

Surgically Treated Obstructive Jaundice in the Gastroenterology and Hepatology Teaching Hospital in Baghdad

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ABSTRACT

Background: Obstructive jaundice poses diagnostic and therapeutic challenges to surgeons practicing in biliary surgery. This study was undertaken to highlight the etiological spectrum, treatment, and outcome of obstructive jaundice in our setting. **Patients&Methods:** Seventy five patients with obstructive jaundice that have underwent surgical procedures collected from Gastroenterology and Hepatology Teaching Hospital in the period from February 2010 to September 2011. This prospective study includes 46 females and 29 males. Data collected include etiology, type of surgery performed and outcome. Those patients with obstructive jaundice that were treated by non-surgical means (i.e. ERCP, chemoradiotherapy, PTC) were excluded from the study. **Results:** Of the 75 patients included in this study, 29 were males and 46 were females, with age range between (5-72) years. The most common etiological cause is CBD stone 36 (48%) followed by periamullary tumor 23 (32%). These patients required different types of surgical procedures including pancreaticoduodenectomy 8 patients, excision of choledochal cyst with bilioenteric anastomosis 4 patients, transduodenal ampullectomy 2 patients, choledochoduodenostomy 17 patients, Choledochotomy with T tube 10 patients, Partial cholecystectomy with extraction of the stone from the common duct through the GB 9 patients, Transduodenal sphincteroplasty 2 patients, Reconstruction after biliary injury (hepaticojejunostomy) 8 patients, Endocystectomy of hydatid cyst 3 patients, Biliary bypass 11 patients, Laparotomy only 1 patient. There is postoperative complications comprise 45%, mortality 4 patients (5%). **Conclusions:** Obstructive jaundice is a clinical diagnosis that requires both clinical and diagnostic work up to elucidate the precise etiology. A multi-disciplinary approach that requires the clinician, radiologist, endoscopist and interventional radiologist will lead to a better outcome.

Key word : obstructive jaundice

Introduction:

Jaundice (derived from French word 'jaune' for yellow) is a yellowish discoloration of the skin, sclera and mucous membranes by deposition of bilirubin in these tissues, and is clinically apparent when the bilirubin level exceeds 2mg/dl (34.2 μ mol per L). (1) Causes of jaundice can be classified into pre-hepatic, hepatic and post hepatic. In this review, our focus is on post hepatic causes of jaundice (obstructive or surgical cholestasis) as this is more relevant to surgeons. Obstructive jaundice is not a definitive diagnosis and early evaluation to establish the etiology of the cholestasis is crucial to avoid secondary pathological changes (e.g. secondary biliary cirrhosis) if obstruction is not relieved. (2)

Causes of Obstructive Jaundice (3)

Congenital

Biliary atresia
Choledochal cysts

Acquired

Choledocholithiasis, Cholecystitis
Mirizzi Syndrome
Tumors (benign, malignant)
Gallbladder
Bile ducts
Ampulla of Vater
Pancreas
Lymphoma
Metastatic tumors
External compression

Strictures

Trauma
Sphincter of Oddi
Primary sclerosing cholangitis
Inflammatory by pancreatitis
Parasites (intrahepatic rupture of hydatid cyst, ascaris)

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Patients and Methods:

Seventy five patients with obstructive jaundice that have undergone surgical procedures collected from Gastroenterology and Hepatology Teaching Hospital from the period February 2010 to September 2011. This is prospective study includes 46 females and 29 males. The data have been collected from reviewing hospital records of the patients regarding history, the mode of presentation and examination (jaundice, clay color stool, tea color urine, itching, abdominal pain, mass), investigations including blood tests (liver function test: total serum bilirubin, direct & indirect bilirubin, s-AST, s-ALT, s-ALP, renal function test and coagulation profile) and imaging studies (ultrasound, CT scan, MRI & MRCP, EUS and ERCP) for these 75 patients.

Also operative procedures, and postoperative morbidity and postoperative in hospital mortality. Those patients with obstructive jaundice that were treated by non-surgical means (i.e. ERCP, chemoradiotherapy, PTC) were excluded from the study.

In most of the cases either I was present in theatre as surgeon under supervision or assistant or as observer.

Results :

Of the 75 patients included in this study, 29 were males and 46 were females. So (male: female ratio of 2:3) with age range between (5-72) years, median age 41 years. The largest number 23 patients is in age group 50-60 year (table 1).

