in intensity in 11 cases (47.8%).Dark urine was seen in 22 cases (73.3%). Pale coloured stool was seen in 21 cases (70%). Loss of appetite and weight was observed in 18 cases (63.3%). Itching was noticed in 14 cases (46.7%). Fever with chills in 13 cases (43.3%) and mass abdomen in 4 cases (13.3%).

Graph 4: Clinical presentation in benign and malignant surgical jaundice

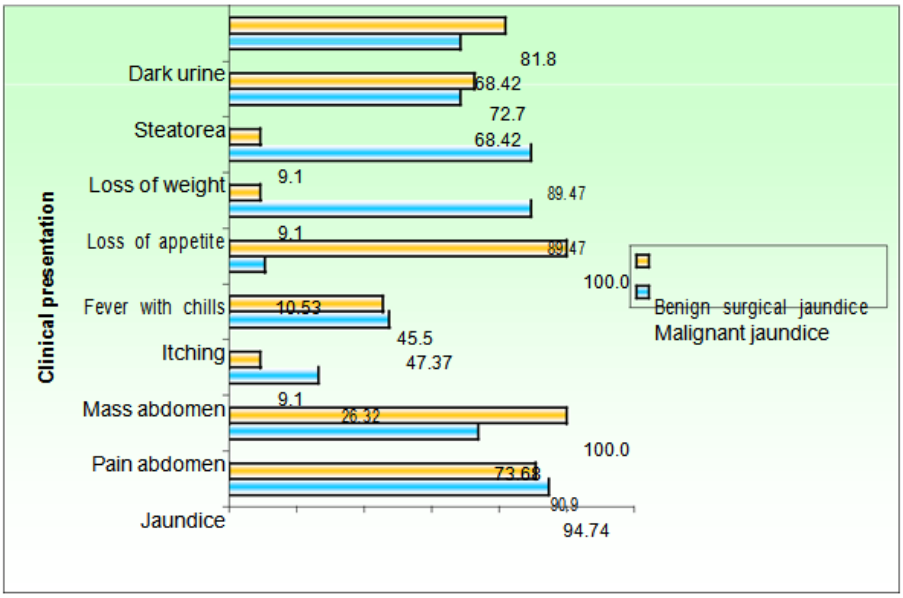


Table no 5 : Mean and range values of liver function test in surgical jaundice cases

	Total cases	Total bilirubin mg/dl	Direct bilirubin mg/dl	Indirect bilirubin mg/dl	Alkaline phosphatase iu/l	SGOT iu/l	SGPT iu/l
Malignant Jaundice	19	20.9 □ 6.7 (0.8-29.6)	16.7 □ 5.3 (0.6-23.6)	4.2 □ 1.4 (0.2-6)	284.5 □ 127.5 (79-557)	118 □ 55.9 (20-255)	124.2 □ 59 (22-308)
Benign Surgical	11	8.1□ 5.3	6.3 □ 4.3	1.8 □ 1	200.8 □ 76.1	98.6 □ 66.1	123.9 □ 108.4

Jaundice		(2.3-19.4)	(1.5-15.4)	(0.5-4)	(125-405)	(25-245)	(29-391)
	30	14.5 (0.8-29.6)	11.5 (0.6-23.6)	3.0 (0.2-6)	242.7 (79-557)	108.2 (20-255)	124.1 (22-391)

Interpretation : In this study the mean total bilirubin in malignant jaundice was 20.9 □ 6.7 mg/dl.Mean alkaline phosphatase in malignant jaundice was 284.5 □ 127.5 IU/L.

