



An Observational Study for Causes of Surgical Jaundice at Tertiary Care Hospital

Priyanka yadav^{1*}, Naveen Kumar Singh²

¹Junior Resident, Department of General Surgery, Teerthanker Mahaveer Medical College & Research Centre, Moradabad, Uttar Pradesh, India. Email: priyankayadav00790@gmail.com, Orcid ID: 0000-0002-7453-9266

²Professor & Head, Department of General Surgery, Teerthanker Mahaveer Medical College & Research Centre, Moradabad, Uttar Pradesh, India. Email: dr.naveen.s@gmail.com, Orcid ID: 0000-0001-7156-9817

*Corresponding author

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Abstract

Background: The etiological pattern of obstructive jaundice varies from one region to another due to higher incidence being noticed in the Northern region of India. Very limited studies have been carried out in the western regions of Uttar Pradesh. The various etiological parameters ranges from malignant biliary stricture, stone in the CBD and even secondaries lymph node compression at porta hepatis. Due to the transition from open surgery to the minimum invasive laproscopic surgery. The etiology related to surgical jaundice also become more common in relation to procedure related complications like CBD injury that leads to surgical jaundice.

Material & Methods: This present study has been conducted in the department of general surgery in TMMC and RC of a Tertiary Care hospital. In this observatory study the patients having clinical records of surgical jaundice who had attended the surgical Out Patient Department are going to be included. The time period of the study was from 1 jan 2020 to 30 sept 2021 . Overall, 44 patients were being considered. The selection of subject was done randomly and any type of special consideration regarding the gender of the patients was not being considered while selecting for the study. **Results:** In our study from 44 patients according to frequency distribution of etiology maximum of the subjects were having choledocholitheasis along with cholelithaeasis that are 34.5 % and choledocholitheasis with obstructive jaundice was the 2nd most common cause with 31.78%. The 3rd most common etiology was found carcinoma of gall bladder with 11.35%. **Conclusions:** It can be concluded that for the cases of malignant surgical jaundice good survival benefit usually depends upon the detection of the disease early during the course period. It has also been found that in malignant cases the stage of disease with jaundice were advanced. As per our study results it has been observed that there are various etiological factors contributing to development of surgical jaundice which needs multiple modes of precise investigations and further evaluations further studies and research needed to cover various factor responsible for surgical jaundice.

Keywords:- Surgical Jaundice.

INTRODUCTION

Jaundice is a generic term which is used for the cases in which patient have yellow pigmentation of the skin, sclera or mucous membranes which is caused due to the

heterogeneous group of disorders. Basically due to the presence of elastin in abundance results in the predilection of sclera, which in turn tends to have a high affinity towards bilirubin. Obstructive jaundice has been commonly defined as a type of disease that is

taking place because of the block in the pathway around the site of conjugation of the bile among the liver cells besides the entry of bile inside the duodenum with the help of ampulla. The block might also be either type of intrahepatic or extra hepatic across the bile duct.^[1] There is a need of comprehensive study based on the gender and age distribution of the patients along with their clinical presentation and the etiology of the obstructive jaundice is indeed of some paramount importance while carrying out the appropriate management of the patients having surgical jaundice.^[2] Both invasive and non-invasive diagnostic investigation are available in order to diagnose and carry out the proper diagnosis of the surgical jaundice. But several invasive investigations might be leading to cholangitis. Also the etiology of the cases of obstructive jaundice usually varies which depends on the age of the patient as well as the geographical region. Causes of surgical jaundice are:

- Choledochlithiasis
- Biliary atresia
- Choledochal cyst
- External compression over the bile duct
- Primary sclerosing cholangitis
- Biliary stricture.^[3,4]

As the advance stages approaches the likelihood of the malignant diseases increases which are carcinoma around the head of pancreas, cholangiocarcinoma, Klatskin tumour and some other types of malignant growth which compresses the bile duct. The diagnosis needs to be usually carried out through standard diagnostic processes like according to the history, biochemical test, physical examination and investigations.^[5]

Several diagnostic and therapeutic challenges have been faced by the general surgeon while managing the surgical jaundice and these challenges have been mostly sound while practicing in the countries with limited resources.^[6,7]

MATERIAL AND METHODS

This present study has been conducted in the department of general surgery in TMMC and RC of a Tertiary Care hospital. In this observatory study the patients having clinical records of surgical jaundice who had attended the surgical Out Patient Department are going to be included. The time period of the study was from 1 jan 2020 to 30 sept 2021 . Overall, 44 patients were being considered. The selection of subject was done randomly and any type of special consideration regarding the gender of the patients was not being considered while selecting for the study. With the help of the facilities available during the study period, all the necessary investigations have been carried out.

