

A REAPPRAISAL OF COMMON BILE DUCT OBSTRUCTION IN JOS, NIGERIA (1989 - 1999).

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ABSTRACT

Objective: We aimed to reappraise the demographic characteristics, the clinical features, pathologic effects, surgical management and outcome in patients with common bile duct obstruction.

Methods: Records of patients seen in Jos university Teaching Hospital with common bile duct obstruction between 1989 - 1999 were evaluated and analysed.

Results: Fourteen patients with mean age (range) of 30 (6 - 45) years and a sex ratio, M:F of 3:1 had Benign Extrabiliary Tract Obstruction (BEBTO); 18 patients with mean age (range) of 52 (43 - 75) years and a sex ratio, M:F of 10:1 had Malignant Extrabiliary Tract Obstruction (MEBTO). The main associated disease condition in patients with BEBTO was cirrhosis of the liver (35%), versus diabetes mellitus (33%) in patients with MEBTO. Pain (85%), Jaundice (71%) and fever (35%) were the commonest clinical features for BEBTO; whereas jaundice and weight loss (100%), and palpable gall bladder (88%) were the commonest features for MEBTO. Causes of BEBTO were biliary calculi (72%) and chronic pancreatitis (28%), while MEBTO was caused by ductal carcinoma of the pancreas (100%). Positive mixed bile cultures in BEBTO were recorded in 86% of cases versus 45% for MEBTO. Surgical procedures performed in cases of BEBTO were biliary calculi extraction (65%), bypass cholecholedodenostomy (7%) and gastrohepatojejunostomy for cases with chronic pancreatitis (28%).

For MEBTO, cholecystojejunostomy was performed in 57% and triple bypass in 22% of cases. Postoperative wound infection occurred in 28% BEBTO versus 20% of MEBTO cases.

Mortality in BEBTO was zero versus 62% for MEBTO.

CONCLUSION:

Although, common bile duct obstruction occurs infrequently in our setting, this reappraisal highlights the distinct features of its demography, clinical manifestations, surgical management and outcome in the two groups of patients with the condition.

Keywords: Benign, malignant, common bile duct obstruction, evaluation.

INTRODUCTION

Common bile duct obstruction due to benign and malignant lesions continue to feature prominently in medical literature around the world^(1,2). Benign extrabiliary bile duct obstruction (BEBTO) is most often a consequence of stenosis at the sphincter of oddi, stricture of the common duct or chronic pancreatitis in association with cholelithiasis, and

biliary cirrhosis⁽³⁾. The most common clinical manifestations are due to partial obstruction, rarely is the obstruction complete and the results of surgical treatment are generally good: Malignant extrabiliary bile duct obstruction (MEBTO) on the other hand, is frequently due to carcinoma of the pancreas, which is increasing in frequency and is the fourth commonest cancer leading to death in the United States of America and Europe⁽⁴⁾. Ductal carcinoma of the head of the pancreas produces complete obstruction of the common bile duct with classical features of obstructive jaundice. Despite recent advances in diagnostic aids and surgical techniques, the results of surgical treatment for ductal carcinoma remain poor. However, atypical clinical presentations still exist in the two types of obstruction which of course vary from one locality to another. Common bile duct obstruction is infrequently seen in our practice and has not been reported. The objective of this study therefore, was to reappraise the clinical features, pathologic effects, surgical management and outcome in these two groups of patients with common bile duct obstruction.

Methods: A retrospective study, in which 32 consecutive patients with obstructive jaundice were evaluated, was carried out at the Jos University Teaching Hospital (JUTH). The study covered the period between January 1989 to December 1999. Fourteen of these patients had BEBTO and 18 MEBTO. This comparative evaluation covered the demographic data, clinical features, microbial bile cultures and surgical management of patients with common bile duct obstruction. The outcome of patients at an average period of 3 years was also recorded.

Results: The characteristics of the 32 patients with common bile duct obstruction are shown in Table 1. The age range for the 14 patients with BEBTO was (6 - 45) years with a mean of 30 years while for MEBTO it was (43 - 75) years with a mean of 52 years. Similarly, the male to female sex ratio for BEBTO was 3:1 versus 10:1 for MEBTO ($p < 0.001$). Thirty-five percent of the total number of patients with BEBTO had associated cirrhosis of the liver, 14% sickle cell anaemia and 14% presented with diabetes mellitus compared to 33% for those with MEBTO who were being managed for diabetes mellitus and 16% with underlying cirrhosis of the liver.