Investigation : Table no 5

I. Liver function test :

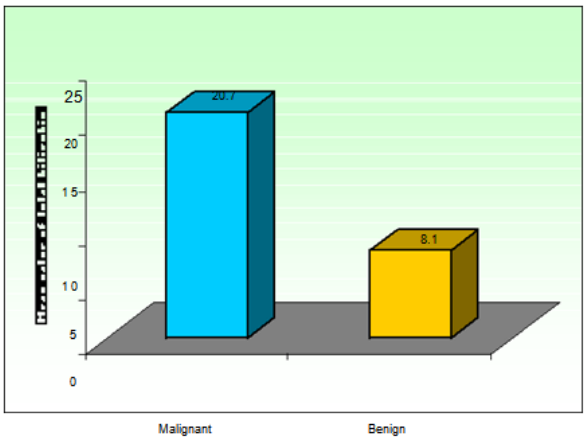
i) Serum Bilirubin : Serum bilirubin was elevated in 28 patients. Total bilirubin was below 29.6mg/dl and the direct fraction being the predominant one, the mean total bilirubin was 14.5 mg/dl, and mean direct bilirubin was 11.5 mg/dl.

ii) Alkaline phosphatase was elevated in 29 patients (96.7%). The level varied from 79 IU/L to 557 IU/L the mean level was 242.7 IU/L about 3 –4 times the upper limit.

iii) SGOT and SGPT was elevated in 29 patients (96.7%). The level varied from 20 U/L and 22 U/L to 255 U/L and 391 U/L respectively the average level of SGOT was 108.2 U/L and SGPT was 124.1 U/L.

iv) The urine examination for bile salts and bile pigment were positive in all malignant jaundice cases and out of benign obstruction it was positive in 9 cases (81.8%).

Graph 5a : Mean value of total bilirubin in benign and malignant surgical jaundice



Graph 5b : Mean value of alkaline phosphatase and SGOT in benign and malignant surgical jaundice

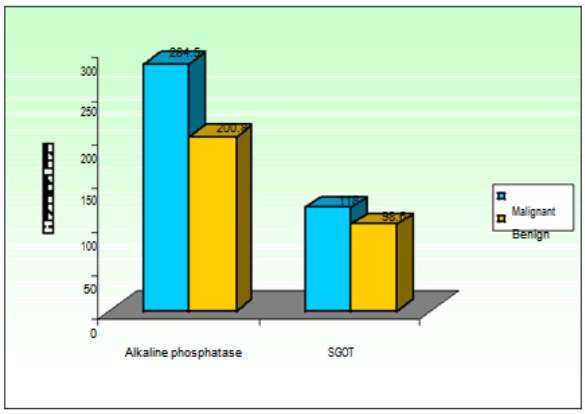


Table 6 : Ultrasonographic findings in cases of surgical jaundice

	Total cases	**Dilated CBD**	**Dilated biliary radicles**	**Distended gall bladder**	**Stone in CBD**	**Mass in pancreas**	**Ascites**
Malignant jaundice	19	18 (94.7%)	16 (84.2%)	15 (79%)	1 (5.3%)	9 (47.4%)	10 (52.6%)
Benign surgical jaundice	11	10 (90.9%)	9 (81.8%)	3 (27.3%)	7 (63.6%)	-	2 (18.2%)
Total	30	28 (92.8%)	25 (83%)	18 (53.1%)	8 (34.5%)	9 (23.7%)	12 (35.4%)

Interpretation :

In our study distended CBD in malignant jaundice in 94.7%.

Dilated biliary radicles in malignant jaundice in 84.2%.
Distended gall bladder in malignant jaundice in 79%.

II. Ultrasonography : Table 6 :

Ultrasonography done on all the cases showed dilated common bile duct in 28 cases (92.8%), and dilated intra hepatic biliary radicals in 25 cases (83%), information about the liver metastases, pancreatic masses, and ascites was assessed in 12 cases (35.4%).