Inclusion criteria

1. The patient of Age above 18 years.
2. Patient having clinical evidence of surgical jaundice.
3. Patient having Any history of surgery for last 6 months.
4. Those patient who have given informed consent for the study.

Exclusion Criteria

1. Cases of surgical jaundice who are unfit for the interventional diagnostic imaging.

2. Patient with surgical jaundice having concomitant pre hepatic or hepatic jaundice.
3. Patient suffering from liver cirrhosis.

Statistical Analysis

All analysis was performed using SPSS version 20. Mean and standard deviation were calculated for quantitative data and frequency & percentages were calculated for qualitative data.

RESULTS

[Table 1 and Figure 1] shows the frequency distribution of Sex, where maximum percentages of subjects were Females i.e. 56.8%

[Table 2 and Figure 2] shows the frequency distribution of Age Group, where maximum percentages of subjects were 61 to 70 Age Group i.e. 34.09%

[Table 3 and Figure 3] shows the frequency distribution of Gender followed by Benign and Maligant, where maximum subjects were in Benign as Female i.e. 15

[Table 2 and Figure 2] shows the frequency distribution of Occupation, where maximum percentages of subjects were found in Service i.e. 45.5%

[Table 4] shows the distribution of Clinical Preparation, where Jaundice were found in 100% subjects, Clay colored stool were in 93.2%, Pruritis were in 68.2%, Anorexia were in 72.7%, Weight loss were in 31.8%, Abdominal pain were in 61.4%, scratch mark were in 61.4%, Abdominal mass were in 31.8%, Fever were in 6.8%, Vomiting were in 22.7%, Past

medical history Recurrence were in 13.6% and Past surgical history were in 2.3 subjects.

[Table 5] shows the frequency distribution of USG whole abdomen, where maximum subjects were found in multiple stone with various size present in gall bladder with CBD stone present i.e. 34.05%. 2nd most common finding GB sludge with diffuse wall thickening and size of stone present in CBD i.e. 31.78%.

[Table 7] shows the frequency distribution of ETIOLOGY, where maximum subjects were found in Choledocholithiasis with Cholelithiasis i.e. 34.05%. 2ND most common choledocholithiasis with obstructive jaundice i.e. 31.78%.

[Table 8] shows the frequency distribution of CECT Abdomen(as indicated), where maximum subjects were found in CA GB with hepatic infiltration causing bilobar non communicating IHBR and compression of CBD i.e. 11.5%

[Table 9] shows the frequency distribution of MRCP (as indicated), where 13.8% were found in MRCP (as indicated) and 86.4% were not found in MRCP (as indicated).

[Table 10] shows the frequency distribution of DIAGNOSIS, where maximum subjects were found in Choledocholithiasis with Cholelithiasis i.e. 34.05%. 2nd diagnosis choledocholithiasis with obstructive jaundice 31.78%.

[Table 11] shows the frequency distribution of Management, where ERCP was done in 59.09%, Triple Bypass surgery was done in 0%, Stenting was done in 63.36% and Palliative was done in 9.09%

[Table 12] shows the frequency distribution of Surgery Done Cholecystectomy, where maximum subjects were found in ERCP with stenting i.e 29.55%. 2nd common ERCP followed by lap cholecystectomy i.e 20.45%. 3rd common open cholecystectomy with CBD exploration i.e 6.82% and lap cholecystectomy converted to open with CBD exploration i.e 6.82 %.

[Table 12 and Figure 4] shows the frequency distribution of HPE(if any), where 42.2% were found in CHRONIC CHOLE CYSTITIS.

[Table 13 and Figure 5] shows the frequency distribution of SURGERY, where maximum subjects were found in DEFINITIVE i.e. 63.63%, and 9.09% in PALLIATIVE.

Table 1: Represent the frequency distribution of the cases according to Sex.

