# EXTRAHEPATIC BILIARY OBSTRUCTION; POSTOPERATIVE MORBIDITY AND MORTALITY

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## ABSTRACT

***Objectives:*** The objectives of this study are to evaluate the surgical management, both definitive and palliative, in selected patients with biliary obstruction and to find out the postoperative morbidity and mortality in these patients.

***Study Design:*** A descriptive study.

***Duration and Settings:*** Duration of the study is two years conducted from June 2002 to May 2004. The study was carried out at the surgical unit 4 of the Combined Military Hospital and surgical department of the Military Hospital.

***Patients and Methods:*** Thirty eight cases of biliary obstruction were included. A convenient sampling technique was followed. Data analyzed by using SPSS version 10.0 for windows on computer. Descriptive statistics like frequency, percentage, average etc were computed for data presentation. Any inferential test was not found to be applicable for this descriptive type case series.

***Results:*** We selected 38 patients with features of extrahepatic biliary obstruction. Out of these (n 38) 15 patients (39.5%) suffered from benign diseases while those having malignant diseases were 23 (60.5%). 19 (50%) patients died within two years of follow up while 19 (50%) were the survivors. Mortality was maximum for the malignant cases. In benign cases only one patient died. Maximum deaths 6 (31.6%) occurred in the period of up to one month of operation. 20 patients had one or another complication of operation and hence the morbidity came out to be 52%.

***Conclusion:*** According to our results the mortality and morbidity related to extrahepatic biliary obstruction in our patients was higher compared to other studies which can only be reduced by early detection and treatment.

**Keywords:** Obstructive jaundice, extrahepatic biliary obstruction, biliary surgery, morbidity and mortality.

## INTRODUCTION

Disorders of the biliary tract affect a significant portion of the worldwide population. The overwhelming majority of cases are attributable to cholelithiasis and cholestasis.

Extrahepatic biliary obstruction is a common surgical problem usually caused by choledocholithiasis, sclerosing cholangitis, biliary strictures, periampulary growth and carcinoma head of the pancreas[1-3].

The differential diagnoses of jaundice remain a challenge for the primary care physician and specialists alike, Laboratory tests combined with newer noninvasive imaging studies usually differentiate the intrahepatic from the extra hepatic cholestasis. As with awareness and better health care provision in our setup more cases of biliary obstruction are being diagnosed. A significant number of cases of obstructive jaundice are caused by malignancies, and most are unresectable for cure, The optimal form of palliation depends on multiple factors and is still debated by experts. Early detection of benign cases and their management is likely to substantially reduce the incidence of extrahepatic biliary obstruction. Early detection leads to early management, which reduces the complications and hence helps in reducing the morbidity and mortality associated with the condition.

Over the last few years, the number of cases of biliary obstruction due to malignancy are increasing in comparison to those due to stones[4].

To avoid complications of obstructive jaundice like irreversible hepatic damage and

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other miseries, early removal of the obstruction is important. Surgical procedures are a definitive treatment of biliary obstruction but non-surgical techniques have become the first line therapy for patients with unresectable biliary obstruction[5-7].

The results of management not only depend on the provision of latest investigations but also on the preoperative preparation, skill and experience of the surgeon, the type of the surgical procedure and the postoperative care of the patient. Despite great improvements in the management techniques, the morbidity and the mortality in patients with obstructive jaundice is still very high[8].

The objectives of this study were to evaluate the surgical management, both definitive and palliative, in selected patients with biliary obstruction and to find out the postoperative morbidity and mortality in these patients.

## MATERIAL AND METHODS

Study Design: This was a descriptive type case series of 38 patients presenting with biliary obstruction.

**Duration:** Duration of the study is two years conducted From June 2002 to May 2004.

**Settings:** The study was carried out at the surgical unit 4 of the Combined Military Hospital and surgical department of the Military Hospital. Thirty eight patients who presented with biliary obstruction during a period of two years (June 2002—May 2004) were included in the study. Patients with medical causes of jaundice.

Thirty eight cases of biliary obstruction were included using convenient sampling. The patients included were hospitalized cases admitted either through the out patient department or referred to from other CMHs. Provisional diagnosis was made on the basis of clinical features and standard biochemical tests. Biochemical tests were followed by abdominal ultrasonography (USG) in all patients. Further imaging tests like endoscopic retrograde cholangiopancreatography (ERCP), percutaneoustranshepatic cholangiography (PTC), computerized tomography (CT) or magnetic resonance cholangiopancreatography (MRCP) were used where appropriate to determine the exact nature of obstruction.

