

# Evaluation of clinical and biochemical analysis with patients of surgical jaundice present in Burdwan medical college and hospital

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## Abstract

**Background:** Surgical jaundice is a common problem met by all surgeons on a regular basis. Jaundice is a term used to describe the yellow pigmentation of the skin, mucous membranes, and sclera affected by a variety of conditions. The aim of our study was to assess the clinical and biochemical picture with which patients of Surgical Jaundice present. **Methods:** The present study was conducted in the surgical wards of Department of Surgery, Burdwan Medical College and Hospital. Patients with obstructive jaundice who attended the Surgical out patients department. The time period of the study was from January 2020 to May 2021. The total number of patients were 51 (Fifty-one). The subject selection was random and only Adult cases were selected for the study. The diagnosis of obstructive jaundice requires a thorough clinical history and analysis, as well as baseline investigations to validate cholestatic jaundice and the use of diagnostic testing as needed to determine the cause and severity of the condition. **Results:** The data from this research were analyzed with the aim of "evaluating the causes of surgical jaundice by correlating biochemical analysis and operative findings." Thus, for Benign disease most of the patients were in mean age of 21- 30 (17.6%) whereas for malignant disease patients were in mean age of 51- 60 (42.9%). For, Benign causes of Jaundice, as discussed earlier, CBD stones, are the commonest. We have found significant p value (<0.05) in between Benign and Malignant cases in all Biochemical parameters. Mortality in malignant patients: 5/ 21 = 23.8% **Conclusion:** As a result, in preparing care for a patient with obstructive jaundice, a definite planned management procedure with attention to the right option of investigations should be followed. **Key words:** liver, surgical jaundice, bilirubin,

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## INTRODUCTION

The term "jaundice" comes from the French word "jaunes," which means "Yellow," which refers to the presence of excess bile pigments in tissue and serum. (Mc Fadden and Zimmer 1994).<sup>1</sup> Jaundice is a bad symptom that happens as the liver gets indurated, according to Hippocrates, the

Father of Medicine. Bile secretion is one of the liver's most important functions. Bile is a mixture of organic and inorganic constituents in aqueous solution. Hepatocytes are the ones that make the Bile. Bilirubin is an organic ion with the molecular composition of a yellow red pigment (C<sub>33</sub> H<sub>36</sub> O<sub>6</sub> N<sub>4</sub>). Bilirubin is produced at a rate of 300mg per day. Nonerythropoetic sources, such as myoglobin and heme-containing enzymes, account for 15-20% of the total. 80 percent comes from the breakdown of haemoglobin in the spleen and/or liver by R.E. System cells through Hb breaking. RBC that has reached the end of its useful life. Albumin is manufactured from the Globin fraction. In the resynthesis of Hb, the Haem Moeity is broken down to degrade the inorganic Iron. Porphyrin rings are joined together and converted to biliverdin by the enzyme Heme oxygenase. Biliverdin reductase converts biliverdin to bilirubin. The liver, intestine, and kidney all play a role in bilirubin synthesis. The three stages of bilirubin synthesis

in the liver are uptake, conjugation, and excretion. Obstruction is characterized by conjugated hyperbilirubinemia. Unconjugated Bilirubin can be elevated in late cases of hepatocyte degeneration. The most widely used and perhaps the most sensitive measure of biliary obstruction is alkaline phosphatase. A tall building And where there is a segmental obstruction, this happens. A specific for intrahepatic obstruction may be an isoenzyme of gamma glutamyl residue (Dcoment 1979). The elevation of AIK phosphates lasts even after the obstruction is removed. The cause of constant elevation is unknown. Surgical experience, whether recent or distant, may be a factor in the development of jaundice (Lamont and Isselbacher, 1973).<sup>2</sup> Jaundice can be caused by a number of things in the first three weeks after surgery, jaundice may be due to a variety of problems that include:

- (1) Hemolysis of transfused erythrocytes (especially stored blood), resorption of hematomas or hemoperitoneum, and occasionally, hemolysis of the patient's erythrocytes due to G-6PD deficiency, drug reactions, or malarial parasites in transfused blood.
- (2) Hepatic ischemia combined with preoperative or intraoperative hypotension or hypoxia, and could be due to the use of halogenated anesthetics, susceptibility of other hepatotoxic medications, sepsis, or hepatic ischemia.
- (3) Extrahepatic biliary obstruction can result from an unnoticed biliary calculus or cholecystitis, or it can be caused by an inadvertent surgical damage to the normal bile duct. A biliary stricture may have resulted from biliary tract surgery in the past, although these are normally clinically visible within two years of the procedure. When looking at a case of jaundice that may be linked to surgery, look at the surgical record for details on transfusions, medication, x-rays, medications, and possible hypotension or hypoxia, as well as the surgeon's dictated notice of intraoperative activities and his visual and palpation impression of the patient's liver, biliary tree, and pancreas. The aim of our study was to assess the clinical and biochemical picture with which patients of Surgical Jaundice present.

