AN EXPERIENCE IN MANAGEMENT OF SURGICAL OBSTRUCTIVE JAUNDICE

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ABSTRACT

One hundred and five patients of surgical obstructive jaundice were admitted to Army Hospital, Delhi from July 1991 to June 1994. Patients were investigated as per the diagnostic protocol. The causes of obstruction were choledocholithiasis (24 patients), periampullary carcinoma and carcinoma head of pancreas (32 patients), carcinoma gall bladder and cholangiocarcinoma (11 patients each). The procedures performed to relieve obstructive jaundice in 89 cases included choledochojejunostomy (17), pancreato-duodenectomy (15), hepaticojejunostomy (15), choledocholithotomy (12) and choledochoduodenostomy (12). Mortality was 7 per cent in pancreatoduodenectomy and 8 per cent in palliative procedures.

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KEY WORDS : Biliary duct obstruction; Obstructive jaundice; Surgical technique.

Introduction

In most patients with jaundice the clinical findings and laboratory tests provide enough information to allow one to distinguish between biliary obstruction and hepatobiliary disease [1,2]. Even when the diagnosis is certain, tests are indicated to define the site, the extent, and the nature of the obstruction so that the surgeon can plan the operation. During the last decade impressive advances in the field of medical technology have provided many new diagnostic tests. Because of the large number of tests now available the main difficulty of the surgeon today is not in reaching the final diagnosis but in defining the most efficient approach to the final diagnosis [3-6].

There are a number of diseases responsible for obstruction to the biliary tree. The spectrum extends from the benign curable diseases to malignant inoperable lesions. Thus the treatment plan has to be individualized. We are reporting our experience in the management of patients with obstructive jaundice admitted to the Army Hospital from 1991-94.

Material and Methods

All patients admitted to the surgical wards with clinical features suggestive of obstructive jaundice

from 1 July 1991 to 30 June 1994 were included in the study. Detailed clinical examination was followed by an investigation protocol (Table 1) which was sequential but not consecutive and randomized. This was done to avoid over-investigations in those patients where it was not considered mandatory to perform a particular investigation especially if it was invasive. The treatment plan depended on the diagnosis but the guiding principles were (a) treatment with curative intent and (b) treatment with palliative intent. Ultrasonography (USG) was available from 1988 onwards, whereas computerized tomography (CT) scan and endoscopic retrograde cholangio-pancreatography (ERCP) was possible only after 1993.

TABLE 1
Protocol for investigation of obstructive jaundice

Clinical examination
Laboratory investigation
Ultrasonography
CT scan
Percutaneous cholangiogram
ERCP
FNAC
Angiography

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Pre-operative preparation consisted of a daily intake of 3 litres of fluids and if the patient could not take it orally it was supplemented with intravenous fluids. Minimal daily intake of 100 g of glucose during pre-operative phase was insisted upon. Three days prior to surgery, oral fluids were routinely supplemented with 1500 mL of intravenous fluids every day to ensure adequate hydration. All patients were given parenteral vitamin K daily for 3 days immediately after admission and then again for 3 days prior to surgery. Bowel preparation was standardized and consisted of mechanical cleansing and chemical prophylaxis as recommended for colonic surgery and this was done for 3 days prior to surgery.

Results

One hundred and five patients of surgical obstructive jaundice were admitted to Army Hospital between July 1991 and June 1994. Sixteen patients were not subjected to surgery either because they were in poor general health or their disease was widespread and inoperable. Presumptive diagnoses in these patients were carcinoma of gall bladder (4), cholangiocarcinoma (4), carcinoma head of pancreas (4), carcinoma of the ovary (2), and carcinoma stomach (2). The remaining 89 patients were included in the study. The age varied between 20 and 84 years. Gall stones were more common in females while malignancy was equally distributed (Table 2). Among the benign lesions, choledocholithiasis was the commonest cause while periampullary carcinoma and/or carcinoma head of the pancreas was the commonest amongst malignant lesions. With the diagnostic protocol employed the site of obstruction was recognized in 95 per cent of patients while the nature of the lesion could be ascertained in only 90 per cent of patients.

TABLE 2
Causewise distribution

Periampullary/carcinoma head of pancreas	32
Choledocholithiasis	24
Cholangiocarcinoma	11
Carcinoma gall bladder	11
Post-cholecystectomy fistula/stricture	6
Choledochal cyst	3
Chronic calculus pancreatitis	1
TB pancreatitis	1

Surgical procedures most commonly performed to relieve the jaundice were choledochojejunostomy and pancreatoduodenectomy (Table 3). Segment III anastomosis was performed as a palliative procedure in 5 patients with carcinoma of gall bladder and in 3 patients with cholangiocarcinoma. Hepaticojejunostomy was performed in 5 patients with cholangiocarcinoma, 4 patients with post-cholecystectomy stricture and fistula, and in 3 patients with carcinoma of gall bladder. Choledochojejunostomy was the procedure of choice for palliation of jaundice in patients with periampullary carcinoma or carcinoma head of pancreas (15 patients).

TABLE 3
Surgical procedures in obstructive jaundice

Pancreatoduodenectomy	15
Choledochojejunostomy	17
Hepaticojejunostomy	15
Choledocholithotomy	12
Choledochoduodenostomy	12
Segment III biliary enteric anastomosis	9
Miscellaneous	9

Bilirubin levels fell by 50 per cent in the first two days. Thereafter the fall was slow taking almost two weeks post-operatively to come down to near normal level. The average duration of hospitalization was 10 days for benign disease and 3 weeks for malignant lesions. Mortality following ERCP was 2 out of 58 patients; that following pancreatoduodenectomy was 2 out of 15 and for palliative procedures it was 2 out of 24. The most common complication encountered was prolonged gastric stasis following pancreatoduodenectomy in 3 patients out of 15.