Graph 6: Ultrasonographic findings in benign and malignant surgical jaundice

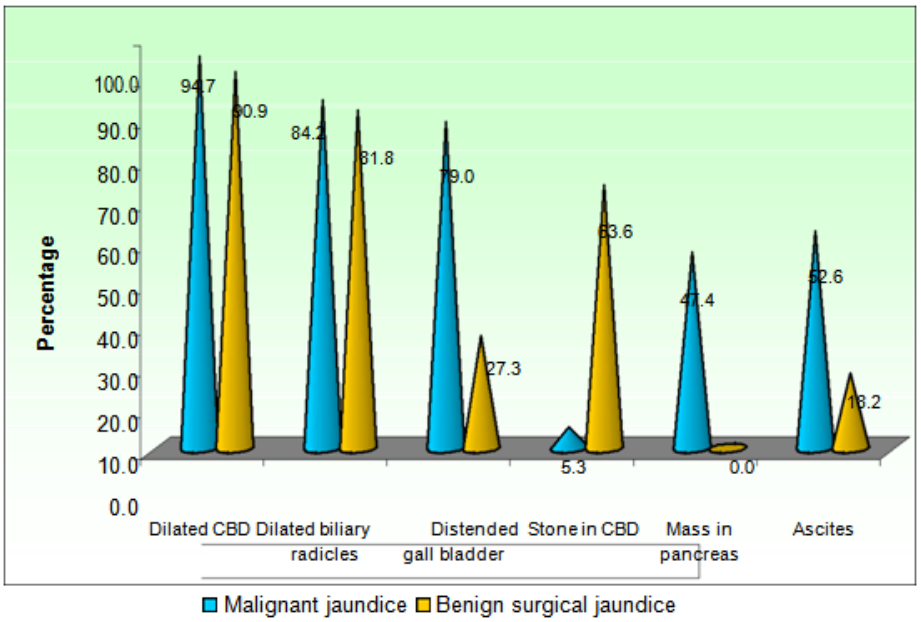


Table 7: Various treatment modalities in surgical jaundice cases

	Total cases	Whipple's pancreatico duodenectomy	Cholecysto jejunostomy with jejunojejnostomy	Cyst excision with roux –en –y hepaticojejunostomy	Choledoctomy with extraction of stone	Referred to cancer center	Post operative mortality	Mortality during Follow-up
Carcinoma head of pancreas	10	-	6	-	-	2	-	2
Periampullary carcinoma	03	01	2	-	-	-	-	-
Cholangio carcinoma	03	01	-	-	-	2	-	-
Secondaries in liver	02	-	1	-	-	-	-	1
Porta hepatic metastasis	01	-	1	-	-	-	-	-
	19	02 (10.5%)	10 (52.6%)	-	-	04 (2%)	-	03 (15.8%)
Choledocholithasis	7	-	-	-	07	-	-	-
Benign biliary stricture	3	-	3	-	-	-	1	-
Choledochal cyst	1	-	-	01	-	-	-	-
	11	-	3 (27.3%)	1 (9.1%)	7 (63.6%)	-	1(9.1%)	-
Total	30	02 (6.7%)	13 (43.3%)	1 (3.3%)	7 (23.3%)	4 (13.3%)	1 (3.3%)	3 (10%)

Interpretation :

In malignant jaundice Whipple's PD was done in 10.52%, and CJ with JJ was done in 52.63%.

Treatment given : Table no 7

1. Malignant causes of surgical jaundice :

Whipple's pancreaticoduodenectomy(PD) was performed on 2 patients out of 19 malignant cases (10.5%) and was followed up to 6 months one patient had mild intra abdominal collection which was drained by ultrasound guide.

a) Cholecysto jejunostomy and jejunojejunostomy was performed on 10 cases (52.6%) and was followed upto 6 months.

2. Benign cause of surgical jaundice :

a) Cholecysto Jejunostomy with Jejunojenostomy was performed on 2 cases of (18.2%) benign biliary stricture and in one case (9.1%) Cholecysto jejunostomy was performed which were followed up to 6 months.

b) CBD exploration and stone extraction was done on all 7 cases of choledocholithiasis, and post operatively followed upto 6 months.

c) choledochal cyst excision with roux-en-yhepatico jejunostomy was done in lone case of choledochal cyst, during 6 months of follow up patient was healthy with no attack of fever, chills or jaundice.