Sex	Frequency	Percent
F	25	56.8
M	19	43.2
Total	44	100.0

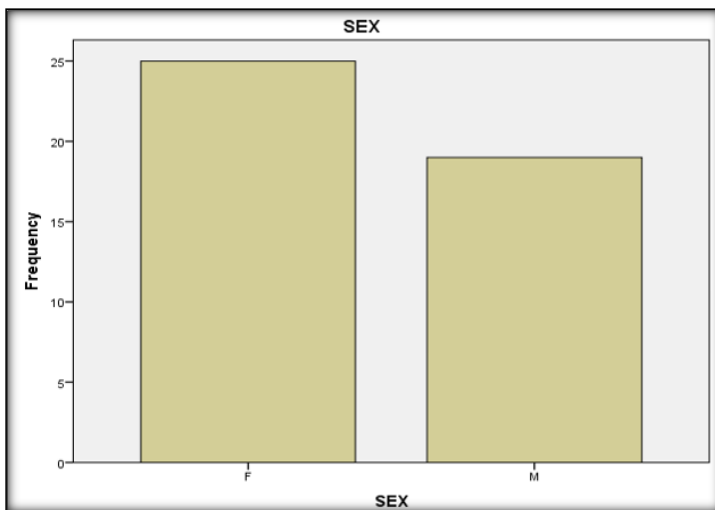


Figure 1:

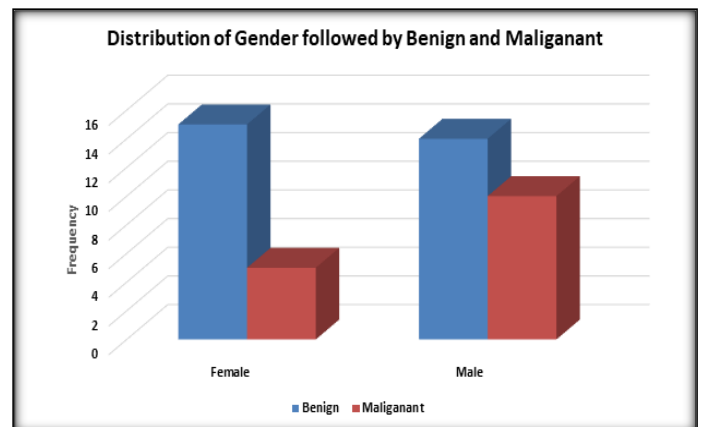


Figure 3:

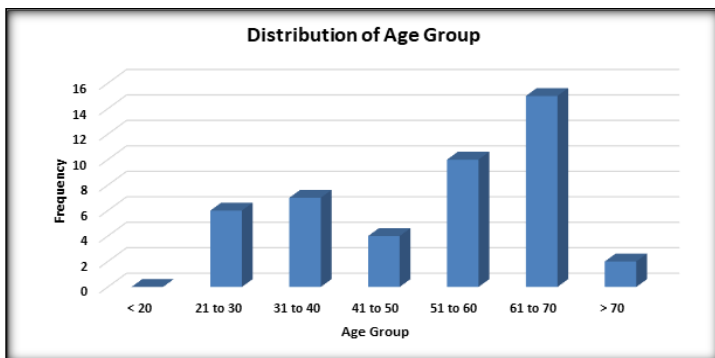


Figure 2:

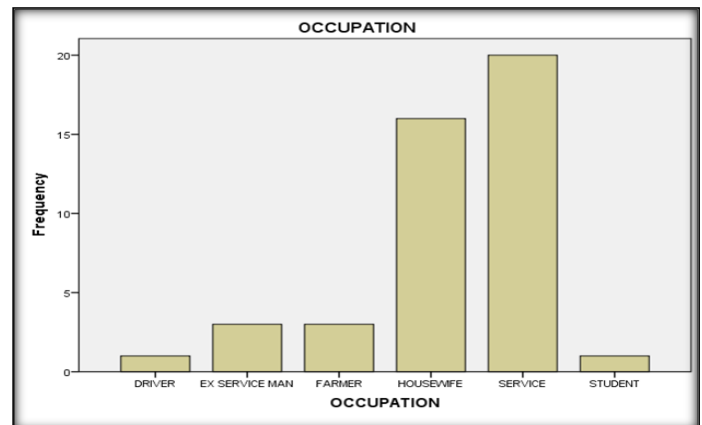


Figure 4:

**Table 2:** Represent the frequency distribution of the cases according to Age Group.

Age Group	Frequency	Percent
< 20	0	0.00
21 to 30	6	13.64
31 to 40	7	15.91
41 to 50	4	9.09
51 to 60	10	22.73
61 to 70	15	34.09
> 70	2	4.55

Table 3: Represent the frequency distribution of the cases according to Gender followed by Benign and Malignant

	Female	Male	Total
Benign	15	14	29
Malignant	5	10	15

Table 4: Represent the frequency distribution of Occupation.

