



## "A CLINICAL STUDY AND MANAGEMENT OF OBSTRUCTIVE JAUNDICE"

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**ABSTRACT** **BACKGROUND AND OBJECTIVES :** Jaundice is due to increase in the serum bilirubin level above the normal range. Obstructive jaundice is strictly defined as 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. The objective of study is to differentiate between medical jaundice and surgical jaundice based on history, physical examination and biochemical test, role of USG and ERCP, modalities of treatment required.

**METHODS :** The study population consists of patients diagnosed to have surgical jaundice were assessed preoperatively and later subjected to surgery or palliative procedure depending on the need. Postoperatively patient's condition was assessed and complication were documented.

**RESULTS :** This study analyzed the various causes of surgical jaundice, its presentation, investigations were carried out and different types of operative and non-operative procedures.

**INTERPRETATION AND RESULTS:** Common cause for surgical jaundice is CBD calculi. USG remains the cheapest, safest and most reliable diagnostic tool in the management of surgical jaundice. ERCP has both diagnostic and therapeutic advantage over MRCP, which is only diagnostic. Interventional ERCP recently has been replacing CBD exploration for CBD calculi and its use as palliative drainage with stenting in both benign and malignancy has helped to prevent complications and also better survival of the patient.

**KEYWORDS :** Obstructive jaundice, Ercp, CBD Calculi**INTRODUCTION**

Jaundice is due to increase in the serum bilirubin level above the normal range. The pathological mechanism that gives rise to jaundice can be classified into hemolytic, hepatocellular and obstructive<sup>1</sup>. Medical jaundice encompasses a broad range of problems having little in common, and they do not require surgical intervention. Diagnosis, management and differentiating medical jaundice from surgical jaundice is one of more perplexing and challenging problems confronting both physicians and surgeons<sup>2</sup>. Though surgical jaundice can be distinguished from medical jaundice by thorough history, examination and simple investigations they provide little or even misleading information about the site of obstruction and its cause. Recent advances in imaging techniques and with improvement in the field of anaesthesia, management of surgical jaundice has taken a new turn<sup>3,4</sup>. To diagnose the cause, site of obstruction and management of a case of surgical jaundice is indeed a challenging task for the surgeon. Hence, I would like to do a detailed study of surgical jaundice with regards to the etiology, the site of obstruction and different modalities of treatment required like ERCP.

**AIMS AND OBJECTIVES OF THE STUDY**

1. To differentiate between medical jaundice and surgical jaundice based on history, physical examination and biochemical test.
2. Role of USG to know the level, site and cause of surgical jaundice.
3. Role of ERCP as diagnostic and therapeutic tool on selected cases.
4. Modalities of treatment required for different causes of surgical jaundice.

**PATIENTS AND METHODS****Study design**

This is a longitudinal study with single intervention group with prospective design.

**Source of Data**

Surgical in-patients at Government General Hospital, Kurnool, were taken up for study.

**Study Period**

August 2014 to July 2016. Patient enrollment started in August, 2014 and ended in February, 2016. Final follow up of the lastly enrolled patient ended in July 2016. All patients were followed up for a minimum period of 6 months as per annexure-I.

**Sample size**

All patients who are fitting into the inclusion criteria were taken in to study. Number of patients included in study was 40.

**Method of Collection of Data**

After admission to Government General Hospital, Kurnool, data was collected from the patient's records regarding the clinical features, investigations and based on the results they were diagnosed to have either surgical jaundice or medical jaundice. Those patients diagnosed to have surgical jaundice were assessed preoperatively and later subjected to surgery or palliative procedure depending on the need. Postoperatively patient's condition was assessed and complication were documented. Patients were followed up for mean period of 6 months. Photographic documentation has been done wherever possible. When patients underwent surgical intervention/ERCP, any tissue removed was subjected for histopathological examination.

**Statistical Methods**

Chi-square and Fisher Exact test have been used to find the significance of proportions of symptoms & signs between benign and malignant cases. Student t test has been used to find the significant mean difference of lab parameters between benign and malignant cases. The Odds ratio has been used to find the strength of relationship between symptoms & signs with benign and malignant cases.

**RESULTS AND OBSERVATIONS****Study Design**

A Prospective clinical study consisting of 40 patients of surgical jaundice is undertaken to investigate the pattern and magnitude of clinical & lab parameters and evaluate the cause of surgical jaundice and the different methods of treatment adopted.

