

Evaluation of the management of obstructive jaundice in Diwaniya Teaching Hospital

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Abstract

Background:

Obstructive Jaundice is a common surgical problem with variable causes ranging from benign causes like choledocholithiasis to malignant causes like carcinoma of head of pancreas, its clinical features vary according to its causes and the treatment vary from curative to palliative procedures. Many factors may affect the morbidity and mortality like the age of patients, depending etiology and the presence of associated comorbid diseases.

Aim of the study

To evaluate the management of obstructive jaundice in patient admitted to Al-Diwaniya Teaching Hospital.

Patients and Methods:

Prospective study was done in Al-Diwaniya Teaching Hospital between January 2011 and December 2014. 90 patients presented with obstructive jaundice admitted in AL-Dewanyia Teaching Hospital were included in this study. Data were collected regarding to the presenting clinical features, the diagnostic techniques, operative procedures and the causes of hospital mortality and morbidity and were analyzed so that a complete picture of these details can be assessed for obstructive jaundice in Al-Diwaniya teaching hospital.

Result

A total of 90 patients were studied. Female out numbered male by ratio of 1.5: 1. The majority of cases found in the age group 50-59 years. Most common etiology was choledocholithiasis.

Most patients with obstructive jaundice presented with jaundice and upper abdominal pain. The most frequent applied investigation was the liver function test which was done to all patients. Imaging techniques were applied variably with the U\ S was the most applied while MRCP was the next; however, the accuracy was higher with the latter technique Intervention depends on the main etiology: for the choledocholithiasis, most common intervention was ERCP, for CA head of pancreas the most common operation done was by pass procedure and for complicated hepato biliary hydatid disease the CBD exploration with T-tube was the common.

The post-operative morbidity was 13.33% mostly due to respiratory complications, while mortality was 3.33 %

mostly due to sepsis .

Conclusion:

Most common cause of obstructive jaundice in patients referred to AlDiwaniya teaching hospital was choledocholithiasis and biliary stricture comes second.

U/S and MRCP are the most common applied imaging techniques in diagnosis of obstructive jaundice. The threshold for their application was high.

The most common applied intervention to treat obstructive jaundice was the therapeutic ERCP, while the least applied intervention was open surgical procedures

Introduction

Jaundice is the yellowish discoloration of sclera, skin and mucus membranes in the body due to the elevation in the level of bilirubin in the blood. Obstructive Jaundice results from

failure of passage of bile to the intestine resulted from any pathology obstructing the biliary tree 1.

Obstructive jaundice is concerning usually with the surgical attention as it's due to many conditions most of

them can be relieved by surgical intervention. Of these conditions are

- 1-Choledocholithiasis.
- 2-Tumors (CA head pancreas, cholangiocarcinoma).
- 3-Parasitic Infections(Hepato-biliarycomplicated hydatid disease, Ascariasis)
- 4- Benign Stricture (e.g. previous surgery).
- 5-Acute inflammation (cholangitis,Mirizzi syndrome).
- 6-Congenital disease (Choledochal cyst).

Management of obstructive jaundice should start with a careful history and examination. Symptoms and signs that may accompany the obstructive jaundice 'are: pain, nausea and vomiting, darkening of urine, itching, fever and weight loss. Nature of these clinical manifestations usually depends on the original etiology and the progress of the disease process 3. Painful jaundice in which pain and even jaundice come intermittently usually associated with choledocholithiasis. Pain and jaundice may wax and wane as the stone disimpact and re-impact again acting as a ball-valve. Malignancy usually associated with mild pain and progressive jaundice and sometimes associated with non specific symptoms like malaise and weight loss 3,4 Laboratory investigations started with liver function test which would show an increase in the serum bilirubin specially the direct bilirubin as well as an increase of alkaline phosphatase enzyme which indicates a biliary problem, beside that Gamma glutamyl transferase should be checked to ascertain the biliary source of alkaline phosphatase. ALP is a sensitive enzyme to biliary obstruction but not specific as any biliary disease may elevate the level of serum alkaline phosphates 5 .CBD stones difficult to diagnose

but one can assume them when CBD is dilated with small stones in the gall bladder 6,7.