Occupation	Frequency	Percent
Driver	1	2.3
Ex Service Man	3	6.8
Farmer	3	6.8
Housewife	16	36.4
Service	20	45.5
Student	1	2.3
Total	44	100.0

Table 5: Represent the frequency distribution of Clinical Presentation.

Clinical Presentation	Frequency	Percent
Jaundice	44	100.0
Clay colored stool	41	93.2
Pruritis	30	68.2
Anorexia	32	72.7
Weight loss	14	31.8
Abdominal pain	27	61.4
Scratch mark	27	61.4
Abdominal mass	14	31.8
Fever	3	6.8
Vomiting	10	22.7
Past medical history Recurrence	6	13.6
Past surgical history	1	2.3



Table 6: Represent the frequency distribution of USG whole abdomen.

USG whole abdomen	Frequency	Percent
Multiple stone in GB largest 12mm with 11mm stone in CBD +dilation max 22 to 23mm	1	2.27
Multiple stone in GB largest 12mm with 6mm stone in CBD +dilatation max 11 to 22mm	1	2.27
Multiple stone in GB largest 13mm with 6mm stone in CBD +CBD dilatation max 10mm	1	2.27
Multiple stone in GB largest 9mm with 7mm stone in CBD+ dilatation max 10.9mm	1	2.27
Multiple stone in GB largest 12.9mmwith 2 to 3mm stone in CBD dilatation max 9.7mm	1	2.27
Multiple stone in GB largest 14mm with 8mm stone in CBD + dilation max 10.9mm	1	2.27
Multiple stone in GB largest 14mm with 12mm stone in CBD+ dilatation max 10.9mm	1	2.27
Multiple stone in GB largest 12,5mm with 7mm stone in CBD +dilatation max 8mm	1	2.27
Multiple stone in GB largest 9mm with CBD stone 8mm dilated CBD 12mm and central IHBR with 8.6mm	1	2.27
Multiple tiny calculi 2 to 3mm noted with in GB ,CBD dilated 7.9mm with CBD stone 6.5mm	1	2.27
Multiple stone in GB largest 13mmwith 6mm stone in CBD CBD dilatation max 10mm	1	2.27
Multiple stone 4 to 5mm, with CBD stone 8mm with dilated CBD	1	2.27
Multiple stone 4 to 5mm, with CBD stone 8mm with dilated CBD	1	2.27
Distal cholangiocarcinoma with upstream biliary dilation and nodular lesion in GB	2	4.54
Multiple calculi 5 to 17mm in gb lumen multiple hypoechoic growth of size 17*12mm in gb mass wall thickness 7mm	1	2.27
GB sludge with diffuse wall thickening with CBD dilated, 4mm stone present in CBD	2	4.54
GB sludge with diffuse wall thickening with CBD dilated, 7mm stone present in CBD	3	6.82
Neoplastic growth of GB mass with infiltration and compression of CBD and bilobar IHBR dilation present	2	15.91
Multiple calculi 5 to 17mm in gb lumen multiple hypoechoic growth of size 17*12mm in gb mass wall thickness 7mm	3	6.82
GB wall distended multiple stone within GB wall thickness 6.80mm CBD dilated 10.1mm with 13mm stone in CBD	1	2.27
GB wall distended with wall thickness 6.8mm with CBD dilated 12.8mm with 11mm stone in CBD	1	2.27
GB wall distended with wall thickness 6.8mm with CBDdilated 12.8mm with 11mm stone in CBD	1	2.27
GB wall distended multiple calculi with in GB wall thickness 6.8mm,CBD stone 8mm, CBD dilated 10.5mm	1	2.27
GB sludge with diffuse wall thickening dilated CBD with 8mm stone in CBD	1	2.27
GB sludge with diffuse wall thickening dilated CBD 12mm and 11mm stone in CBD	1	2.27
GB sludge with diffuse wall thickening,7mm stone in CBD + dilalation max 8mm	1	2.27
GB sludge with diffuse wall thickening with 8mm stone in CBD + dilatation max 8 to	1	2.27



