Anatomic Level of Biliary Obstruction and Outcome of Pre-Operative Biliary Stenting in Malignant Obstructive Jaundice – A Shaikh Zayed Hospital Experience

Moeed Iqbal Qureshi, Muhammad Imran Anwar, Muhammad Shafi, Muhammad Ayub and Khalid M. Durrani
Department of General Surgery, Shaikh Zayed Hospital, Lahore.

ABSTRACT

Malignant Obstructive Jaundice can be due to proximal hilar obstruction (Cholangiocarcinoma) and carcinoma (CA). Distal biliary obstruction can result from distal cholangiocarcinoma or tumors of pancreatic head, periampullary region, duodenum and rarely from tumors of stomach and retroperitoneum. The study was undertaken to see prevalence of various malignant causes of biliary tract obstruction and evaluate the role of preoperative biliary drainage on post operative outcome. Patients & Methods: Retrospective study of 109 patients conducted between July, 2001 to July, 2008. Preoperative workup included history, physical examination and routine investigations. Ultrasound, computerized tomography (CT scan), Magnetic Resonance Cholangiopancreatographicography (MRCP) were used to diagnose level of obstruction. Endoscopic retrograde cholangiopancreatographicography (ERCP) was done to diagnose, take biopsies and to do therapeutic stenting to achieve biliary decompression after coagulation profile has been corrected by vitamin K & Fresh Frozen Plasma (FFP). Treatment of proximal obstruction aimed at resection of tumor & CBD and gall bladder and internal drainage by Roux-en-Y hepaticojejunostomy if operable if not operable external drainage was done. Malignant distal obstruction was relieved by Kaush & Whipple’s procedure, if operable, Bypass surgery was done if not operable. Results: There were 61 male patients and 48 female M:F ratio is 1.7:1. and mean age 53 years. Main presenting symptoms were jaundice 100%, weight loss 58%, pruritis 53%, abdominal pain 41%, fever 29% palpable mass 21% respectively. Mean bilirubin was 18.1mg/dl. Mean Alkaline Phosphatase was 1119 IU/dl. The predominant pathology causing proximal malignant obstruction was hilar cholangiocarcinoma n=33 (30%), CA gall bladder n=13 (12%) malignant distal obstruction was mainly caused by pancreatic head cancer in 44 patients (40%), pancreatic body tumor 2 (1.8%). Periampullary tumors 13 patients (12%) and duodenal cancers 2 patients (1.8%) and retroperitoneal lymphoma in 2 patients (1.8%). Preoperative biliary stenting was done in 24 patients 22% 18 by ERCP and six by percutaneous route. The main complications were wound infection 21%, abdominal collection 21% cholangitis 15% and respiratory complications 13%. 13 patients died due to various reasons (12%). Conclusions: Commonest malignancy causing proximal biliary obstruction is hilar cholangiocarcinoma. Pancreatic head cancer is the most common distal malignancy. Preoperative Biliary stenting endoscopic/percutaneous is associated with increased operative difficulty and post op. problems we don’t recommend it, except in the very sick and inoperable patients.

Key Words: Cholangiocarcinoma, Pancreatic Cancer, Biliary stenting.

INTRODUCTION

Malignant Obstructive Jaundice has dismal survival. Obstruction may be proximal, due to biliary strictures (Cholangiocarcinoma) or can result from metastatic spread of non biliary tumors (e.g. pancreas, gall bladder, stomach, colon and rectum, lymphoma) to hepatic hilum. Distal biliary
obstruction occurs due to distal cholangiocarcinoma or from tumors of pancreas, periampullary region, duodenum etc. Pancreatic malignancies are commonest followed by Hilar Cholangiocarcinoma, Carcinoma of gall bladder & Periampullary tumors and Duodenal tumors. This study was conducted to see prevalence of different levels of extra-hepatic biliary obstruction and outcome of pre-operative biliary drainage.

PATIENTS & METHODS:

It is a retrospective study of 109 patients conducted between July, 2001 to July, 2008. There were 61 male patients and 48 female patients with male: female ratio of 1.7:1. Mean age of the group was 53 years and ranged from 24 years to 79 years. Mean bilirubin at the presentation was 18.1mg/dl range (3mg/dl to 36mg/dl). Mean alkaline Phosphatase was 1119 IU/dl range (246 - 3704IU/dl). Approximately 15% patients were either hepatitis B or C positive. Presenting symptoms in order of frequency were jaundice, weight loss, pruritus, abdominal pain, fever and a palpable mass (Table 1).

