

Original Research Article

Obstructive Jaundice: A Review of Clinical Experience in Resource Limited Setting

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Abstract

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Obstructive jaundice is a common clinical condition that is largely under –reported, especially from a resource limited setting like ours where it constitutes a major challenge to the surgeon due to the high morbidity and mortality associated with it. Most patients present to the surgical clinic directly or as referrals from peripheral hospitals and are usually in poor state. This study was undertaken to determine the common risk factors associated with obstructive jaundice in our sub-region and to highlight the management challenges in a resource limited country like Nigeria. A 3 - year retrospective review of case notes of patients with obstructive jaundice between 2013 and 2015 was carried out. Demographic characteristics, risk factors and management outcome were studied. A total of 78 patients were seen. Out of this, 64 were males while 14 were females giving a male: female ratio of 4.6:1.0 The age range was between 40 and 77 years. The mean age was 63.8 years, median age was 65.0 years and the modal age was also 65.0 years. 87.2% (68) of obstructive jaundice was caused by carcinoma of the head of the pancreas, 7.7%(6) was caused by common bile duct stones, 2.6%(2) by peri-ampullary carcinoma while cholangiocarcinoma (Klatskin tumor) and tuberculous peri-portal adenitis were each responsible for 1.3%(1) of cases of obstructive jaundice. Majority of the patients presented with Child - Pugh-’s grade B, 64.1%(50); while 24.4%(19) presented with grade C and 11.5%(9) with grade A. 38.5% (30) of patients were managed conservatively with antibiotics and chemotherapy while 51.3% (40) had triple bypass; 5.1% (4) had an open cholecystectomy +common duct exploration while 2.6% (2) had a laparoscopic cholecystectomy + common duct exploration and 2.6%(2) also had an exploratory laparotomy + biopsy. Hypovolaemia in 25%(12) was the commonest post-operative complication followed by wound infection in 22.9%(11),fever in 18.8%(9), hepato-renal syndromein16.7%(8) and septic shock in 12.5%(6) respectively. Duodenal perforation was 2.1%(1) and hepatic encephalopathy also 2.1%(1). Post-operative mortality was 20.5% (16) while pre-operative mortality was 11.5% (9) making an overall mortality of 32.0 % (25). Carcinoma of the head of the pancreas was the commonest cause of obstructive jaundice in this study at 85.9%(67) followed by common bile stone duct at 7.7%(6). The management outcome of obstructive jaundice in Sokoto, Nigeria still remains dismal with an operative mortality of 20.5%(16) and an overall mortality of 32.0%(25).

Keywords: Obstructive jaundice, cancer head of pancreas, common duct stone.

INTRODUCTION

Obstructive jaundice occurs when there is failure of drainage of bile from the liver to the intestine (Mohamed and Syed, 2007). Most extra hepatic biliary obstructions are amenable to surgical corrections and are therefore appropriately termed surgical jaundice. It is a most challenging clinical condition with significant morbidity

and mortality, especially in developing worlds (Ahmad et al., 2001). Even though a common presentation to the surgical out-patient clinic, the true incidence of obstructive jaundice in Nigeria remains largely unknown. The risk factors for obstructive jaundice varies widely among regions of the world with pancreatic tumor being

Table 1: Age distribution of patients with obstructive jaundice

Age	Frequency	Percentage
40 - 49	5	6.4
50 - 59	10	12.8
60 - 69	40	51.3
70 - 79	23	29.5
TOTAL	78	100

Table 2: Causes of obstructive jaundice.

Causes	Frequency	Percentage
Cancer head of pancreas	68	87.2
Common bile duct stones	6	7.7
Periampullary tumor	2	2.6
Cholangiocarcinoma (Klatskin)	1	1.3
TB periportal adenitis	1	1.3
Total	78	100

reported to be the commonest in most published series followed by common bile duct stones (Lawal et al., 1998; Rahman et al., 2011; Chalya et al., 2011; Moghimi et al., 2008). Pancreatic cancer is said to account for about 3% of all malignant tumors in the West African sub-region and about 10% of digestive tract tumors in Europe and the incidence is rising (Badoe et al., 2009). In the United States of America, the age-standardized incidence for pancreatic cancer is currently put at 10.1/100,000 person-years for men and 7.5/100,000 person-years for women (Cruickshank and benbow, 1995). In 2009, it was estimated that pancreatic cancer affected approximately 42,470 individuals in the United States with about 35,240 deaths indicating the dismal outlook of this disease even in the best of centers (Jemal et al., 2009).