CT scan is inferior to *U/S* in diagnosing gall stones, but it is so effective in evaluating patients with malignancy of gall bladder,

extrahepatic biliary system and nearby organs specially the pancreas 8.

Magnetic resonance cholangiopancreatography (MRCP) gives the best non invasive test to diagnose obstructive jaundice due to biliary and pancreatic diseases.

Endoscopic Retrograde Cholangiography (ERC) is the diagnostic and often therapeutic procedure of choice in case of choledocholithiasis. The development of small fibro-optic cameras has facilitated the development of Intraductal Endoscopy⁹.

Percutaneous Transhepatic Cholangiography (PTC) is useful in patients with bile duct strictures and tumors, and can also be applied as a therapeutic technique through inserting stents for drainage of biliary tree¹⁰.

Endoscopic Ultrasound is so sensitive in diagnosing duct stones; also it is of "particular value in evaluation of tumors and their resectability. Laparoscopic *U/S* also can be applied in same Manner to diagnose stones and tumors but has no superior value than the endoscopic *U/S* 11. Serum markers are of importance in confirming the presence of some tumors. CA19-9 rises in 75% of pancreatic adenocarcinoma and in cholangiocarcinoma. But can also rises in some benign conditions like cholangitis¹².

Patients and Method

Prospective clinical study has been done between January 2011 and December 2014. 90 patients with diagnosis of obstructive jaundice who were admitted in AIDiwanyia Teaching Hospital were assessed through a special questionnaire forms which were distributed to the hospital to assess and follow up the patients. All the patients were assessed by the data collected for their age, sex, living place, main presenting symptoms and signs, the investigations done for the patients, the operative findings & procedures done for the patient and morbidity & mortality occurred during post operative stay.

Thorough investigations were done for all patients including the liver function test, U/S, MRCP and CT scan for those with pancreatic head lesion, while ERCP as diagnostic test for others.

Operative findings and operative procedures for patients had been taken from the operative notes, but there were some patients whose operative findings didn't match the imaging reports.

Data were analyzed and categorized in tables in order to compare the data collected

in this study. Results were reported as percentages for categorical variables. The variables were compared using the Chi-square test and SPSS protocol for categorical variables.

Results

Among the 90 patients, 54 patients (60%) were female and 36 patients (40%) were male. Female to male ratio was 1.5:1 (figure 1).

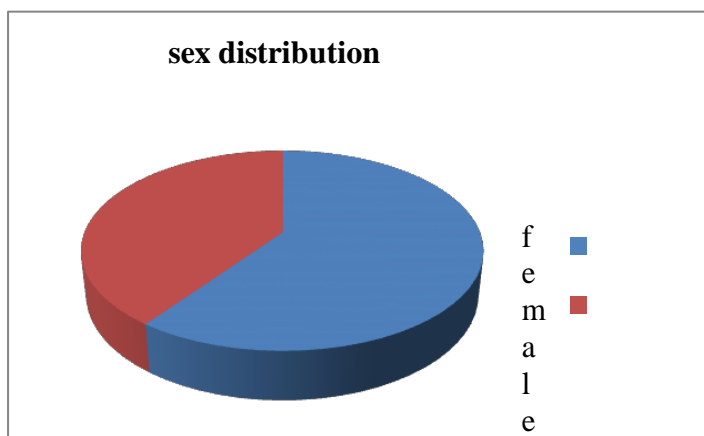


Figure (1): sex distribution in patients with obstructive jaundice

The majority of patients with obstructive jaundice were in the range of 50-59 years old both in female patients (5 were more than male).

figure 2) and table (1). In all age groups the female patient

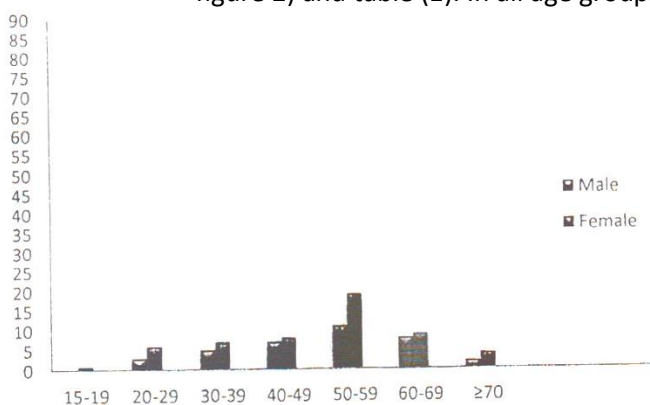


Figure (2): Age Distribution Of Male And Female Patients With Obstructive Jaundice