**Table-1 Sex & Age distribution**

Age in years	Male (n=19)		Female (n=21)		Total (n=40)	
	No.	%	No.	%	No.	%
≤ 30	1	5.26	3	14.29	4	10.00
31-50	6	31.58	8	38.09	14	35.00
51-70	11	57.89	8	38.09	19	47.50
>70	1	5.26	2	9.52	3	7.50

The above table shows analysis of age and sex distribution. The peak age was between 31 to 70 years (82.50%). The age varied from 18 years to 83 years. Number of male patients were 19 (47.5%) and number of female patients were 21

**Table-2 Association of symptoms & signs with diagnosis**

Symptoms	Benign (n=28)	Malignant (n=12)	Total (n=40)	Significance (p value)	Odds Ratio (Malignant)
Pain abdomen	24 (85.71)	10 (83.33)	34 (85.00)	p>0.05	0.83
Jaundice	16 (57.14)	12 (100.00)	28 (70.00)	0.007**	-
Itching	10 (35.71)	6 (50.00)	16 (40.00)	0.490	1.80
High Colored Urine	11 (39.28)	9 (75.00)	20 (50.00)	0.048*	4.36
Clay colored Stools	8 (28.57)	8 (66.67)	16 (40.00)	0.037*	5.00
Nausea/Vomiting	8 (28.57)	5 (41.67)	13 (32.50)	0.476	1.78
Fever	2 (7.14)	-	2 (5.00)	p>0.05	-
Melaena	-	1 (8.33)	1 (2.50)	p>0.05	-
Loss of weight	9 (32.14)	11 (91.67)	20 (50.00)	0.001**	23.22
Icterus	28 (100.00)	12 (100.00)	40 (100.00)	-	-
Pallor	8 (28.57)	9 (75.00)	17 (42.50)	0.006**	7.90
Abdominal Tenderness	11 (39.29)	3 (25.00)	14 (35.00)	0.484	0.52

**Table-3 Role of ERCP as diagnostic tool compared with ultrasound**

Cause of obstruction	Ultrasound		ERCP	
	Number	%	Number	%
CBD stones	9	60.00	9	60.00
CBD benign strictures	3	20.00	3	20.00
Malignancy	3	20.00	3	20.00

**CLINICAL PICTURES**



**Img-1. Jaundice**



**Img-2. CBD exploration with extraction of calculi**



**Img-3. Periampullary carcinoma**



**Img-4. PTC showing malignant stricture of common hepatic duct and drainage through PTBD**

**DISCUSSION**

Surgical jaundice is a frequent condition of biliary tract disorder and the evaluation and management of the jaundiced patient is a common problem facing by the General Surgeon. While diagnosing a case of surgical jaundice from medical jaundice, a thorough history, a complete physical examination and biochemical tests are necessary.

Once diagnosed, the surgeon should have good knowledge about the anatomy of the biliary tree, physiology of bile metabolism and pathophysiological changes occurring in the liver secondary to obstruction, various causes of obstruction, different imaging facilities and different modalities of treatment.

This study analyzed the various causes of surgical jaundice, its presentation, investigations were carried out and different types of operative and non-operative procedures were conducted in our hospital. Total number of cases in our study was 40 patients. Our study was compared with works done by various others authors.

**Age distribution in obstructive jaundice:**

In this study, the peak incidence of surgical jaundice was seen in age group of 31 to 70 years.

In this study the age distribution was between 18 – 83 years. The youngest patient was 18 years old with porta hepatis TB lymphadenitis and oldest was 83 years with carcinoma head of pancreas. The mean age was 55.65 years. Lawal D *et al.*<sup>5</sup> in a study of 50 patients of obstructive jaundice reported the mean age as 42 years. In another study by Sharma MP *et al.*<sup>6</sup> of 429 patients of obstructive jaundice the mean age was found to be 62.5 ± 34.2 years. Siddique K *et al.*<sup>7</sup> in a study of 60 patients of obstructive jaundice reported the mean age to be 49.50 years.

The age range for patients with malignant disease was between 35 – 83 years, mean age was 58.81 years. For patients with benign disease the age range was between 18 – 72 years with mean age of 48.51 years. Thus in this study the mean age of patients with malignant causes of obstructive jaundice was higher than that of patients with benign causes of obstructive jaundice. This correlates with similar studies undertaken previously. In similar studies by Lawal D *et al.*<sup>5</sup> of 50 cases and Phillip Chalya *et al.*<sup>8</sup> of 60 cases of obstructive jaundice it was seen that the patients with malignant causes of obstructive jaundice were older than the patients with benign causes of obstruction.

**Table-4: Comparison of Age distribution in obstructive jaundice in various studies**

Name of the study	Mean age of the patients
Sharma MP <i>et al.</i>	62.5
Siddique K <i>et al.</i>	49.50
Lawal D <i>et al.</i>	42
Present study	55.65

**Sex distribution in obstructive jaundice:**

In this study there were 19 male patients (47.5%), and 21 female patients (52.5%). The results obtained were compared with previously conducted studies.