**RESULTS**

**Table 1: Age distribution of Clinical profile.**

Age in Years	Benign (n=30)	Malignant (n=21)	Total (n=51)
18-20	02(6.7%)	00 (00%)	02(3.9%)
21-30	09(30.0%)	00 (00%)	09(17.6%)
31-40	07(23.3%)	02 (9.5%)	09(17.6%)
41-50	06(20.0%)	04 (19.0%)	10(19.6%)
51-60	04(13.3%)	09 (42.9%)	13(25.6%)
61-70	02(6.7%)	05 (23.8%)	07(13.7%)
71-80	00(00%)	01 (4.8%)	01(2.0%)
<b>Total</b>	<b>30(100 %)</b>	<b>21 (100%)</b>	<b>51(100%)</b>

Thus, for Benign disease most of the patients were in mean age of 21- 30 (17.6%) whereas for malignant disease patients were in mean age of 51- 60 (42.9%).

**MATERIALS AND METHODS**

The present study was conducted in the surgical wards of Department of Surgery, Burdwan Medical College and Hospital. Patients with obstructive jaundice who attended the Surgical out patients department. The time period of the study was from January 2020 to May 2021. The total number of patients were 50(Fifty). The subject selection was random and only Adult cases were selected for the study. The diagnosis of obstructive jaundice requires a thorough clinical history and analysis, as well as baseline investigations to validate cholestatic jaundice and the use of diagnostic testing as needed to determine the cause and severity of the condition. All the patients studied according to a set proforma which included history, clinical examination, investigation which were later correlated with operative findings. The initial assessment regards the detailed History and Examinations. The history is in details with regards to onset, duration, progress, wt loss, pain, cholangitis, lump. The clinical examination gives a detailed evaluation with regards to palpable gallbladder, lump abdomen, asites, metastatic spread.

After the clinical Diagnosis has been made, the following investigations were done serially: Investigations to Confirm / Evaluate Clinical Diagnosis and to confirm that patient has obstructive jaundice. Investigations to confirm the site and nature of obstruction producing Jaundice. Investigations to prepare patient for cooperation and to see Anaesthetic fitness.

**Investigations to confirm that the patient has Obstructive Jaundice:** Liver Function Test. Serum Bilirubin [Direct / Indirect]. Serum Alkaline phosphatase. Serum SGOT, SGPT. Serum Albumin. Prothrombin time.

**Investigations to see the fitness of patient for operation**  
**Chest X Ray:** CXR P/A view needed not only for evaluation of chest disorders but also for assessing metastatic spread to lungs. Blood Sugar, Urea, Creatinine, Blood for TC DC ESR Hb% BT CT, Blood for Prothrombin time. and ECG.

**Table 2: Sex, Prevalence of Benign Cases**

Benign cause of Jaundice (n=30)	Male	Female	Total
CBD stone	05	13	18
CBD stricture	02	03	05
Primary sclerosing cholangitis	01	00	01
Chronic pancreatitis	01	01	02
Mirizzi	01	00	01
Hydatid	01	01	02
Choledocal cyst	00	01	01
<b>Total</b>	<b>11(36.7%)</b>	<b>19 (63.3%)</b>	<b>30(100%)</b>

**Table 3: Sex, Prevalence of Malignant Cases**

Malignant cause of Jaundice (n=21)	Male	Female	Total
CA. G.B	03	05	08
Cholangio CA	03	01	04
CA hd of pancr	05	01	06
Periamp Tumor	02	01	03
<b>Total</b>	<b>13(61.9%)</b>	<b>8(38.1%)</b>	<b>21(100%)</b>

The Clinical examination of patients of Jaundice was based on detailed analysis of Symptoms and sizes of patients, accounting for prevalence of symptoms signs with study on prevalence of uncommon symptoms (as pain radiating to back). For, Benign causes of Jaundice, as discussed earlier, CBD stones, are the commonest.