9mm		
GB sludge with diffuse wall thickening with 5mm stone in CBD +dilatation max 9.0mm	1	2.27
GB sludge with diffuse wall thickening dilated CBD 10mm with CBD stone 10mm and central IHBR	2	4.54
Periampullary CA with biliary and pancreatic ductal dilation as well as multiple periportal lymphadenopathy	1	2.27
Pancreatic mass head and uncinata process, fibrotic pancreatic head	2	4.54
Mild hepatomegaly ,gb is well distended with sludge,dilated biliary radicle and infiltration of CBD	1	2.27
Dilated IHBRD with partially contracted GB	2	4.54
Dilated proximal and mid CBD and bilobar IHBRD	1	2.27
Total	44	100.0

Table 7: Represent the frequency distribution of Etiology.

Etiology	Frequency	Percent
Choledocholithiasis with Cholelithiasis	15	34.05
Obstructive Jaundice with CAGB	5	11.35
Choledocholithiasis with Obstructive Jaundice	14	31.78
Cholangiocarcinoma with Obstructive Jaundice	4	9.09
Metastatic CAGB	2	4.55
Chronic Pancreatitis with Obstructive Jaundice	1	2.27
Periampullary Carcinoma	2	4.55
Periampullary Carcinoma with Cholelithiasis	1	2.27

Table 8: Represent the frequency distribution of CECT Abdomen(as indicated).

CECT Abdomen (as indicated)	Frequency	Percent
A irregular ,asymmetric, heterogenous enhancing thickening gb wall with hepatic infiltration + dilated CBD, CHD bilobar IHBRD	1	2.3
CA GB with hepatic infiltration causing bilobar non communicatig IHBR& compression of CBD	5	9.1
Distal CBD Cholangiocarcinoma with upstream biliary dilatation with locorigional lymphadenopathy	3	2.3
Ill defined mass lesion arising from body & wall of GB infiltrating the liver parenchyma (7.2x4.9X 4.8) mm & CHD	1	2.3
lobulated enhancing necrotic mass pancreatic head and uncinata process causing biliary & pancreatic duct obstruction	1	2.3
Mass lesion in GB 12*8mm with IHBRD ,CBD 6.5mm	1	2.3
Mass lesion in GB6cm*5.8mm with IHBRD,CBD not dilated	1	2.3
Multiple small (5.5-6) mm intraluminal inclusion defect CBD measuring 7.0 mm	1	2.3
Multiple tiny calculi (4-5) mm noted with in GB , CBD dilated (10.0) mm	1	2.3
no	26	47.7

neoplastic Thickening involving CHD, Cystic duct and proximal CBD with biliary back pressure changes	1	2.3
Periampullary Ca with biliary & pancreatic ductal dilatation as well as multiple periportal lymphadenopathy	1	2.3
Small periampullary mass with involment of duodenum 2 nd part & severe biliary back pressure change with cholelithiasis	1	2.3
Total	44	100.0

Table 9: Represent the frequency distribution of MRCP(as indicated).

MRCP (as indicated)	Frequency	Percent
Abrupt tapering at CHD,CBD stricture ,obstructive biliopathy ,contracted GB	1	2.3
Cholelithiasis with CBD dilation (14.6) mm with upstream bilobar IHBRD	1	2.3
Cholelithiasis with choledocholithiasis with prominent CBD 22-33mm with distal smooth tapering	1	2.3
cholelithiasis with dilated CBD 11-12mm with filling defect with minimal IHBR	1	2.3
Dilated CBD (11.0) mm with smooth gradual tapering of its distal 1/3 rd & upstream bliary dilation	1	2.3
Multiple small (2-4) mm intraluminal inclusion defect CBD measuring 7.0 mm	1	2.3
No	38	86.4

Table 10: Represent the frequency distribution of Diagnosis.