3. **Mortality:** 4 cases (13.3%) of the total cases were not fit for any procedure due to hepatic metastases, old age and emaciation which were referred to cancer centers.One patient died during 7th postoperative day due to pancreatic fistuleandthree patient died during follow up within 3 months (13.3%). All the patients were followed up to 6 months. In the benign causes of surgical jaundice. all Patient with choledocholithiasis patient were healthy at the end of 6 months.

In malignant jaundice 3 patient died during follow up within 3 months (15.8%) and out of 12 patient who underwent surgery 2 patient whounderwent pancreatico duodenectomy (PD) followed till the end of 6 months without mortality.

IV. Discussion

In this clinical study of 30 cases of surgical jaundice, the age distribution range between 3 – 75 years. The youngest patients was 3 years with choledochal cyst and oldest was 75years with carcinoma head of pancreas. The mean age was 56 years and there were 16 male patients (53.3%), and 14 female patients (46.7%). The results obtained were compared with previously conducted study.

Table 8: Sex ratio in various study of surgical jaundice cases

	Total cases	M	F	M: F
a) Pellegrini et al44 (1982)	178	86	92	1 : 1.07
b) Pain JA45 (1987)	30	17	13	1 : 0.76
C Parks RW46 (1997)	121	61	60	1:0.98
d) Present study (2016)	30	16	14	1: 0.88

Interpretation :

In our study of 30 cases of surgical jaundice there was slight male predominance at sex ratio 1:0.8 which correlates with similar studies by **Pain JA[45](1987)** 1:0.76 and **Parks RW[46] (1997)** at 1: 0.98.The sex ratio of malignant jaundice was 1:0.9 with slight male predominance.This was compared with various authors.

Lillemoe KD, Cameron JL. In Mangot's abdominal operationhas stated thatthere were slight male predilection in malignant jaundice. **Steer ML** in Sabistontextbook of surgery[5] reported that malignant jaundice was common in men thanwomen.

Russel RCG, in bailey and love's short practice of surgery reported that male and female are affected to the same degree. **Yoe CJ, Cameron JL**. In Oxford textbook of surgery reported that the sex ratio is equalizing over the recent years. It was inferred that sex ratio is equalizing in malignant jaundice.

Causes of surgical jaundice :

In our study carcinoma head of pancreas was 33.3%, Choledocholithiasis was 23.3%, Cholangiocarcinoma was 10%, Benign biliary stricture was 6.7%, and porta hepatis metastases was 3.3% and periampullary carcinoma was 13.3%. This resultscorrelates with study conducted by **Parks RW et al(1995)** who studied 121 patients during January 1986 to December 1994 reported that various causes of obstructive jaundice as carcinoma of head of pancreas 34.7%, choledocholithiasis 20.7%, cholangiocarcinoma 9.9%, benign biliary stricture 4.1%, and porta hepatismetastases 1.7%. **Carlos Chan MD et al(1995)** states that carcinoma of the ampulla of vater represents 4%-10% of patient with peripancreatic carcinoma.

Table no 9 : Cause of surgical jaundice in various study

Sl. No.		Pellegrini et al[44] (1982) 178 cases	J.A. Pain[45] (1987) 30 cases	R.W. Parks et al[46] (1997) 121 cases	Present study (2016) 30 cases
1	Ca head of pancreas	36 (20.2%)	13 (43.3%)	42 (34.7%)	10 (33.3%)
2	Periampullary Ca	-	-	2 (1.7%)	3 (13.3%)
3	Choledocholithiasis stones	46 (25.8%)	14 (46.7%)	25 (20.7%)	7 (23.3%)
4	Cholangio carcinoma	29 (16.3%)	1 (3.3%)	12 (9.9%)	3 (10%)
5	Benign biliary stricture	49 (27.5%)	-	5 (4.1%)	3 (6.7%)
6	Choledochal cyst	-	-	-	1 (3.3%)
7	Secondaries in liver	-	-	-	2 (6.7%)
8	Porta hepatis metastases	-	1 (3.3%)	2 (1.7%)	1 (3.3%)
9	Others	18 (10.1%)	1	33 (27.3%)	-

Interpretation :

a) Malignant jaundice :

In the present study there were 19 cases of malignant jaundice, which includs carcinoma head of pancreas (10), periampullary carcinoma (3), cholangio carcinoma

(3), secondaries in liver (2); and porta hepatis metastases (1). The age range was between 12 – 75 years, mean age was 57.21 years, with 80% of cases were between the age group of 50-80 years.