Metabolic and biochemical derangements were attempted at correction in the preoperative period. After appropriate investigations and correction of coagulopathy, surgical intervention was undertaken. All patients received preoperative antibiotics and intravenous fluids to maintain a urinary flow of 0.5 to 1.0 ml per kg per hour. These were continued in the postoperative period. The operative and histological findings were recorded

**Data Analysis:** Data analyzed by using SPSS version 10.0 for windows on computer.

Descriptive statistics were computed for data presentation.

## RESULTS

We selected 38 patients with features of extrahepatic biliary obstruction, (that is obstructive jaundice). Out of these 15 (39.5%) patients suffered from benign diseases while those having malignant diseases were 23 (60.5%).The age varied from 21 years (minimum) to 85 years (maximum). The mean age being 50.49 years.

Amongst the patients, 22 (58 %) were females and 16 (42%) were males.

The reasons for obstruction were stones in the common bile ducts in 14 (37%) patients, chronic pancreatitis in 1 (2.5%), CBD ca in 3 (8%), gall bladder ca in 6 (16%), ca pancreas in 11 (37%), metastatic ca in 1 (2.5%) and periampulary ca in 2 (5%) patients. Surgical managements of patients are given in table 1.

Nineteen (50%) patients died within two years of follow up while 19 (50%) were the survivors. Mortality was maximum for the malignant cases. In benign cases only one patient died, she had stones in her cbd and she had undergone four surgeries for recurrent/residual stones. She had impaired renal functions and was suffering from coagulopathy as well. Maximum deaths 6 (31.6%) occurred in the period of up to one month of operation. 2 (10.5%) patients died within 1-3 months, 2 (10.5%) in 4-6 months, 3 (15.8%) in 7-9 months and 3 (15.8%) died in 10-

12 months period time. The remaining deaths 3 (15.8%) took place in the next year (Table 2).

Infection, renal failure and multiple organ failure was the final outcome and cause of death in majority of those who died. The cause of death was infection + renal failure in 2 (10.5%) cases, infection + renal failure + multiple organ failure in 11 (58%), infection + multiple organ failure in 4 (21%) and renal failure + multiple organ failure in 2 (10.5%) of the patients (Table-3).

Twenty patients had one or another complication of operation and hence the morbidity came out to be 52%, out of whom 9 (45%) suffered wound sepsis. Those who had wound dehiscence were 2 (10%). Chest infection was present in 5 (25%) cases. Renal functional impairment in 6 (30%) and GI haemorrhage was found in 2 (10%) patients (Table-3).

**Table-1: Surgical managements of patients.**

| Operations performed | CBD Stones | Pancreatitis | Ca Pancreas | Ca Gall bladder | Periampulary Ca | Ca CBD | Metastatic Ca |
|---|---|---|---|---|---|---|---|
| No of patients | 14 | 1 | 11 | 6 | 2 | 3 | 1 |
| CBD exploration+cholecystectomy | 12 | | | | | | |
| Cholecystostomy | | | 1 | | | 1 | |
| Choledochotomy | 2 | | | | | | |
| Choledochodudenostomy | | | 4 | | 1 | | |
| Cholecystojejunostomy | | | 2 | | | | |
| External drainage | | | 1 | | 1 | | |
| Whipple | | | 1 | | | | |
| Pancreatojejunostomy | | 1 | | | | | |
| Biopsy alone | | | 2 | 6 | | 1 | 1 |
| Portoenterostomy | | | | | | 1 | |

**Table-2: Operative mortality and cause of death**

| S No | Operations performed | Cause |
|---|---|---|
| 1 | choledochodudenostomy | infection + renal failure |
| 2 | choledochodudenostomy | infection + renal failure |
| 3 | choledochodudenostomy | inf + rf +mof |
| 4 | choledochodudenostomy | mof + inf |
| 5 | biopsy | inf + rf +mof |
| 6 | biopsy | mof + inf |
| 7 | biopsy | inf + rf +mof |
| 8 | biopsy | inf + rf +mof |
| 9 | biopsy | inf + rf +mof |
| 10 | biopsy | mof + inf |
| 11 | biopsy | inf + rf +mof |
| 12 | biopsy | inf + rf +mof |
| 13 | biopsy | inf + rf +mof |
| 14 | cholecystostomy | mof + inf |
| 15 | cholecystostomy | inf + rf +mof |
| 16 | cholecystojejunostomy | rf + mof |
| 17 | cholecystojejunostomy | mof + inf |
| 18 | cholecystojejunostomy | rf + mof |
| 19 | cholecystojejunostomy | inf + rf +mof |