Diagnosis	Frequency	Percent
Choledocholitheasis with Cholelitheasis	15	34.05
Cholangiocarcinoma with Obstructive Jaundice	4	9.09
Metastatic CAGB with Obstructive Jaundice	2	4.55
Obstructive Jaundice with CAGB	5	11.35
Choledocholitheasis with Obstructive Jaundice	14	31.78
Chronic Pancreatitis with Obstructive Jaundice	1	2.27
Periampullary Mass with Cholelitheasis	1	2.27
Periampullary Carcinoma	2	4.55

Table 11: Represent the frequency distribution of Management.

Management	Findings	Frequency	Percent
ERCP	Done	26	59.09
	Not Done	18	40.09
Triple Bypass surgery	Done	0	0
	Not Done	44	100
Stenting	Done	28	63.63
	Not Done	16	36.36
Palliative	Done	4	9.09
	Not Done	40	90.90

Table 12: Represent the frequency distribution of SURGERY DONE

Surgery Done	Frequency	Percent
Open cholecystectomy with CBD exploration	3	6.82
ERCP followed by lap cholecysectomy	9	20.45
Patient referred to higher centre	16	36.36
Lap cholecystectomy converted to open chole with CBD exploration	3	6.82
ERCP with Stenting	13	29.55

Table 13: Represent the frequency distribution of HPE (if any).

HPE (if any)	Frequency	Percent
Chronic Chole Cystitis	15	34.09
No	29	65.91

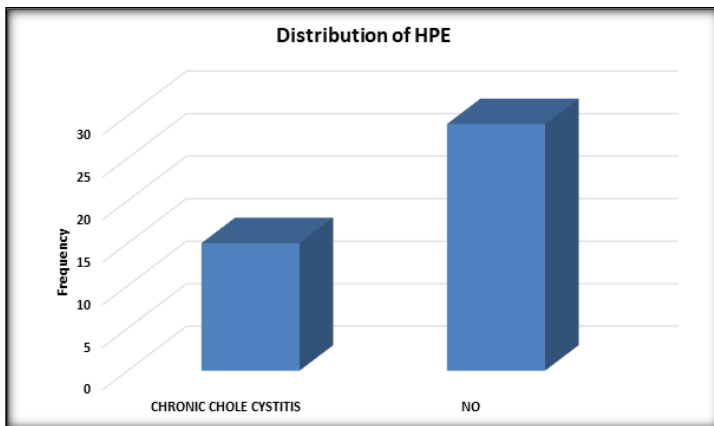


Figure 5:

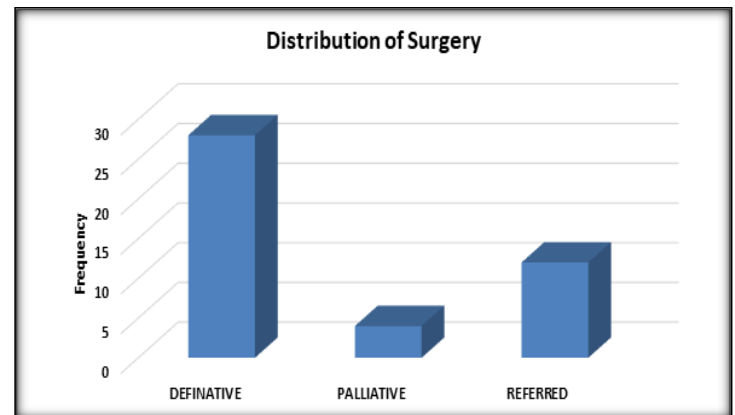


Figure 6:

Table 13: Represent the frequency distribution of Surgery.

Surgery	Frequency	Percent
Definative	28	63.63
Palliative	4	9.09
Referred	12	27.27

DISCUSSION

In my study Forty four study subjects included out of which 56.8% were female and 43.2% were male. As per the frequency distribution the maximum percentage of the subjects belong from the age group of 61 to 70 which accounted for 34.09 % whereas the minimum number of study subjects belong

from the age group of more than 70. Similar to my study, the researchers Saddique & Iqbal, considered 24 cases of surgical jaundice and the mean age of their patients were 41.12 years. As per the study 54.17% of the cases where having jaundice because of malignancy whereas 37.5 % of the cases had stones inside the common bile duct. The remaining cases in their study were having amoebic liver abscess.