Of the 11 cases of Benign extra hepatic biliary tract disease which included choledocholithiasis (7), benign biliary stricture (3), choledochal cyst (1), the age range was between 3 – 72 years with mean age of 52 .45 years.

Clinical presentation in various studies of surgical jaundice :

In our study the presenting symptom and signs in malignant jaundice is jaundice 95%, abdominal pain 74%, loss of weight 89%, pruritus 47%, fever cholangitis 10.5%, hepatomagaly 66.7% and epigastric mass in 15.8%. This results correlates with study conducted by **Warren et al(1983)** who studied 191 patients and reported that the presenting symptoms in malignant jaundice as follows abdominal pain 82.8%, loss of weight 90%, pruritus 41.3%, fever 4.9%, hepatomegaly 64.4%. **Brooks et al(1981)** stated that epigastric mass was present in 18%. **Van Wagensveld BA et al(1997)** who studied 126 patient and reported jaundice as a presenting symptom in 90%, loss of weight in 82%.

Table 10 : Presentation in malignant jaundice various studies

		Warren et al 49	**Brooks et al 50**	**Van Wagensveld et al [51]**	**Present study (2016)**
1	Jaundice	145 (75.9%)	77%	113 (90%)	95%
2	Abdominal pain	157 (82.8%)	51%	60 (48%)	74%)
3	Loss of weight	172 (90%)	55%	103 (82)	89%)
4	Pruritus	79 (41.3%)			47%
5	Fever; cholangitis	9 (4.9%			10.5%
6	Hepatomagaly	123 (64.4%)			66.7%
7	Palpable gall bladder	54 (28.3%)			
8	Epigastric mass	32 (16.7%)	18%		15.8%

Interpretation :
The commonest presentation in malignant jaundice is jaundice and loss ofweight.

Presentation in various cause of benign extra hepatic biliary tract disease :

In our study there were 7 cases of choledocholithiasis with presentation as jaundice in 85.7% pain abdomen in 100%, fever with chills in 100%, lightening of the stool in 85.7%, darkening of urine in 85.7%, and itching in 28.6%.

Abrendt SA, Pitt HA in sabiston textbook of surgerystated the presentationof choledocholithiasis includes biliary colic, jaundice, lightening of the stool and darkening of the urine with fever and chills.

In our study there were 3 cases of benign biliary stricture, 2 cases of post operative biliary stricture, and the lone case following chronic pancreatitis presented with jaundice in 100%, pain abdomen in 100%, itching in 100%, fever with chills in 100%, loss of appetite and weight in 33.3%, and steatorea in 66.7%.
The most common cause of benign biliary stricture is iatrogenic bile duct trauma during cholecystectomy.

CBD stricture occurs in 3 – 29% of patient with chronic alcoholic pancreatitis[52] usually present with history intermittent jaundice, abdominal pain.

In this study there was only one case of choledocal cyst presented at the age of 3 years with jaundice, pain abdomen, mass abdomen, fever, loss of weight and appetite.

Lypsett PA et al (1994) studied 11 children with choledochal cyst andreported that symptoms and signs at presentation were abdominal mass 8%, abdominal pain 36%, Jaundice 64%, fever 18%, nausea / vomiting 18%.

3) Investigation :

In our study the value of total bilirubin in malignant obstruction varied from 0.8 mg/dl to 29.6 mg/dl with the mean value at 20.9 □ 6.7 mg/dl. Of the 19 cases malignant obstruction the value of alkaline phosphatase varied from 79 IU/L to 557 IU/L with mean value of 284.5 □ 127.5 IU/L. The value of SGOT varied from 20 – 255 IU/L with mean value of 118 □ 55.9 IU/L.