<table>
<thead>
<tr>
<th>Table 1: Malignant obstructive jaundice.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.No.</td>
</tr>
<tr>
<td>01</td>
</tr>
<tr>
<td>02</td>
</tr>
<tr>
<td>03</td>
</tr>
<tr>
<td>04</td>
</tr>
<tr>
<td>05</td>
</tr>
<tr>
<td>06</td>
</tr>
</tbody>
</table>

Most of the patients were referred from the gastrointestinal service of this hospital. Pre operative workup included a detailed history physical examination, routine laboratory workup and imaging Ultrasound abdomen and pelvis was done in all 109 patients (100%) and computed axial tomography (CAT) Scan was also done in all the patients (100%). Endoscopic retrograde cholangiopancreaticography (ERCP), percutaneous transhepatic cholangiography (PTC) and Magnetic Resonance Cholangiopancreaticography (MRCP) were done when and where required. Coagulation profile was corrected by vitamin K and fresh frozen plasma judicious use of antibiotics was done in the face of cholangitis, febrile illness and leucocytosis. Preoperative biliary stenting for decompression of biliary channels was done in 24 patients (22%). 18 patients (16.5%) were attempted endoscopic route and 6 patients (5.5%) by percutaneous transhepatic route. Procedures under taken for proximal obstruction, which included hilar cholangiocarcinoma (HCCA) and gall bladder carcinoma were cholecystectomy, excision of CBD and percholeodochal tissues with Roux-en-Y hepaticojejunostomy for operable tumors and internal or external drainage by stents was done in inoperable tumors. In case of distal obstruction, which included pancreatic, periampullary and duodenal tumors Kaush and Whipple’s Pancreaticoduodenectomy was done for operable tumors. For advanced inoperable malignancy bypass procedures were undertaken. Bile cultures were taken in all cases.

RESULTS

Predominant pathology in proximal obstruction was cholangiocarcinoma n=33 (30%) mainly of hilar origin followed by CA gall bladder n=13 (12%). In distal obstruction tumor of head of the pancreas were seen in 44 patients (40%), body of pancreas in 2 patients (01.8%) and periampullary in 13 patients (12%). There were two cases of duodenal adenocarcinoma n=2 (01.8%) and 2 cases (01.8%) of retroperitoneal lymphoma causing biliary obstruction (Table 2).

<table>
<thead>
<tr>
<th>Table 2: Level of biliary obstruction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.No.</td>
</tr>
<tr>
<td>01</td>
</tr>
<tr>
<td>02</td>
</tr>
<tr>
<td>03</td>
</tr>
<tr>
<td>04</td>
</tr>
<tr>
<td>05</td>
</tr>
<tr>
<td>06</td>
</tr>
<tr>
<td>07</td>
</tr>
</tbody>
</table>

Two patients in whom stenting was done pre-operatively through percutaneous routes developed
cholangitis leading to multi-organ failure and they died on tenth and sixteenth post stenting days. Three patients who were endoscopically stented developed pre operative cholangitis and were managed conservatively. Major post operative complications were wound infections, abdominal collections, cholangitis, respiratory complications, gastrointestinal haemorrhage and anastomotic leak as shown in Table 3.

Table 3: Malignant obstructive jaundice.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Complications</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Wound infection</td>
<td>28</td>
<td>26%</td>
</tr>
<tr>
<td>02</td>
<td>Abdominal collection</td>
<td>22</td>
<td>21%</td>
</tr>
<tr>
<td>03</td>
<td>Cholangitis</td>
<td>16</td>
<td>15%</td>
</tr>
<tr>
<td>04</td>
<td>Respiratory complications</td>
<td>14</td>
<td>13%</td>
</tr>
<tr>
<td>05</td>
<td>G. I. Haemorrhage</td>
<td>04</td>
<td>03%</td>
</tr>
<tr>
<td>06</td>
<td>Anastomotic Leak</td>
<td>07</td>
<td>06%</td>
</tr>
</tbody>
</table>

Bile of all 24 patients who were stented were positive for coliform and Entecocci n=28 (26%) patients who were not stented pre operatively had similar positive bile culture. The sensitivities are shown in Table 4.

Table 4: Malignant obstructive jaundice.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Bile culture &amp; sensitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Coliform: Imepanum, Amikacin, Piperacillin (Tazocin), Cefparazone + Sulbactum</td>
</tr>
<tr>
<td>02</td>
<td>Enterococci: Vancomycin, Ticoplanin</td>
</tr>
</tbody>
</table>

We lost two patients pre operatively due to infective complications of stents and 11 (10%) patients were lost post operatively due to cholangitis 4 (3.7%) Cardiopulmonary complications 5 (5.5%) and anastomotic leakage leading to sepses 02 (1.8%). Overall mortality was 12% (n=13).