All the patients who are suffering from stones in the CBD have been treated through cholecystectomy along with open CBD exploration and the ones who were having amoebic liver abscess were provided with aspiration of drainage for their relief.^[8] In my study as per the distribution of the cases benign causes are more in female while malignant are more in males. Percentage of benign cases were more than malignant cases. Contrastingly the researchers Patra et al. also found out that for their study the benign cases were less than malignant ones as it was observed in 58% of the cases.^[9] In our study as per the Occupation of the study subjects it has been noticed that most of the study subjects were in service accounted for 45.5 % and it was followed by housewives which was 36.4 %. While in the study of the researchers Sharma & Thapar, it was observed that the majority of the patients belong to housewives which accounted for 45.3 %.^[10] In our study the frequency distribution of the clinical presentation jaundice was seen in 100 %, that was followed by clay coloured stool in 93.2 %, anorexia were in 72.7%, Pruritus were found in 68.2%, Abdominal pain and scratch mark both were in 61.4%, Weight loss got observed in 31.8%, Abdominal mass were in 31.8%, Vomiting was common in 22.7% and Fever were in 6.8%. Even Past medical history Recurrence were in 13.6% and Past surgical history were in 2.3% of the subjects. In our study Frequency distribution according to the USG of the whole abdomen shows that majority of the subjects were having multiple stones which were various in size in their gallbladder and stone in CBD was present in 34.05% after that the second most common finding was the gall bladder sludge along with

diffuse wall thickening and various size of the stones present in the CBD in 31.78%. Neoplastic growth of the gallbladder mass along with the CBD compression and the Bilobar intrahepatic biliary radical dilatation was observed in 4.54% of the cases. Srinidhi & Hosmani, studied 30 patients having obstructive jaundice and they found out that malignant diseases are one of the most common causes that results in obstructive jaundice which mostly affects the age group of 55 to 74 years. For their patients, jaundice was the most common clinical feature and they also noticed that one of the most effective modality for the diagnosis was USG abdomen.^[11,12] In our study the representation of the frequency distribution as per the etiology shows that maximum of the subjects were having Choledocholithiasis along with Cholelithiasis that are counted in 34.05 % of the study cases. And choledocholithiasis with obstructive jaundice turned out to be the second most common etiology with 31.78%. After that jaundice with Carcinoma of gall bladder became the third most common etiology with 11.35%. Umeshchandra & Maitra, noticed that the abdomen pain was being observed in 73.3 % of the patients whereas dyspepsia was present in 60% of the patient. And in 10% of the patients having high risk of malignancy. They also found that fever came up to be one of the very common types factor.^[13]

In our study some interesting facts came out in the distribution of the frequency of Management. The representation shows that ERCP was done in 59.09% of the patients whereas triple Bypass surgery was done in none of them. After that Stenting was done in 63.63% of the study subjects whereas it was not



done in 36.36%. Prabakar & Raj, shows that in their study ERCP was being given the maximum attention as 62% of their patients had pursued this and the second most important one was stenting that was performed in 34% of the patients.^[14]

In our study the representation of the frequency distribution of the surgery done came up with the results that majority of the study subjects that is 20.45 % had treated with ERCP followed by lap cholecystectomy then both lap cholecystectomy converted to open cholecystectomy with CBD exploration and open cholecystectomy with CBD exploration found in 6.82 % of the study subjects each. ERCP with stenting was done for 29.55% of the cases. Similarly the researchers Tripathi et al., Noticed that maximum of their cases was being performed with ERCP and accounted for 28.3 %.^[15] Lastly, in the Representation of the frequency distribution of surgery we noticed that maximum of the patients were treated with definitive management which was done in 63.63% of them and 9.09 % of the patients were

treated with palliative treatment and 27.27% had referred to higher centre.

CONCLUSIONS

The USG of the abdomen is also helpful that came up with identifying multiple stones of various sizes that are present in CBD and gall bladder. Maximum of the subjects having obstructive jaundice was due to Choledocholithiasis with cholelithiasis their etiology and second etiology was due to choledocholithiasis alone. Finally, it can be concluded that for the cases of malignant surgical jaundice good survival benefit usually depends upon the detection of the disease early during the course period. It has also been found that in malignant cases the stage of disease with jaundice were advanced. As per our study results it has been observed that there are various etiological factors contributing to development of surgical jaundice which needs multiple modes of precise investigations and further evaluations further studies and research needed to cover various factor responsible for surgical jaundice.

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