| Age | Total number | Male | Female |
|--------------|--------------|----------------|----------------|
| 1-19 | 1 (1.11%) | 0(0%) | 1 (1.11%) |
| 20-29 | 9(10%) | 3(3.33%) | 6 (6.67%) |
| 30-39 | 12(13.33%) | 5(5.56%) | 7(7.78%) |
| 40-49 | 15(16.67%) | 7(7.78%) | 8(8.89%) |
| 50-59 | 30(33.33%) | 11(12.22%) | 19(21.11%) |
| 60-69 | 17(18.89%) | 8(8.89%) | 9(10%) |
| .70 | 6(6.67%) | 2(2.22%) | 4(4.44%) |
| Total | 90 | 36(40%) | 54(60%) |

Table (1) Age distribution of female & male patients with obstructive jaundice.

The most common cause found to be choledocholithiasis which was seen in 68 patients (75.55 %). Second common cause was benign biliary stricture which was seen in 7 patients (7.77%). In 5 patients (5.55%) CA head of pancreas while intrabiliary hydatid cyst found in 3 patients (3.33%), In 2 patients (2.22%) chronic pancreatitis were found. Other neoplasm found are cholangiocarcinoma in 2 patients (2.22%) and CBD injury seen in 2 cases (2.22%). A single case of Choledochal cyst had been found (1.11%). Table(2) shows the etiological factors of obstructive jaundice in this study.

| Causes | Number of patients | Percentage |
|-----------------------------|--------------------|-------------|
| <i>Choledocholithiasis</i> | 68 | 75.55 % |
| <i>Benign stricture</i> | 7 | 7.77% |
| <i>CA head of pancreas</i> | 5 | 5.55% |
| <i>Hydatid cyst</i> | 3 | 3.33 % |
| <i>Chronic pancreatitis</i> | 2 | 2.22% |
| <i>Cholangiocarcinoma</i> | 2 | 2.22% |
| <i>CBD injury</i> | 2 | 2.22% |
| <i>Choledochal cyst</i> | 1 | 1.11% |
| <i>To tal</i> | 90 | 100% |

Table (2): Etiological Factors of obstructive Jaundice (n=90)

Table (3) shows the etiological factors distribution between the 2 genders. p value of < 0.05 considered significant. Although there was different sex distribution of etiological factors of obstructive jaundice, this difference not found to be significant.

| Causes | Female (n=54) | | Male (n=36) | | p value |
|----------------------|----------------|------------|----------------|------------|---------|
| | No of patients | percentage | No of patients | percentage | |
| Cholelithiasis | 4 | 47.77% | 2 | 30% | 0.39 |
| Biliary stricture | 3 | 3.33% | 4 | 4.44% | 0.07 |
| CA head of pancreas | 2 | 2.22% | 3 | 3.33% | 0.18 |
| Hydatid cyst | 1 | 1.11 % | 2 | 2.22 % | 0.2 |
| Chronic pancreatitis | 2 | 2.22% | 0 | 0.00 | 0.25 |
| Cholangiocarcinoma | 2 | 2.22% | 0 | 0.00 | 0.41 |
| CBD injury | 2 | 2.22% | 0 | 0.00 | >0.05 |
| Choledochal cyst | 1 | 1.11 % | 0 | 0.00 % | >0.05 |
| Total | 5 | 60.0% | 3 | 40% | |

Table(3) shows the aetiological factors distribution between two genders

The patients' clinical manifestations are shown in (Table 4) and found to be as following: The most frequent clinical feature was jaundice which found in 90 patients (100%), second most common complaint is the abdominal pain especially right upper abdominal pain found in 76 patients (84.44%). Next was nausea and vomiting in 62 patients (68.88%).