DISCUSSIONS

Malignant obstructive jaundice has dismal survival. Our patients usually present late when the disease is already advanced and hence a long term disease free survival cannot be provided most patients are available to palliative surgery only.

Anatomic location of biliary obstruction has significant impact on onset of clinical symptoms, the stage of the disease at initial presentation and ultimately survival1 tumors of biliary ducts present earlier, with jaundice than pancreatic tumors causing obstruction and hence have better prognosis. In this study level of biliary obstruction is similar to that quoted in text and other recent studies from different centres. Distal biliary obstruction was more commonly due to pancreatic head of tumors 40% and periampullary tumors 12%. In other studies the incidence is similar however, tumors of pancreatic head account for 50% - 70% of malignant obstruction followed by periampullary 15%-25%.2. Among the pancreatic tumors approximately 70% are located in the head, 20% in the body and 10% in the tail. In this study, too, approximately 40% of pancreatic tumors were in head and only 2% in the body. Cholangiocarcinoma can occur anywhere in the biliary tree but involvement of confluence or right or left hepatic ducts is most common and accounts for 40% to 60% of all cases3. In our series there were 33 patients (30%) with hilar CCA causing biliary obstruction though this could be attributed to referral bias, yet it coincides with results of major hepatobiliary centres.

Prolonged Biliary Obstruction is associated with jaundice, itching coagulation disturbance, renal impairment and liver failure. In addition patients have anorexia, nausea and malaise which affect quality of life.

The relief of biliary obstruction is associated with gradual improvement in all of above and quality of life.

The important question is, should the patients, with malignant obstructive jaundice be stented to improve jaundice and associated problems with reduction in morbidity and mortality prior to definitive surgical treatment.

The evidence is conflicting. 

Lygidakis et al4 presents strong evidence in support of preoperative biliary drainage in jaundiced patients, which reduced morbidity but not mortality in patients undergoing pancreaticoduodenectomy.

Povoski et al5 in contrast clearly showed that preoperative internal biliary drainage is associated with increased post operative morbidity, intra
abdominal abscess and post operative mortality. A large number of factors were analyzed but preoperative internal biliary drainage was the only factor which influenced these outcome.

In 1999 a study from Memorial Sloan Kettering Cancer Centre (MSKCC) examined 240 consecutive case of Pancreaticoduodenectomies of which 53% had preoperative biliary drainage and found a statistical relationship between preoperative drainage and post operative complications and mortality. Similarly a study from MD Anderson Cancer Centre (MDACC) reported their experience with 300 patients in which 57% had pre op. biliary drainage. There was a significant increase in post operative wound complications in the drainage group. There was no association with sepsis, fistula or death.

Both groups concluded that pre operative biliary decompression was associated with significant post operative complications. They advocate selective decompression in patients who are symptomatic, septic or who are to under go induction therapy.

Our experience at Shaikh Zayed Hospital is similar to above studies. Patients in whom pre operative biliary decompression was done were difficult to dissect because of increased fibrosis due to cholangitis. This group also had increased wound complications and intra-abdominal collection. Two of our patients in whom percutaneous transhepatic stenting was done preoperatively died before surgery due to various infective complications. Considering above we do not advocate for pre operative biliary stenting endoscopic / percutaneous, except in very sick and inoperable patients.

CONCLUSIONS

The most common malignancy causing proximal biliary obstruction is hilar cholangiocarcinoma. Pancreatic head cancer is the most common distal malignancy.

Preoperative biliary stenting endoscopic/ percutaneous is associated with increased operative difficulty and post op. problems we don’t recommend it, except in the very sick and inoperable patients.

REFERENCES


The Authors:

Moeed Iqbal Qureshi,
Associate Professor
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.
Biliary Obstruction and Outcome of Pre-Operative Biliary Stenting in Malignant Obstructive Jaundice

Muhammad Imran Anwar,
Assistant Professor
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.

Muhammad Shafi,
Senior Registrar
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.

Muhammad Ayub,
Senior Medical Officer
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.

Khalid M. Durrani
Professor
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.

Corresponding Author:
Moeed Iqbal Qureshi,
Associate Professor
Department of General Surgery,
Shaikh Zayed Hospital,
Lahore.

83