The three most common clinical features for BEBTO were right hypochondrial pain (85%), jaundice (71%) and fever (35%). For patients with MEBTO, jaundice was recorded in all patients, while 88% presented with a palpable gall-bladder. Biliary calculi was the cause of BEBTO in 10 patients (72%); in 4 patients (28%), a retrospective Diagnosis of chronic alcoholic pancreatitis was made following bypass operations for the patients. Intraductal pancreatic carcinoma by contrast was the cause of MEBTO

in all of patients; 11 patients (60%) had carcinoma of the head of the pancreas while in the remaining 7 (40%), the carcinoma was mainly confined to the body and tail of the pancreas.

Positive bile cultures obtained during operations were recorded in 12 of 14 patients (86%) with BEBTO, Table 2. *Staphylococcus aureus* accounted for 16% of these mixed infections. Seven of 18 patients (39%) with MEBTO had positive bile cultures due to mixed infection with *Escherichia coli* in 56 %, *Proteus mirabilis* in 42% and *Staphylococcus aureus* in 14%.

Surgical procedures performed for both groups of patients are indicated in Table 3. The commonest operations for BEBTO were common bile duct exploration with extraction of biliary calculi in 51%, gastro-cholecystojejunostomy for chronic pancreatitis in 28% and sphincterotomy in 14%. For MEBTO, double bypass operation in form of gastro-cholecysto-jejunostomy was performed in 57%, triple bypass operation with addition of entero - enterostomy in 22 percent and laparotomy with biopsy of the liver in 16% of the total number of patients.

Hospital mortality as recorded for BEBTO was zero versus 62 % for MEBTO.

Complications included postoperative wound infection in 28%, intraoperative injury to the common bile duct in 14% and postoperative pancreatitis in 7% of the patients with BEBTO. In the MEBTO group, wound infection was recorded in 20%, hepato-renal syndrome in 10% and deep vein thrombosis in 10 percent.

Table 1: Patients characteristics and clinical presentation in BEBTO versus MEBTO; JUTH: 1989 - 1999.

Characteristic	BEBTO (n = 14)	MEBTO (n= 18)	TOTAL (n = 32)
AGE in years			
Range	6 -45	43 - 75	6 - 75
Mean	30	52	42
SEX ratio M:F	3:1	10:1	5:1
ASSOCIATED DISEASE:			
Sickle cell anaemia	2(14)	0(0)	2(6)
Liver cirrhosis	5(35)	3(16)	8(25)
Diabetes mellitus	2(14)	6(33)	8(25)
Indeterminate	5(35)	9(50)	14(44)
CLINICAL FEATURES:			
Pain	12(85)	7(39)	19(59)
Jaundice	10(71)	18(100)	28(88)
Fever	5(35)	2(11)	7(22)
Palpable gall-bladder	4(28)	16(88)	20(63)
Weight loss	2(14)	18(100)	20(63)
CAUSES:			
Biliary calculi	10(72)	0(0)	10(31)
Chronic pancreatitis	4(28)	0(0)	4(13)
*Pancreatic aetiology in brackets	0(0)	18(100)	18(56)

Table 2:

Bile duct in BEBTO versus MEBTO: 1989 - 1999.

Bacteria	Positive		TOTAL (N=32)
	BEBTO (n = 14)	MEBTO (N=18)	
<i>Staphylococcus aureus</i>	2(16)	1(14)	3(15)
<i>Streptococcus pyogenes</i>	1(8)	0(0)	1(5)
<i>Escherichia coli</i>	10(80)	4(56)	14(70)
<i>Proteus mirabilis</i>	8(64)	3(42)	11(55)
Nil	2(14)	11(55)	13(41)

Table 3.

Surgical management for BEBTO versus MEBTO; JUTH 1989 - 1999.

Operation	BEBTO (n = 14)	MEBTO (n = 18)	TOTAL (n = 32)
Liver Biopsy	6(42)	3(16)	3(9)
*CBD exploration plus cholecystectomy	7(51)	0(0)	7(22)
Sphincterotomy plus cholecystectomy	2(14)	0(0)	2(6)
choledochoduodenostomy plus cholecystectomy	1(7)	0(0)	1(3)
Gastro/Cholecystojejunostomy	4(28)	10(57)	14(45)
Triple operation	0(0)	4(22)	4(12)
Whipple operation	0(0)	1(5)	1(3)

*CBD = Common Bile Duct.

Table 4

Hospital mortality and morbidity characteristic in BEBTO versus MEBTO; JUTH: 1989 - 1999

Characteristic	BEBTO (n = 14)	MEBTO (n= 18)	TOTAL (n = 32)
Mortality	0(0)	11(62)	11(34)
Common Bile Duct injury	2(14)	0 (0)	2(6)
Hepato-Renal Syndrome	0(0)	2(10)	2(6)
Pancreatitis	1(7)	0 (0)	1(3)
Wound Infection	4(28)	4(20)	8(24)
Deep Vein Thrombosis	0(0)	2(10)	2(6)

DISCUSSION

In the reappraisal of extrabiliary common bile duct obstruction in this study, we discovered that benign lesions were less common causes of obstruction than malignant lesions. Benign extrabiliary tract obstruction was more commonly associated with biliary calculi and chronic alcoholic pancreatitis and we did not find cases that were secondary to traumatic strictures or primary sclerosing cholangitis⁽⁵⁾.