Dark color urine found in 31 patients (34.44%) and Pruritis in 28 patients (31.11%). Less common feature is fever which was found in 18 patients (20%), then weight loss in 6 patients (6.66%) and palpable mass in 6 patients (6.66%). Pale color stool also was seen in 5 patients (5.55%). The abdominal tenderness was seen in 4 patients (4.44%).

| Clinical Manifestation | Number of patients | Percentage |
|-------------------------|--------------------|------------|
| Jaundi | 90 | 100% |
| Abdominal pain | 76 | 84.44% |
| Nausea and vomiting | 62 | 68.88% |
| Dark color urine | 31 | 34.44% |
| Pruri | 28 | 31.11% |
| Fev | 18 | 20% |
| Weight loss | 8 | 8.88% |
| Palpable abdominal mass | 6 | 6.66% |
| Pale color stool | 5 | 5.55% |
| Abdominal Tenderness | 4 | 4.44% |

Table (4): Clinical manifestations of obstructive jaundice (n=90)

Table (5) shows the investigations applied, percentage of application and percentage of positive finding for each investigation.

Liver function test had been done to all patients and showed Total serum bilirubin especially the direct increased in

all patients subjected to this study. Liver transferase enzymes (ALT & AST) increased in 38 patients (42.22%) while ALP was found to be high in 87 patients (96.66%)

U/S examination has been done to 90 patients (100%). Of patients subjected to this study. Most confirmed the obstructive jaundice in the form of

dilated bile ducts, but it detected the etiology in 68 patients (75.55%).

CT-scan was done to 58 patients (64.44%). It detected the etiology in 50 patients (86.20%). MRCP was done to 46 patients (51.11%) and detected the etiology in 44 patients (95.65 %) of cases. ERCP was

done for 64 patients (71.11%). It detected the etiology in 64 patients (100%).

| Investigation | | Application | | +ve cases | |
|---------------------|-----------------------|-------------|------------|--------------------|------------|
| | | Number of | Percentage | Number of patients | Percentage |
| Liver Function Test | Total Serum Bilirubin | 90 | 100% | 90 | 100% |
| | ALT & AST | 90 | 100% | 38 | 42.22% |
| | Alkaline phosphatase | 90 | 100% | 87 | 96.66% |
| Ultrasound | | 90 | 100% | 68 | 75.55% |
| CT- scan | | 58 | 40.32% | 50 | 86.20% |
| MRCP | | 46 | 51.11 % | 44 | 95.65% |
| ERCP | | 64 | 71.11% | 64 | 100% |

Table(5): Results of diagnostic techniques used.* patients with obstructive Jaundice (n-90)

Of the 90 patients, 82 patients (91.11%) were operated on. Depending on the etiological factors, many modalities were used in the treatment of obstructive jaundice. These modalities are shown in tables (6 , 7 , and 8) which show the therapeutic procedures for the most common etiological factors found in this study.

For the choledocholithiasis, intervention was done for 64 patients, the most common

procedure was ERCP . It was done in 44 patients (68.75%).CBD exploration and T-tube was done in 12 patients (18.75%). Cholecystostomy was done in 3 patient (4.68%), Choledochojejunostomy was done 2 patient (3.12%). Choledochoduodenostomy was done in 2 patients(3.12%).Transduodenal sphincterotomy was done for 1 patients(1.56%).These results are shown in table(6).

| Procedure | No. of patients | % |
|-------------------------------------|-----------------|--------|
| <i>CBD Exploration +T tube</i> | 1 | 12.75% |
| <i>Choledochoduodenostomy</i> | 2 | 3.12% |
| <i>Transduodenal sphincterotomy</i> | 1 | 1.56% |
| <i>Endoscopic sphincterotomy</i> | 4 | 68.75% |
| <i>Cholecystostomy</i> | 3 | 4.68% |
| <i>Choledochojejunostomy</i> | 2 | 3.12% |
| <i>Total</i> | 6 | 100% |

Table (6): procedures done for the treatment of obstructive jaundice due to choledocholithiasis (n=64)

Table (7) shows the procedures done for treatment of CA head of pancreas. Of the 5 patients found to have CA head of pancreas, intervention done for 3 patients. Bypass surgery (biliary-enteric

anastomosis with gastro-jejunostomy) was done for 2 patients (66.66%). A single case was sent for stenting by ERCP (33.33%).