**Table-5: Comparison of Sex distribution in obstructive jaundice in various studies**

	Total	Male	Female	M:F
Lawal D et al	50	28	22	1:0.78
Sharma et al	429	229	200	1:0.87
Talpur et al	83	25	58	1:2.32
Siddique K et al	60	40	20	1:0.5
Present Study	40	19	21	1:1.105

In this study of 40 cases of obstructive jaundice there was slight female predominance at sex ratio 1:1.105 which correlates with similar studies by **Talpur et al.**<sup>9</sup> at 1:2.32 and not in agreement with other studies by **Lawal D et al.** at 1 :0.78, **Sharma MP et al.** at 1 : 0.87, **Siddique K et al.** at 1 : 0.5, where there is slight male predominance.

**Causes of obstructive jaundice:**

In this study choledocholithiasis constitutes about 52.5% of total cases and it is the most common cause of benign obstructive jaundice. In this study cholangiocarcinoma constitutes about 15% of total cases and was the most common cause of malignant obstructive jaundice. These results compared with previous similar studies.

**Bekele Z et al.**<sup>10</sup> in a study of 49 patients of obstructive jaundice reported choledocholithiasis as the most common benign cause of obstructive jaundice.

**Khurram S et al.**<sup>11</sup> in a study of 60 patients of obstructive jaundice reported that carcinoma head of pancreas as the commonest malignant cause while choledocholithiasis as the commonest benign cause of obstruction.

**Syed N et al.**<sup>12</sup> in a study of 71 patients of obstructive jaundice found Carcinoma head of the pancreas as the most common malignant cause and choledocholithiasis as the most common benign cause. **Rahman GA et al.**<sup>13</sup> in a study of 64 patients of obstructive jaundice found that Carcinoma head of pancreas is the commonest cause of obstructive Jaundice.

Another study by **Phillipo Chalya et al.** of 116 cases of obstructive jaundice Ca head of pancreas constituted 37.9% cases, choledocholithiasis 25.8%.

**Limitations of the study**

- Limited number of study population. More patients would have improved power of study.
- Limited duration of study. Longer follow up may show the long term complications of treatment.
- Intraoperative cholangiogram was not done in this study to evaluate the biliary tree for residual stones.
- Tumour markers were not studied in this study for the diagnosis of malignancies.

**Strengths of the study**

- Strength of the study lies in conducting all relevant investigations at our hospital to increase the patient compliance.
- With the advent of ERCP and MRCP and interventional radiological procedures this study will able to have an understanding of pathology of biliary tract diseases preoperatively, which helps in subsequent management in a better approach.
- Postoperative complications were very rare in this study which are comparable with other studies.

**CONCLUSIONS**

- Common presentation of surgical jaundice is jaundice. Common cause for surgical jaundice is CBD calculi. USG remains the cheapest, safest and most reliable diagnostic tool in the management of surgical jaundice.
- ERCP has both diagnostic and therapeutic advantage over MRCP, which is only diagnostic.
- Open exploration of CBD under experienced hands is comparatively as good as ERCP for CBD calculi.

- In malignancies, early detection, repetitive staging and selection of patient are more likely to be benefited from resection of tumour, whereas late presentation and those patient not suitable for resection had shown good improvement in quality of survival with palliative procedures and surgery.
- Improving deranged LFT, correction of anaemia and hepatorenal problem improves the surgical results (morbidity and mortality).
- In patients with surgical jaundice where jaundice is progressive it is very important to decompress the biliary tree either by external drainage or internal drainage before offering definitive treatment.

**SUMMARY**

Fourty patients were diagnosed to have surgical jaundice in the study period from August 2014 to July 2016. The study was conducted at Government General Hospital, Kurnool.

A brief introduction and a historical review of biliary tract has been presented with a detailed discussion on the surgical anatomy, physiology, etiopathogenesis, clinical features, investigations and management of surgical jaundice.

The findings of our study were compared with that of the available literature. The results of our study are represented with tables and graphs for better understanding.

The findings of the study are as follows:

- The occurrence of surgical jaundice was maximum in the 31-70 year age group.
- Males and females showed almost same percentage in presentation.
- Icterus was present in all 40 patients. Pain abdomen and jaundice was more in benign condition whereas it was jaundice clay-coloured stools, high coloured urine with pruritus more common in malignancy. Anaemia and loss of weight was common in malignancy.
- High values of serum bilirubin, alkaline phosphatase, decrease levels of albumin and deranged coagulation profile was common in malignancy.
- USG was the cheapest and non-invasive investigation used for diagnosis of surgical jaundice.

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