Table (1) age and gender distribution

Age group	No. (%)	Female no.	Male no.
0-10	2 (3%)	1	1
10-20	5 (7%)	5	0
20-30	11 (14%)	7	4
30-40	18 (24%)	10	8
40-50	10 (13%)	7	3
50-60	23 (31%)	14	9
>60	6 (8%)	2	4
total	75 (100%)	46 (61.3%)	29 (38.6%)

Abdominal pain associated with jaundice was less prevalent at presentation in patients with malignant obstructive jaundice (30%) compared with those with nonmalignant obstructive jaundice (70%).

Investigations carried out to verify the diagnoses of all patients. All patients had abnormal liver function tests. Increased level of serum alkaline phosphatase

was documented in all patients, conjugated hyperbilirubinaemia was found in most of the patients and the level of ALT and AST ranged from upper normal to double normal.

All patients underwent abdominal ultrasound. Other diagnostic tools were CT scan, MRCP, and endoscopic ultrasound (Table 2).

Table (2) clinical and imaging studies of obstructive jaundice

	Malignant obstruction	Benign obstruction
Etiology	23 (31%)	52 (69%)
Median age	58 years	39 years
Abdominal pain at presentation	(22) 30%	(52) 70%
US	(75) 100%	(75) 100%
CT	(69) 93%	(36) 48%
MRI & MRCP	(51) 69%	(60) 81%
EUS	(50) 67%	(53) 71%

Most common etiological cause is CBD stone and Mirrizi syndrome 36 (48%) followed by periamullary tumor 23 (32%), postcholecystectomy biliary stricture 8 (11%), Choledochal cyst 4 (5%),

Pressure from outside (hydatid cyst of the head of pancreas) 3 (4%), Biliary stricture caused by pancreatitis 1 (1%). This constitutes 69% benign causes and 31% malignant causes. (Table 3)

Table (3) etiology of obstructive jaundice

Diagnosis	Number (%)
Choledochal cyst	4 (5%)
cancer head pancreas	12 (16%)
Distal cholangiocarcinoma	6 (8%)
Ampullary tumor	5 (7%)
CBD stone & Mirrizi syndrome	36 (48%)
Post-cholecystectomy biliary stricture	8 (11%)
Biliary stricture caused by pancreatitis	1 (1%)
Pressure from outside (hydatid cyst of the head of pancreas)	3 (4%)
total	75

Operations

These patients required different types of surgical procedures including pancreaticoduodenectomy 8 patients, excision of choledochal cyst with bilioenteric anastomosis 4 patients, ampullectomy 2 patients, choledochoduodenostomy 17 patients, Choledochotomy with T tube 10 patients, Partial cholecystectomy

with extraction of the stone from the common duct through the GB 9, Transduodenal sphincteroplasty 2, Reconstruction after biliary injury (hepaticojejunostomy) 8, Endocystectomy of hydatid cyst 3, Biliary bypass (with or without gastric bypass with enterostomy) 11, Laparotomy only 1 patient. (table 4)

Table (4) surgical procedures

Surgical procedure	No.
pancreaticoduodenectomy	8 (10%)
Transduodenal ampullectomy	2 (3%)
Biliary bypass +/- (gastric bypass with enteroenterostomy)	11 (15%)
excision of choledochal cyst with bilioenteric anastomosis	4 (5%)
choledochoduodenostomy	17 (23%)
Choledochotomy with T tube	10 (13%)
Partial cholecystectomy with extraction of the stone from the common duct through the GB	9 (12%)
Transduodenal sphincteroplasty	2 (3%)
Reconstruction after biliary injury (hepaticojejunostomy)	8 (10%)
Endocystectomy of hydatid cyst	3 (4%)
Laparotomy only	1 (1%)
total	75 (100%)

Postoperative morbidity

There are postoperative complications comprising 45%, in addition to respiratory problems

10 and wound infection 7, the renal impairment is also important in 3 patients. (Table 5)

Table (5) complications

Complications that required interventions	number
Reoperation late	3 (post-pancreaticoduodenectomy bleeding+ two strictures after reconstruction of biliary injury)
Wound dehiscence	2
Renal impairment	3, one require dialysis
Wound infection	7
T- tube slippage	1
DVT	1
Heart failure and pulmonary edema	1
Intestinal obstruction	1
Intraabdominal collection	2
Chylousacites	1
Respiratory problems	10 one require RCU and mechanical ventilator
fistula	One biliary, One intestinal
	34 (45%)

Mortality

Mortality occurred in 4 patients (5%), one of them directly related to intraoperative

Massive bleeding due to portal vein injury, others occurred postoperatively. (table 6)

Table (6) causes of mortality

Cause	No.
MI	1
Pulmonary embolism	1
Bile leak, Renal failure and septicemia	1
Portal vein injury	1
total	4 (5%)

Discussion:

Obstructive jaundice poses diagnostic and therapeutic challenges to general surgeons and contributes significantly to high morbidity and mortality (4). Female preponderance in both the benign and malignant obstructive jaundice has been ascribed to high prevalence of gall stones in them which is reported to be a risk factor for many benign and malignant conditions causing biliary obstruction (5,6,7). In this study, male to female ratio 2:3, male 39% and female 61%. Most of the patients with benign obstructive jaundice in this study were in younger age group while malignant causes were in elder age group. The incidence of malignant obstructive jaundice in patients of older age group was also reported by others Mehrdad et al, Khurram et al, Syed et al and Lawal et al (8,9,10,11). The majority of patients in this study had benign obstructive jaundice which is in disagreement with other studies reported elsewhere Mehrdad et al, Khurram et al, Syed et al., Lawal et al., Mohamed et al., Sharma et al. (8,9,10,11,12,13), but in agreement to Bekele et al (14) who reported benign obstructive jaundice (choledocholithiasis) as the most common cause of obstructive jaundice. In this study, carcinoma of the head of pancreas was the commonest cause of malignant obstructive jaundice while choledocholithiasis was the commonest benign cause. Similar observation was also noted by others Khurram et al, Syed et al and Lawal et al (9,10,11). Sharma & Ahuja (13) reported carcinoma of the gall bladder as the most common cause of malignant obstructive jaundice. Although jaundice resulting from a malignancy in the hepatobiliary tract is said to be painless (15,16,17), in our study approximately one third of patients with a malignancy experienced pain at presentation. Abdominal pain was significantly more often associated with benign conditions.

In this study, 23 patients with malignant obstructive jaundice underwent 12 palliative surgeries (by bilioenteric bypass surgery). Ten curative surgeries, 8 patients underwent pancreaticoduodenectomy, 2 patients transduodenal ampullectomy.

One patient laparotomy only because a very advanced cholangiocarcinoma involving the multiple areas of extrahepatic biliary system with liver metastasis diagnosed preoperatively diagnosed as acute cholangitis with multiple liver abscesses due to multiple biliary stones referred to surgery after failure of ERCP so surgery planned to relieve cholangitis. Whereas 52 patients with benign obstructive jaundice all of them underwent curative surgery. Similar treatment pattern was also reported by another study Mohamed et al (12). High incidence of palliative surgery in patients with malignant

obstructive jaundice is due to delayed presentation for treatment as a result the majority of patients with malignant conditions report to hospital very late when the disease is in advanced stage, and the only option is palliative surgery. (12) Traditionally, T-tube placement after common biliary duct exploration has long been a standard surgical practice for choledocholithiasis, but potential of complications exists with this therapeutic modality Afify et al. and Van der Gaag NA et al. (18, 19). These include sepsis, dislodgement of tube, obstruction and/or fracture of tube, leakage of bile, incomplete evacuation, recurrent stone and patient may have to carry it for several weeks before removal. All of these lead to prolonged length of hospital stay. The use of T-tube has been challenged by recent clinical trials (19, 20). In this study, bilioenteric bypass (choledochoduodenostomy and transduodenal sphincteroplasty) after open choledocholithotomy for choledocholithiasis and extraction of common bile duct stone into the gallbladder through a patent cystic duct were used in the majority of patients as opposed to T-tubes in our center. Surgical procedure in patients with obstructive jaundice has been reported to be associated with significant mortality compared with surgery in non-jaundiced patients in Van der Gaag NA et al, Hussain et al., Pitiakoudis et al (19, 21, 22). Mortality rates of between 8% and 33% have been reported for surgery to relieve bile duct obstruction (21, 23, 24). In this study, mortality during hospitalization occurred in 4 patients (5%). Several factors including elder age group, duration of jaundice, malignant causes, high levels of bilirubin and presence postoperative complications (e.g. sepsis, coagulopathy, hepatic coma and renal failure) have been reported in literature to be associated with high mortality rate in these patients in Mehrdad et al, Hussain et al., Pitiakoudis et al (8,21,22). Our mortality rate of 5% which is similar to that reported in an Iranian study by Mehrdad et al (8). The predictors of mortality were age > 60 years, prolonged duration of jaundice, malignant causes and presence postoperative complications mainly sepsis. (8) The high morbidity and mortality rates are attributed to delayed presentation of disease and lack of standard care (medical and nursing) seen in developed world.

Conclusions:

1. Obstructive jaundice is a clinical diagnosis that requires both clinical and diagnostic work up to elucidate the precise etiology.
2. Treatment should be individualized - based on patient factors and availability of resources and personnel.
3. Choledocholithiasis and malignancy are the two major causes of obstructive jaundice.

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