| Procedure | No. of patients | % |
|---------------------------|-----------------|-------------|
| <i>Bypass surgery</i> | 2 | 40% |
| <i>Not Operated On</i> | 2 | 40% |
| <i>ERCP with stenting</i> | 1 | 20% |
| TOTAL | 5 | 100% |

Table (8) shows 2 patients with obstructive jaundice due to intrabiliary ruptured Hydatid disease, CBD exploration with T-tube was the operative procedure done (100%).

| Procedure | No. of patients | 0/0 |
|---------------------------------|-----------------|-------------|
| <i>CBD Exploration + T tube</i> | 2 | 100% |
| Total | 2 | 100% |

Table (8): Procedures done for the treatment of obstructive jaundice due to Hydatid Disease (n=2)

The post operative morbidity occurred in 12 patients (13.33%), the causes of morbidity are shown in table (9), most common cause was respiratory complication (atelectasis and pneumonia) which was found in 4 patients (33.33%).

Anastomotic leak was found in 2 patients (16.66%) while intraperitoneal abscess found in 2 patients (16.66%). Abdominal dehiscence found in patients (16.66%), myocardial infarction in 1 patient (8.33%) DVT in 1 patients (8.33%).

| Cause Of Morbidity | No. of patients | % |
|---------------------------------|-----------------|---------------|
| Respiratory complication | 4 | 33.33% |
| Anastomotic leak | 2 | 16.66% |
| Intraperitoneal abscess | 2 | 16.66% |
| Wound Dehiscence | 2 | 16.66% |
| DVT | 1 | 8.33% |
| Myocardial infarction | 1 | 8.33% |

Table (9) : causes of hospital morbidity (n= 12)

In hospital mortality was seen in 3 patients(3.33 %) as shown in table (10).

| Cause Of Mortality | No of patients | 0/0 |
|-----------------------|----------------|---------------|
| <i>Sepsis</i> | 2 | 66.66% |
| <i>Cardiac arrest</i> | 1 | 33.33% |
| Total | 3 | 100% |

Discussion

Obstructive jaundice occurred almost with same features in the two genders; however, the age distribution of the disease differs between male and female and the ratio of male to female also differs. In our study the female to male ratio was 1.5: 1. This is different from a study done by Han in USA¹⁶ which showed a female to male ratio of 1.08, while in another study done by Moghimi in TehranIran¹⁷ the male to female ratio was 0.79 which is quite different from our study and showed a significant

female to male ratio. This belongs to the difference in the etiological factors and how common are these factors between the 2 genders in the variant societies.

Our study revealed the majority of patients with obstructive jaundice are in the age group 50-59 years old for both male and female. This is due to the large number of patients with obstructive jaundice caused by choledocholithiasis who fell in this age group.

The most common cause of obstructive jaundice found to be choledocholithiasis which was found in 68 patients (75.55%). Despite the fact that Women are three times more likely to develop gallstones than men¹⁸.there was no significant difference between male and female regarding the choledocholithiasis as an etiology for obstructive jaundice.

The 2nd most common cause was benign stricture which was found in 7 patients (7.77%),5 of these patients had history of previous laparoscopic cholecystectomy,2 had history of open cholecystectomy.In a study done by Khrrum Siddique,the

stricture as an etiology for obstructive jaundice was seen in 5% of patients 19.

The 3rd common etiology was CA head of pancreas .These results are different from the study done by Moghimi which revealed the CA head of pancreas as the most common cause of obstructive jaundice while choledochlithiasis came second.

The 4th common etiology is hydatid cyst which found in 2 patients (3.33%). Although hydatid disease is common in our society but most are either presented with abdominal pain or discovered accidentally rather than being presented as complicated intrabiliary rupture. A study done by Khalid .A. Salman in Kuwait, showed the intrabiliary rupture of hydatid disease as a cause of obstructive jaundice in 10.34% and it is found to be the 5th cause in sequence", which is not so far from our results.

Other forms of malignancy also detected in our study like cholangiocarcinoma in 2 patients(2.22%) .The study done by Moghimi showed other malignancies: a single case of adenocarcinoma and more frequent cases of cholangiocarcinoma (18.34%); other types of malignancies like CA gall bladder (which needs to be so advanced in order to cause obstructive jaundice), papillary adenocarcinoma and Carcinoma of the body of pancreas also detected in Moghimi's study. We haven't detected such types of malignancies between the cases operated on. Such types of malignancies might be present in the cases which were

not operated on or the cases underwent bypass or stenting without obtaining

tissue biopsy confirming them as CA head pancreas.