Only about 10 - 15% of patients with gall bladder stones are known to present with common bile duct stones (Shennak, 1994). However, gall bladder stones are the commonest sources of common bile duct stones accounting for up to 80% (Shennak, 1994). Reports from the Far East indicates that primary common bile duct stones may occur as a result of bacterial infection secondary to parasites like *Clonorchis sinensis*, *Fasciola hepatica* and *Ascaris lumbricoides* (Ho et al., 2004).

In Nigeria, as in most developing countries, late presentation with advanced disease is the norm in malignant obstructive jaundice (Lawal et al., 1998; Rahman et al., 2011; Chalya et al., 2011; Bekele and Yifru, 2000). Unfortunately, most centers in these low-income countries lack the requisite diagnostic and therapeutic facilities to manage the disease effectively. Therefore, the management of obstructive jaundice still remains challenging with an unfavorable outcome (Lawal et al., 1998; Rahman et al., 2011; Chalya et al., 2011; Bekele and Yifru, 2000).

METHODS

This was a 3- year retrospective study in which the case notes of patients with obstructive jaundice between 2013 and 2015 were retrieved and reviewed. Demographic characteristics, risk factors and management outcome were studied. Disease severity and functional status of the liver were assessed using the Child-Pugh's grading system. Continuous variables were presented as means (\pm standard deviations), and categorical variables were presented as frequencies (percentages). And inter-variable relationship was computed for the association between the Child-Pugh's grade and mortality using Pearson's Chi-square test. A *p*- value of less than 0.05 was considered statistically significant. All results were analyzed using the IBMS PSS v 20.0.

RESULTS

A total of 78 patients were seen. Out of this, 64 were males while 14 were females giving a male : female ratio of 4.6:1. The age range was between 40 and 77 years. The mean age (\pm standard deviation) was 63.8 years (± 8.05), median age was 65.0 years and the modal age was also 65.0 years (Table 1). 87.2% (68) of obstructive jaundice was caused by carcinoma of the head of the pancreas, 7.7%(6) was caused by common bile duct stones, 2.6%(2) by peri-ampullary carcinoma while cholangiocarcinoma (Klatskin tumor) and tuberculous peri-portal adenitis were each responsible for 1.3%(1) of cases of obstructive jaundice (Table 2). Diagnosis was done by contrast enhanced computerized tomographic (CT) scan of the abdomen and peri-portal lymph node biopsy. The majority of the patients presented with Child-Pugh's grade B, 64.1% (50) while 24.4%(19) presented

Table 3: Child- Pugh-'s grade of patients with obstructive jaundice.

Pugh-Child's grade	Frequency	Percentage
A	9	11.5
B	50	64.1
C	19	24.4
Total	78	100.0

Table 4: Treatment modalities of patients with obstructive jaundice.

Treatment	Frequency	Percentage
Conservative	30	38.5
Triple by-pass	40	51.3
Open Cholecystectomy +Common duct exploration	4	5.1
Laparoscopic Cholecystectomy +Common duct exploration	2	2.6
Exploratory laparotomy & biopsy	2	2.6
Total	78	100.0

Table 5. Post-operative complications

Post-operative complications	Frequency	Percentage
Wound infection	11	22.9
Hepato-renal syndrome	8	16.7
Hypovolaemia	12	25
Septic shock	6	12.5
Fever	9	18.8
Duodenal perforation	1	2.1
Hypertensive encephalopathy	1	2.1
Total	48	100

Table 6. Mortality pattern of patients with obstructive jaundice

Mortality	Frequency	Percentage
Pre-operative	9	11.5
Post-operative	16	20.5
Overall	25	32.0

Table 7. Association between Child - Pugh's grade and mortality

Grade	Mortality	Pearson's Chi-square test
A	2	0.25
B	16	0.001
C	7	0.002

with grade C and 11.5%(9) with grade A (Table 3). All the patients with malignant obstructive jaundice, who constituted 91.0% (71) of all causes, presented with advanced disease. 38.5% (30) of all patients were managed conservatively with antibiotics and chemotherapy while 51.3% (40) had triple by-pass; 5.1% (4) had open cholecystectomy + common duct exploration while 2.6% (2) had laparoscopic cholecystectomy + common duct exploration and 2.6%(2)

also had exploratory laparotomy + biopsy (Table 4). Hypovolaemia, 25%(12) was the commonest post-operative complication followed by wound infection, 22.9%(11), fever, 18.8%(9), hepato-renal syndrome, 16.7%(8) and septic shock,12.5%(6). Duodenal perforation was 2.1%(1) and hepatic encephalopathy also 2.1%(1) (Table 5). Post-operative mortality was 20.5% (16) while pre-operative mortality was 11.5% (9) making an overall mortality of 32.0% (25) (Table 6). Table 7

showed significant relationship between Child-Pugh's grade and mortality.