Steer ML in Sabiston textbook of surgeryhas stated that highest elevation in serum bilirubin are usually found inmalignant obstruction was more than 20 mg/dl.

Pellegrini et al has reported that average bilirubin values are higher inpatient with biliary obstruction caused by malignant disease.

Warren et al studied the laboratory values on 191 patients of carcinomapancreas and reported that the mean values of total bilirubin was 8-9 mg/dl, alkaline phosphatase 269.1 IU/L, SGOT 111.5 IU/L.

In our study of 7 cases of choledocholithiasis the value of total bilirubin varied from 2.3 mg/dl to 19.9 mg/dl with mean value of 10.3 mg/dl.

Ahrendt SA, Pitt HA in Sabiston textbook of surgeryhas stated that CBDstone is associated with moderate increase in serum bilirubin at 10 – 12 mg/dl.

Pellegrini et al (1982) has reported that serum bilirubin value >14 mg/dl arenot usually caused by CBD stones.

In our study of 7 cases of choledocholithiasis the value of alkaline phosphatase ranged from 125 IU/L to 405 IU/L the mean value was 207 IU/L.

Pellegrini et al (1982) reported that alkaline phosphatase more than 5 timesor clinical jaundice present for longer than 1month are uncommon manifestation of CBD stones.

In our study the ultrasound examination was done in all the patients and dilated CBD was noted in 94.7% of malignant disease, and 90.9% in benign cause, distended gall bladder was noted in 79% of malignant cause and 27.3% in benign cause, pancreatic mass was noted in 47.4% of malignant jaundice, ascites was noted in 52.6% of malignant jaundice.
Galati P et al (1994) concluded that sonographic finding characteristic ofperiampullary tumor are intrahepatic ductal dilatation, dilated CBD and hypoechoeic mass in ampullary region and distended gall bladder seen in more than 50% of the patients.

Treatment :
Malignant jaundice :

a) Curative treatment :

In our study curative resection of malignant disease was done in 2 cases (10.5%). Whipplespancreatico duodenectomy was done in one case of periampullary carcinoma and pylorus preserving pancreatico duodenectomy was done in one case of cholangio carcinoma.

Singh SM and Reber HA (1989) reported that only 10-15% of patients withpancreatic cancer have disease suitable for resection and possible cure by the time the diagnosis is made.

b) Palliative treatment :

In this study palliative cholecysto-jejunostomy and jejuno-jejunostomy bypass procedure was done in 10 cases of 19 malignant jaundice (52.5%) of which 6 cases of carcinoma head of pancreas, 2 cases of periampullary carcinoma, 1 case with porta hepatis metastases and secondaries in liver each. 4 cases presented in the late stage who were not fit for any procedure and were referred to cancer center, 2 each from carcinoma head of pancreas and cholangio carcinoma.

Singh SM and**Reber HA (1989)** reported that 85 – 90% of patients withmalignant jaundice requires some form of palliation.

c) Mortality :

In this study 3 (15.8%) patients died during follow up out of 19 malignant jaundice patient within 30 day which included 2 patients of carcinoma head of pancreas and 1 patients with secondary liver.

Van Wagensveld BA et al reported that in obstructive jaundicepostoperative mortality ranges from 2.5 – 19%.

d) Survival :

In our study both patient who underwent PD were followed till 6 months without mortality.

Fisher WE, Andersen DK, Bell RH, Saluja AK, and **Brunicaidi FC** in

Schwartz textbook of surgery has stated that mean survival after PD was about 12 – 15 months.

Steer ML in Sabiston textbook of surgeryhas stated that the mean survivalfor patient with stage III tumor range from 8 – 12 months and patient with stage IV tumor is 3 – 6 months.

2. Benign extra hepatic surgical jaundice :

In our study choledocholithotomy and T tube drainage was successfully done in all the 7 choledocholithiasis patients with recurrence in 1 case (14.3%).