The most common and frequent presentation was jaundice which was seen in 90 patients (100%) and right upper abdominal pain mainly right hypochondrial pain seen in 76 patients (84.44%), This is due to that the most common etiological factor is the choledocholithiasis which associated with painful jaundice and even the next common cause, the CA head of pancreas, also associated with pain in most of cases. Although it is often taught that CA head of pancreas presents with painless jaundice, this aphorism is not accurate. Most patients with CA head of pancreas do experience pain as a part of the symptom complex. But the pain associated with CA head of pancreas is usually mild and vague abdominal pain not like the pain associated with choledocholithiasis which is severe and localized²¹.

Weight loss was found only in 8 patients (8.88%), it was found to be associated with the malignant etiology of obstructive jaundice. In a study done in Africa by Admassie, the most common cause for jaundice was CA head of pancreas and the commonest presentation was painless jaundice with weight loss 22, actually this study was done on a small number of patients, while the study done by Moghimi showed the painful jaundice as the commonest presentation, although the 1st common etiology he found was CA head of pancreas. Investigations done to our patients revealed that liver function test has been done to all patients and showed a direct hyperbilirubinaemia in all the patients. Also there was an increase in the alkaline phosphatase in 87 patients (96.66%), but the increase in the AL T and AST were not found in all patients. Actually only 38 patients (42.22%) showed increase in these enzymes and this is due to that the latter 2 enzymes associated only with abnormal hepatic paranchymal function, a condition not

mandatory associated with obstructive jaundice.

U\S examination was done for 90 patients (100%) in this study. U/S detected the etiology of obstructive jaundice in 68 patients (75.55%). Unfortunately the stones in the distal CBD (where it usually causes the obstructive jaundice) can't be detected by U\S as they are hidden by Duodenum. That's why the diagnosis of choledocholithiasis by U\S in this study was assumed by the presence of CBD dilatation and gall stones in many cases, which is not an absolute rule. Those patients need further investigation by other imaging techniques; a step had not been done in many patients in this study.

CT- scan was applied in 58 patients (40.32%) and detect the etiology in 50 patients (86.22%). CT scan is inferior to U\S in detection of gallstones as most of stones are radiolucent, but it is the next step in evaluation after U\S if tumor is suspected or found. CT-scan is an imaging test of choice in gall bladder, bile ducts and pancreatic tumors. The drawback is it lacks sensitivity for tumors ≤ 2 cm in size⁸.

MRCP done for 46 patients (51.11 %), and was able to detect the etiology in 44 patients (95.65%). MRCP is not superior to CT-scan in detection of neoplasm, but it is able to detect lesions :s 1 cm, and is so sensitive to detect choledocholithiasis which would appear as filling defect, so it should be the next step after U\S if choledocholithiasis is expected.

ERCP was done for 74 patients (71.11 %) and it detected the etiology in 74 patients (100%). Actually it has high accuracy to diagnose choledocholithiasis and strictures.

In our study, there was a high application of ERCP and MRCP due to the high threshold for our surgeon to request these techniques. This might be due to the frequent availability of MRCP in the general hospitals and its expensive cost in private clinics. ERCP is available & established in Al-Diwanyia.

For patients with choledocholithiasis, the most common procedure done was the minimally invasive technique ERCP which the most procedure applied in this study .CBD exploration with T- tube in 12 patients (12.75%) aiming for evacuation of the stone~4flom the CBD. Choledochotomy with primary closure has not been found as a therapeutic option between the cases included in this study. This might be due to the surgeon's fear of any missed stones distally or sphincter edema results from manipulation of stone removal. The study done by Gurusamy revealed the primary closure is as safe as the choledochotomy with T-tube. This might be due to that nearly all the cases included in his study were managed laparoscopically where; the surgery would be more delicate²³.

In the study done by Soetikno, 35 patients with choledocholithiasis were ~ managed by ERCP. It succeeded in 32 patients while only 3 patients needed surgical intervention". ERCP stone extraction is successful in 80-90% of the time using the techniques of sphincterotomy and balloon catheter or Dormia basket .