DISCUSSION:

The mean age of disease in this study was 65 years with cancer of the head of pancreas been the most frequent cause of obstructive jaundice at 87.2% followed by common bile duct (CBD) stone at 7.7%(6). Reports from Ife and Ilorin, Nigeria agreed with our study (Lawal et al., 1998; Rahman et al., 2011). Lawal et al while reporting on the diagnosis, management and prognosis of obstructive jaundice in Ife, south-western Nigeria concluded that cancer of the head of the pancreas accounted for 28% of the cases and cholelithiasis 24% and Rahman et al from Ilorin, north-central, Nigeria reported cancer of the head of the pancreas as being the cause of jaundice in more than 60% of patients seen (Rahman et al., 2011). Other studies from outside Nigeria also showed that cancer of the head of pancreas was a common cause of obstructive jaundice (Chalya et al., 2011; Moghimi et al., 2008; Syed et al., 2010). Balde et al in a retrospective review of 33 patients with obstructive jaundice from Conakery, Guinea reported that the principal etiologies of jaundice discovered during surgery were tumor in head of pancreas in 23 cases (63%) and cholelithiasis in 9% (Sylla et al., 2016). However, Bekele and Yifru in a detailed review of obstructive jaundice among adult Ethiopians and Iqbal et al in a study on the causes of obstructive Jaundice in Peshawar, Pakistan all reported common bile duct stone to be the predominant cause of obstructive jaundice in their series in contrast to our study (Bekele and Yifru, 2000; Iqbal et al., 2008). Other reports from Taiwan and Sudan also showed common duct stones to be a major cause of obstructive jaundice among adults (Wang and Yu, 2014; Gameraddin et al., 2015). Gameraddin et al in a multi-centre sonographic evaluation of obstructive jaundice in Khartoum, Sudan reported that the common causes of obstructive jaundice were biliary stones at 61.33% followed by abdominal masses at 32.67% all of which were commoner among females (Gameraddin et al., 2015).

Presentation with advanced malignant disease and depressed liver function was the norm in our study. All our patients with malignant obstructive jaundice, 91.0% (71) presented with advanced disease. This is the usual presentation in most published series and also a major factor responsible for the high mortality rate associated with this condition (Mohamed and Syed, 2007; Rahman et al., 2011; Sylla et al., 2016; Bimal et al., 2015; Trigui et al., 2000). That also explained why none of our patients with malignant obstruction could have a curative treatment. 38.5% (30) of the patients were too weak for any surgical intervention and were therefore managed conservatively with antibiotics and chemotherapy while 51.3% (40) had palliative triple by-pass.

All our patients with common bile duct stones, 7.7%(6) however had cholecystectomy with common duct exploration as there was no facility for endoscopic stone extraction. Primary closure of the common bile duct without T-tube drainage was routine in our center due to non-availability of T-tube drains. Even though this practice eliminates the potential complications and morbidity associated with T-tube use (Van der Gaag et al., 2009), the possibility of long-term biliary stricture cannot be completely ruled out. Some recent clinical trials have however advocated primary closure of the common bile duct without T-tube drainage after an open exploration (Ambreen et al., 2009; Ahmed et al., 2008). Ambreen et al while carrying out a comparative study of primary closure versus T-tube drainage following open choledochotomy concluded that primary common bile duct closure was a safe and cost effective alternative to routine T-tube drainage (Ambreen et al., 2009). Similarly, Ahmed et al in a retrospective review of 158 consecutive patients who had open choledochotomy concluded that there was a lower biliary complication rate associated with primary closure of the common bile duct than after T-tube drainage (Ahmed et al., 2008).

Hypovolaemia and wound sepsis were the most common post-operative complications in this study. Post-operative wound sepsis is a common complication following biliary surgery due to gramnegative enteric bacterial contamination from prolonged obstruction (Chalya et al., 2011; Rakesh et al., 2003; Lee and Chung, 1997).

The post-operative mortality of 20.5% (16) was high in this study compared to figures from Ilorin, Nigeria, 15.6% and Tanzania, 15.5% (Rahman et al., 2011; Chalya et al., 2011). All the deaths occurred among patients with malignant obstructive jaundice. Advanced malignant disease presentation with high Child-Pugh's grade were the main predictors of mortality in this study. Most of our patients with inoperable malignant obstruction would have benefited from endoscopic stenting rather than operative by-pass procedures if the facilities were available. This would have greatly reduced the operative mortality reported in this study.

CONCLUSION

Carcinoma of the head of pancreas was the commonest cause of obstructive jaundice in this study at 85.9% (67) followed by common bile duct stone at 7.7%(6). The management outcome of obstructive jaundice in Sokoto, Nigeria still remains dismal with an operative mortality of 20.5%(16) and an overall mortality of 32.0% (25).

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