## DISCUSSION

The common belief that jaundice is caused by some sort of increased heat in the body and that the use of some medicines and cold food could correct the jaundice leads to maltreatment and very late presentation[9]. Most patients are afraid of operation and they try all the non-operative alternatives before coming to the hospital. Moreover, the time spent in referrals also contributes to late presentations. These are the reasons why majority of patients with malignant obstructive jaundice come to the hospital when the growth is far advanced and even surgical palliation is not possible in most

**Table-3: Post op complications**

| | Benign | Malignant | Total |
|---|---|---|---|
| Wound sepsis | 4 | 5 | 9 |
| Wound dehiscence | | 2 | 2 |
| chest infection | 1 | 4 | 5 |
| renal impairment | 2 | 4 | 6 |
| gi haemorrhage | | 2 | 2 |

cases[10-12]. This fact is evident from our study as in many patients with malignant disease no palliation was possible and only biopsy was performed[13].

The commonest cause of extrahepatic biliary obstruction in our case series was malignancy (60.5%). This is a high incidence that is reported in literature 37.2%[8], 42.4%[14], 48%[15], 59%, 19.3%[16]. But a local study done by Munawar Jamil quoted an incidence of 75%[4].

The presentation of obstructive jaundice is very high in the 5th and 6th decade of life 10. The mean age of 50.49 years, median being 49.75 years. The number of females suffering from the disease is more than the males (58% vs 42%). The carcinoma of gallbladder had a very high female preponderance and male to female ratio was 1:5 in our study, while the reported ratio is 1:3 and 1:5[4].

The carcinoma of pancreas and CBD stones is more prevalent amongst the females. The male to female ratio being 5:6 and 5:9 respectively. The carcinoma of CBD and periampullary carcinoma on the other hand is commoner in males. The ratio being 2:1 and 2:0 respectively.

No palliative procedure was possible in 24% patients with malignant obstruction. Therefore biopsy alone was done. The rate of mortality in these patients was high[12] Choledochoduodenostomy was performed in five patients. It takes more time than cholecystojejunostomy and per operative bleeding was also more.

Cholecystojejunostomy was performed in two patients. This is rapid to perform and is easiest on a dilated gallbladder.

By comparing these procedures, it is clear that choledochoduodenostomy should be the procedure of choice whenever possible because it has a low complication and mortality rate as compared to cholecystojejunostomy[9]. The results are comparable to that in the literature.

Most surgeons prefer choledochoduod-enostomy if an internal bile drainage must be performed[17]. A single bypass using the gallbladder anastomosed with jejunum is preferred in those cases where life expectation is estimated to be less than three months. Delayed gastric emptying is a frequent complication after cholecystojejunostomy. Double bypasses are recommended in those cases only where the duration of life is estimated to be more than three months.

In patients undergoing CBD exploration for stones, the postoperative septic complications remained a major problem. In these patients, septic complications occurred in six (46%) out of thirteen patients and this is a much higher rate reported which is 26% and 19.5%[4]. There was no mortality in this group of CBD exploration for benign problems. The reported mortality rate of CBD exploration for stones is between 0.5% to 3%. One patient who underwent choledochotomy for CBD stones died in the postoperative period. She had stones in her cbd and she had undergone four surgeries for recurrent/residual stones. She had impaired renal functions and was suffering from coagulopathy as well.

Most patients with malignant extrahepatic biliary obstruction had advanced disease at presentation, which was inoperable[18].

The complications that occurred in the extrahepatic biliary obstruction patients were 52% (n 20). The complication rates reported in the literature are as follows: wound sepsis in 3.1%; wound dehiscence in 2%; renal failure between 5% to 12%[8] and postoperative bleeding 3.1%[8]. Therefore it is obvious that in the present study the rate of septic complications is very high.

Operative mortality is defined as postoperative death within 30 days due to a cause related to the operation[11]. The operative mortality is 16% in this study. The reported mortality rates are 7.5% in elective cases and over 10% in emergency cases[19].Overall mortality of operated patients in two years is 50%. This is because most patients reported were referred cases from the military hospitals all over the country of advanced malignancy having poor survival. Maximum survival for patients of biliary malignancy was two years.

Mortality not only depends on the operation performed, the condition of the

patient nature and stage of the disease etc also contribute[20].

## CONCLUSION

According to our results the mortality and morbidity related to extrahepatic biliary obstruction in our patients was higher compared to other studies. Malignancy, advanced stage of disease in preoperative period, postoperative sepsis and multiple organ failure all contributed to this high mortality, which can only be reduced by early detection and treatment. Awareness and health education of general population and primary healthcare providers in this regard will be rewarding.

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