Stone retrieval the addition of mechanical, electrohydraulic, laser or extracorporeal shockwave lithotripsy for large stones increases the success rate to over 95% ²⁵.

Surgical drainage procedure was applied for 5 patients (7.81 %) Some of them had had failed ERCP due to impacted stones (this would add more to the surgery time and the post operative complication). These surgical drainage procedures include, transduodenal ,sphincterotomy and choledochoenterostomy (choledochoduo-denostomy andCholedochojejunostomy). A study which was done by Nicolas. J. Warter revealed that transduodenal sphincterotomy and choledochoenterostomy

were done for (74.71%) of patients while CBD exploration with T-tube done for (25.29%) of patients who has failed intervention by ERCP²⁶.This shows a big difference from our results which might be due to that CBD stones which failed to be extracted by ERCP are difficult to be managed by CBD exploration with T-tube alone. In our study most tried to remove the stones by ERCP first.

For CA head of pancreas, Bypass procedures aiming for biliary or biliary and gastric drainage were done in 2 patients (40%) and a single case was sent for ERCP for biliary decompression. The bypass procedure

& endoscopic stenting usually considered a palliative relieve for patient with unresectable tumors who suffers biliary or duodenal obstruction. Most cases of biliary bypass in this study done as Cholecystojejunostomy.

Hepaticojejunostomy provides more durable relief of obstructive jaundice than does Cholecystojejunostomy because of the proximity of the cystic duct to periampullary cancers ²⁷. Two patients (40%) were not operated on, this indicated either the unfitness of patient due to associated comorbid disease (especially that most of them are ≥ 3.01 years old) or the advanced stage of malignancy or both.

Pancreaticoduodenectomy (Whipple's procedure).Which assumed to be a curative procedure for periampullary neoplasm was not done in this study. This means that most of patients presented with CA head pancreas were presented in advanced and non-resectable. In a study done by Vanhooser ", The bypass procedure were applied for 57%, 18% were underwent Endoscopic stenting. 7% were not operated on ,4% underwent laparotomy without palliation or curative procedures. Whipple's procedure was applied for 14% of patients. three patients (3.33%) with

obstructive jaundice due to intrabiliary ruptured hydatid cyst in this study were

managed mainly by CBD exploration and T-tube while choledochoduodenostomy were done in 3 patients (100%). There is a study done by Sayek showed that T-tube drainage, cystojejunostomy, and choledochoduodenostomy

are the main operations performed for this pathologic condition 29, which is not so far from our study results. In another study done by Vignote, 15 patients were all managed successfully by ERCP. Vignote concluded that Endoscopic sphincterotomy is the treatment of choice for surgical complications of hepatic hydatid disease open to the biliary tree³⁰. This is quite different from our results were ERCP had not been applied for the management of intrabiliary rupture hydatid disease.

The in hospital morbidity rate shown in our study was seen in 12 patients (13.33%) most of them were due to respiratory complications which seen in 4 patients. Anastomotic leak which was found in two patients, was seen mostly with bypass procedure. In hospital mortality was seen in 3 patients (3.33%). Most common cause of death was sepsis found in 2 patients.

Most of morbidity and mortality occurred in patients where malignancy (especially CA head of pancreas)

was an etiology for obstructive jaundice. Age, associated comorbid diseases and malignant disease (as an etiological factor) found to be associated with the high mortality and morbidity rate for patients in this study. Other studies³¹ showed higher morbidity and mortality rates than our study

Conclusion

Obstructive jaundice was more common among female patients.

Choledocholithiasis was the most common cause for obstructive jaundice in patients refer to AL- Diwanyia Teaching Hospital. U/S and MRCP were the commonest diagnostic tools. Most of patients with malignant obstructive jaundice present late with advanced disease. ERCP

was a very helpful diagnostic and therapeutic tool. Age, comorbid disease beside malignant etiology resulted in higher morbidity and mortality

Recommendations

Early diagnosis and treatment to improve the outcome to patient with Obstructive jaundice. Further studies are needed to analyze the association between causes of obstructive jaundice & morbidity & mortality. The attachment of imaging reports and all the investigation results with the patient's case sheet to ensure a perfect medical registration.

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