Ahrendt SA, Pitt HA Sabistontextbook of surgery[5]has stated that openCBD exploration is associated with low operative mortality in 0 - 2%, and operative morbidity 8% - 16%.

Uchiyama et al (2003) reported that recurrence rates in choledocholithiasiswas high when only choledochotomy and T tube drainage are performed in 10.3%.

Table 11: Prognosis of after treatment of patient with choledocholithiasis

	Uchiyama et al56 1982 – 1986	Present study 2016
Patients	87	7
Age (mean □ SD)	64.5 □ 13.3	57 □ 15
Gender male : Female	41 : 46 (1:1.12)	3:4 (1:1.33)
Recurrence rate	10.3%	14.3%

Interpretation :

The sex ratio in patients with choledocholithasis was 1:1.33 and recurrence in14.3%In our study the lone patient of chronic pancreatitis with obstructive jaundiceunderwentcholedochoduodenostomy with internal drainage but the patient died on 7th postoperative day due to pancreatic fistula. The other 2 cases of benign biliary stricture secondary to iatrogenic trauma patient underwent double bypass procedure.

Sonnenday CJ, Lillemoe KD, Yeo CJ in shakelfords surgery of the alimentary tract has stated that patient who undergo surgical procedure for biliary obstruction secondary to chronic pancreatitis are treated with choledochoduodenostomy.

In our study the lone case of choledochol cyst was treated surgically with cyst excision with roux en-y hepatico-jejunostomy, during follow up patient was healthy with no attack of fever, chills or jaundice.

Lipsett PA has stated that current treatment of choldedochal cyst is excision of the cyst with hepatico-jejunostomy with roux en-y reconstruction of the biliary tree.

V. Conclusion

From our study of 30 cases of surgical jaundice the following can be concluded.

- Most common age group seen is between 50-80 years and the sex ratio is near equalizing.
- Most common cause of surgical jaundice is carcinoma head of pancreas and choledocholithiasis.
- Jaundice is the most common presentation of surgical jaundice followed by pain abdomen, dark urine, pale stool and loss of weight.
- Early diagnosis and management helps to reduce the mortality and morbidity rate.

VI. Summary

- A clinical study of 30 cases of surgical jaundice who were admitted to Osmania medical college from July 2016 to november 2018
- 76% of patients are between the age group of 50-80 years with sex ratio of 1:0.88 with slight male predominance.
- The commonest cause of malignant jaundice was carcinoma head of pancreas at 33.4% and in benign cases was choledocholithiasis at 23.3%.
- The commonest presentation in malignant jaundice is jaundice 94.7% abdominal pain 73.9%, loss of weight 89.5% pruritus 47.4%, fever 10.5%.
- The commonest presentation in choledocholithiasis was jaundice 85.7%, pain abdomen 100%, fever with chills 100% lightening of the stool 85.7%, darkening of urine 85.7% and itching 28.6%.
- Total Bilirubin was highest in carcinoma head of pancreas and lowest in choledochal cyst of which direct Bilirubin was more.

- The mean valueof total bilirubin in malignant jaundice was 20.9 6.7 mg/dl and in benign cause of surgical jaundice is 8.1 5.3 mg/dl.
- Alkaline phosphatase was highest in cholangio carcinoma and lowest in cholidocholithiasis.
- The mean value of alkaline phosphatase in malignant jaundice was 284.5 127.5 IU/l and in benign cause of surgical jaundice is 200.8 76.1.
- Ultrasonography was more effective in detecting distended CBD (92.8%), dilated intra hepatic biliary radicals (83%) and distended gall bladder in (53%)
- 10.5% of malignant jaundice underwent curative resection while 52.6% underwent palliative surgery.
- All the benign extra hepatic obstructive jaundice patient underwent curative surgery with 9% mortality due to pancreatic fistula.
- 3 patient (10%) died during the follow up period within 30 days due to extensive metastases of malignancy.

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