Malignant obstruction to the common bile duct was exclusively due to intraductal carcinoma of the pancreas. Patients with BEBTO were usually much younger and there was a much less male preponderance in these patients than in the group with MEBTO.

The most common associated disease in BEBTO was cirrhosis of the liver while 33% of the patients with MEBTO presented with diabetes mellitus, either during or before the diagnosis of carcinoma of the pancreas was confirmed. Secondary diabetes is said to be uncommon in many series from Africa^(6,7). Osuntokun et al⁽⁸⁾ from Ibadan, Nigeria, reported 8.6 % of pancreatic disease in 832 diabetics in whom only 3 had carcinoma of the pancreas. This was a much lower incidence than was recorded in this

study probably due to under reporting, low index of suspicion in the earlier studies or the incidence of pancreatic carcinoma is rising as observed in Western populations⁽⁴⁾. Clinical jaundice in patients with both partial and complete obstruction was a common finding in both BEBTO and MEBTO except in cases of BEBTO that were due to chronic pancreatitis. Unexplained weight loss greater than 10% of normal body weight should also lead to a clinical suspicion of MEBTO⁽⁹⁾. Epigastric pain radiating to the back could signal the onset of choledocholithiasis or chronic pancreatitis (BEBTO) or in some cases intraductal carcinoma of the body and tail of the pancreas with perineural infiltration. Fever which was the last triad of Charcot's symptom complex of choledocholithiasis was probably due to a higher frequency of positive bile cultures in BEBTO in this study⁽¹⁰⁾.

When a biliary calculus exists in the common bile duct, the established surgical dictum is that choledo-cholithotomy should be performed together with cholecystectomy if such a calculus were thought to migrate from the gall-bladder. If choledocholithotomy was impossible for technical reasons, choledochoduodenostomy or transduodenal sphincteroplasty should be performed for calculi in the infra-duodenal portion of the common bile duct. For chronic pancreatitis and intraductal carcinoma, however, a lot of controversy about the best management option still exist. The histopathologic diagnosis of chronic pancreatitis and intraductal carcinoma is difficult even in expert hands and both may co-exist. Intraoperative open biopsy through the anterior surface of the pancreas may result in fistula formation, spread of tumour cells or a false negative diagnosis⁽⁴⁾. Retrospective diagnosis of chronic pancreatitis is often made if intraoperative biopsy was omitted specially in the patient who shows both subjective resolution of a pancreatic lesion suspected to be cancer.

The optimal operative choices for intraductal carcinoma should logically depend on the stage of the lesion; only 10% are resectable. Many surgeons attest to the superiority of resection^(11,12) over bypass operations in lesions thus suited except Crife⁽¹³⁾ who believes that a simple bypass procedure carried a better prognosis than radical pancreaticoduodenal resection (Whipple). However, in many series of pancreaticoduodenectomy, the mortality is higher due to pancreatico-jejunal anastomotic leaks. Recurrence of tumour in the residual pancreas is frequent due to the multicentric nature of intraductal carcinoma and patients frequently require insulin and pancreatic enzyme replacement postoperatively. It is on this basis that Remine (14,15), Hicks et al (4) have proposed total pancreatectomy for stage I intraductal carcinoma.

Malignant extrabiliary bile duct obstruction carried a poor prognosis when compared to BEBTO due to the late stage of presentation of our patients with intraductal carcinoma of the pancreas. Those patients in this study with chronic alcoholic pancreatitis fared exceedingly well because they all refrained from alcohol as part of the complete rehabilitation that was required for their cure following bypass surgery. The perioperative mortality and morbidity in obstructive jaundice have been put at 10-37% in recent time⁽¹⁰⁾ due to better preoperative evaluation of

patients. The presence of packed cell volume less than 30%, plasma bilirubin greater than 300 $\mu\text{mol/Litre}$ and a malignant lesion increases the mortality to about 60%. In the absence of all these three risk factors, the mortality drops to less than 5%. The incidence of postoperative wound infection in both BEBTO and MEBTO was probably not related to the positive bile cultures obtained but could be due to haematogenous infection in patients operated⁽¹⁶⁾.

This study showed that common bile duct obstruction by malignant lesions was commoner than obstruction caused by benign lesions. Disease associations, demographic characteristics, and outcome in the two groups appeared distinct. This reappraisal of common bile duct obstruction should provide a framework for a more detailed long term prospective study.

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