**Table 4: Clinical Diagnosis**

Clinical Diagnosis	Diagnosis made clinically.	Diagnosis not made clinically
Benign Jaundice	15	05
Malignant Jaundice	24	07
<b>Total</b>	<b>39(76.5%)</b>	<b>12(23.5%)</b>

Thus, clinical diagnosis was only diagnostic =  $39/51 = 76.5\%$  of subjects.

**Table 5: Biochemical analysis**

Parameters	Benign (n=30)		Malignant (n=21)		P Value
	Mean	SD	Mean	SD	
Bilirubin (T)	9.451	±5.66	11.201	±6.12	0.045
Bilirubin(D)	5.148	±2.11	9.452	±3.21	0.042
SGOT	152.234	±54.12	742.112	±123.41	0.002
SGPT	195.421	±63.21	974.251	±79.24	0.001
Alka-phos	312.121	±125.23	±745.123	±214.11	0.009

For Benign Disease: Lowest Bilirubin(T) Level – 5 mg/dl, Highest Bilirubin(T). Level- 19.4mg%/dl. We have found significant p value ( $<0.05$ ) in between Benign and Malignant cases in all Biochemical parameters.

**Table 6: Post Operative Mortality (30 days post operative)**

Post Operative Mortality	Benign (n=30)	Malignant (n=21)
Renal failure	00	02
Disseminated malignancy	00	01
Sepsis	01	01
Biliary fistula	00	01
<b>Total</b>	<b>01</b>	<b>05</b>

Mortality in malignant patients:  $5/21 = 23.8\%$

## DISCUSSION

The differentiation of obstructive Jaundice from Hepatocellular disease owing to medical causes may be impossible only based on Clinical values and laboratory values. The combination of Clinical Assessment and Radiologic examination provides an Accurate diagnosis

preoperatively in almost 98% of patients<sup>3</sup> The analysis of the Data from this study aimed a “Evaluation of causes of Surgical Jaundice correlating imaging investigations and operative findings.” shows that Clinical detection rates when used alone detect 73.2% regarding Etiology and level of Obstruction [Benign : 76.29% , Malignant 70%] The

present series reported an incidence of 6-10 mg% [41%] of serum bilirubin in benign disease and 11-35 mg% [32%] for malignant causes of biliary. These results are comparable to international analysis.<sup>4</sup> The average bilirubin of this study period for benign disease is 9.2 mg% with most of all taking in range of 6-10 mg%, whereas for malignant disease the Bilirubin levels are on an average 14.8 mg% with range 11-15 mg%. This data is consistent with international studies of Dixon and Armstrong who reported a level of 8.5-11.5 mg% in Benign disease and 14.5-18.2 mg% in malignant disease.<sup>5</sup> We have found significant p value (<0.05) in between Benign and Malignant cases in all Biochemical parameters. whether recent or remote may be implicated in the cause of jaundice.<sup>6</sup> Within the first three postoperative weeks, jaundice may be due to a variety of problems that include: (1) increased bilirubin load related to hemolysis of transfused erythrocytes (especially stored blood), resorption of hematomas or hemoperitoneum and rarely to hemolysis of the patient's erythrocytes due to G-6PD deficiency, drug reactions or malarial parasites in transfused blood; (2) impaired hepatocellular function, which may be related to administration of halogenated anesthesia agents, exposure to other hepatotoxic drugs, sepsis, or hepatic ischemia associated with preoperative or intraoperative hypotension or hypoxia; and (3) extrahepatic biliary obstruction, which may be secondary to inadvertent surgical injury to the common bile duct or occasionally to an unsuspected biliary calculus or to cholecystitis. Biliary tract surgery in the remote past may

have produced a biliary stricture, although these are usually clinically evident within 2 years of operation. When investigating a case of jaundice potentially related to surgery, it is important to examine the operative record for transfusion, anesthesia, x-rays, drugs, and potential hypotension or hypoxia, as well as the surgeon's dictated note of intraoperative events and his visual and palpation impression of the patient's liver, biliary tree, and pancreas.

## CONCLUSION

The diagnosis of obstructive Jaundice depends upon taking detailed clinical history and examination performing baseline investigations to confirm cholestatic jaundice and to use diagnostic tests as and when necessary to detect cause and level of Jaundice. a definite planned management protocol with attention to correct choice of investigations should be adopted in planning treatment of a patient of obstructive jaundice.

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