Discussion

If biliary obstruction is suspected on clinical grounds and laboratory investigations, then USG is the next step to confirm the obstruction. Real time USG has been shown to detect dilatation of the intrahepatic or extrahepatic biliary tree in 85-95 per cent of patients with proven obstruction [7-10]. USG also provides useful clues regarding the anatomical level of the obstruction in about half the patients [11]. However with the exception of the mass lesion in the head of the pancreas, USG does

not identify the type of obstruction [12]. The sensitivity and predictive value of computed tomography in diagnosis of obstruction is comparable to that of USG and in addition it is more likely to yield clues regarding the level or the nature of the obstruction [13,14].

If ductal obstruction is considered likely on the basis of either clinical evaluation or the results of non-invasive techniques or both, direct ductal visualization by percutaneous transhepatic or endoscopic retrograde cholangiography is usually indicated. In addition to establishing the presence or absence of obstruction the primary purpose of direct visualization is to provide information about the location and nature of the obstruction that will be useful in planning the treatment. The reported success rate and the complications of percutaneous and retrograde cholangiography are so similar that the choice between the two must be made on a patient-to-patient basis. Of the various considerations favouring the use of one over the other, the most important factors are the availability of skilled personnel and the anticipation of a simultaneous therapeutic manoeuvre, such as percutaneous biliary drainage or endoscopic sphincterotomy or biopsy of a lesion. In our protocol we performed percutaneous transhepatic cholangiography for higher lesions and retrograde cholangiography for lower lesions. The predictive value of a positive study, i.e., the demonstration of obstruction by direct cholangiography, reported in literature is 0.99 [15] while we could achieve a value of 0.95.

Thomas et al studied 178 patients of biliary obstruction [16] and reported common duct stones in 43 patients (24%), pancreatic cancer in 43 patients (24%), bile duct cancer in 35 patients (20%), benign strictures of the bile duct in 33 patients (19%), chronic pancreatitis in 13 patients (7%) and other lesions in 11 patients (6%). Lindberg et al studied 64 cases of bile duct obstruction [17] and observed gall stone disease in 29 patients, pancreatitis in 1 patient, sclerosing cholangitis in 2 patients, pancreatic carcinoma in 18 patients, bile duct carcinoma in 9 patients, and gall bladder carcinoma in 5 patients. In another recent study [18] of 49 patients with extrahepatic jaundice, choledochal stone (72%) was the most common benign cause while pancreatic carcinoma (52%) was the most common malignant lesion. In our study, the

cause of biliary obstruction was pancreatic cancer (34%), choledocholithiasis (27%), carcinoma of the gall bladder (11%) and cholangiocarcinoma (11%). Carcinoma gall bladder was more common in comparison to the reports from western countries [16-18].

Of the patients with carcinoma head of pancreas and carcinoma periampullary region, 17 to 90 per cent have jaundice as a result of biliary obstruction [19]. Surgical resection and reconstruction usually provide adequate biliary drainage, but only 10 to 20 per cent of patients can be treated surgically with an intention to cure [20]. We could resect in 46 per cent of patients. Thus in 54 per cent of patients palliation by relieving pain, cholestasis, and duodenal obstruction was the main goal of treatment. Several studies have compared endoprosthesis and surgery in the palliation of malignant biliary tree obstruction. Recent data [21] suggest that the endoscopic endoprosthesis is the optimal palliation for patients surviving less than 6 months and surgical biliary bypass for those surviving more than six months. We performed choledocho-jejunostomy as a palliative procedure in 54 per cent cases of pancreatic cancer. Although cholecystectomy still finds favour with some authors it was not performed during the duration of study. It is a procedure which may be performed as a stage procedure and also at a district hospital when malignant jaundice is encountered at exploratory laparotomy and the obstruction is distal to cystic duct. Choledocholithiasis was treated with choledocholithotomy and/or choledocho-duodenostomy. T-tube drainage was employed in all cases after choledocholithotomy or attempted CBD exploration while choledochoduodenostomy was stented by one of the authors only. Indications for choledochoduodenostomy were either a stone load that could not be cleared by choledocholithotomy, or impacted ductal stone, or hepatic calculi and stricture of the terminal bile duct.

If feasible hilar cholangiocarcinoma must be resected with some form of hepatic resection. If a tumour involves the mid portion of the bile duct local resection with choledochojejunostomy is sufficient. Those tumours arising either in the immediate supraduodenal portion of the bile duct, or its intra-pancreatic portion, and in direct relation to the papilla, are managed like periampullary

tumours. Among 10 patients of cholangiocarcinoma in this series, 1 hilar and 3 bile duct could be resected while segment III anastomosis was performed in 3 patients and in 2 patients no form of therapy could be offered. All patients with gall bladder malignancy and obstructive jaundice were advanced cases where treatment was with palliative intent only. Segment III anastomosis were done in 5 patients, hepaticojejunostomy in 13 and in 2 patients CBD was dissected out and stent placed. Mortality was 7 per cent in pancreatoduodenectomy and 8 per cent in palliative procedures for cholangiocarcinoma and carcinoma of the gall bladder.

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