Original Article

Assessment Of Biliary Enteric Anastomosis In Benign Biliary Disorders

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Abstract

Background: To assess Biliary Enteric Anastomosis in Benign Biliary Disorders.

Materials & methods: A total of 100 patients were evaluated. Only those patients were included which were affected by BBD undergoing biliary enteric anastomosis were enrolled. The procedures used were choledochoduodenostomy (CDD), choledochojejunostomy (CDJ), and Roux-en-Y hepaticojejunostomy (HJ). All the patients were pre-informed about the entire study protocol. Complete biochemical profile of all the patients was evaluated.Follow-up was done and occurrence of complications, if any, was recorded separately. All the results were recorded and analysed using SPSS software.

Results: Out of 100 patients with BBD, Choledochoduodenostomy (CDD), Choledochojejunostomy (CDJ) and Roux-en-Y hepaticojejunostomy (HJ) were carried out in 41 percent, 29 percent and 30 percent of the patients respectively. While evaluating the complications, it was seen that leak and strictures were seen in 2 percent and 1 percent of the patients respectively.Cholangitis was seen in 3 percent of the patients.On assessing the Uni-variate analysis for risk factors associated with complications, it was seen that albumin levels of less than 3.5 g/dL were significant risk factors for occurrence of complications.

Conclusion: Biliary enteric anastomosis is a safe and effective method for the management of BBD.

Keywords: - Biliary Enteric Anastomosis, Benign Biliary Disorders

INTRODUCTION

Benign biliary disease (BBD) accounts for significant morbidity and mortality and is difficult to treat. The diagnosis of biliary stricture is often missed or delayed because of its indolent course, with up to 20% of patients presenting with subtle clinical manifestations 1 year after the initial injury.[1, 2] Standard surgical techniques offer a good chance of cure for the majority of patients affected by extrahepatic benign biliary stricture. Nevertheless, operative repair has a long-term recurrence rate of stricture in 10% to 30% of patients. Advances in endoscopic procedures have provided alternative options of relieving biliary obstructions, but prolonged length of treatment and rehospitalization have to be considered if endoscopy is performed.[2- 4]

Biliary-enteric anastomosis (BEA) is a common surgical procedure performed for a variety of indications. This includes bypass or reconstruction following resection of malignant or benign biliary obstruction, primary biliary stones, iatrogenic bile duct injury, liver transplantation; and a number of biliary tract problems that are benign but have malignant potential such as primary sclerosing cholangitis, choledochal cyst, and hepatolithiasis. Surgical options for these diverse conditions include hepaticojejunostomy, choledochoenterostomies and cholecystoenterostomies. Biliary-enteric surgery is an essential surgical procedure even for a benign disease etiology.[4, 5] Hence; the present study was conducted for assessing Biliary Enteric Anastomosis in Benign Biliary Disorders.

MATERIALS & METHODS

The present study was conducted for assessing Biliary Enteric Anastomosis in Benign Biliary Disorders. A total of 100 patients were evaluated. Only those patients were included which were affected by BBD undergoing biliary enteric anastomosis were enrolled. The procedures used were choledochoduodenostomy (CDD), choledochojejunostomy (CDJ), and Roux-en-Y hepaticojejunostomy (HJ). All the patients were pre-informed about the entire study protocol. Complete biochemical profile of all the patients was evaluated. The principles used in choosing the method and construction of anastomosis were that the anastomosis was tension free, having adequate blood supply, with adequate stoma size of at least 20 mm, and lastly that it drained all segments of the liver.Removal of drain was based on color of the fluid and

volume. Follow-up was done and occurrence of complications, if any, was recorded separately. All the results were recorded and analysed using SPSS software.

RESULTS

Out of 100 patients, 61 percent of the patients belonged to the age group of 40 to 60 years while 21 percent of the patients belonged to the age group of less than 40 years. 62 percent of the patients were males while the remaining were females. Out of 100 patients with BBD, Choledochoduodenostomy (CDD), Choledochojejunostomy (CDJ) and Roux-en-Y hepaticojejunostomy (HJ) were carried out in 41 percent, 29 percent and 30 percent of the patients respectively. While evaluating the complications, it was seen that leak and strictures were seen in 2 percent and 1 percent of the patients respectively. Cholangitis was seen in 3 percent of the patients.On assessing the Uni-variate analysis for risk factors associated with complications, it was seen that albumin levels of less than 3.5 g/dL were significant risk factors for occurrence of complications.

Table 1: Age and Gender-wise distribution of patients

Variable		Number	Percentage
Age group (years)	Less than 40	21	21
	40 to 60	61	61
	More than 60	18	18
Gender	Males	62	62
	Females	38	38

Table 2: Distribution of patients according to type of procedure

Type of procedure	Number	Percentage
Choledochoduodenostomy (CDD)	41	41
Choledochojejunostomy (CDJ)	29	29
Roux-en-Y hepaticojejunostomy (HJ)	30	30
Total	100	100

Table 3: Distribution of patients according to complications

Type of procedure	Leak	Strictures
Choledochoduodenostomy (CDD)	0	0
Choledochojejunostomy (CDJ)	0	0
Roux-en-Y hepaticojejunostomy (HJ)	2 (2%)	1 (1%)

Table 4: Incidence of cholangitis

Cholangitis	Number	Percentage
Present	3	3
Absent	97	97

Table 5: Uni-variate analysis of risk factors associated with complications

Variable	OR	p- value
Age of more than 60 years	0.25	0.233
Gender	0.51	0.512
Albumin levels of less than 3.5 g/dL	1.23	0.001 (Significant)

DISCUSSION

Benign biliary diseases include a large spectrum of congenital and acquired disorders, which have different prognosis and require different treatment management. The diagnosis may be challenging since some benign disorders may mimic malignancy. Imaging has an important role in the diagnostic process, for treatment decision and planning and in patient follow up. Magnetic resonance (MR) with magnetic resonance cholangiopancreatography (MRCP) sequences is the imaging modality of choice for biliary diseases and has demonstrated high diagnostic accuracy. Moreover, the use of a hepato-specific MR contrast agent allows morphological and functional assessment of the liver and the biliary tree improving the diagnostic performance.In evaluating the gallbladder, a variety of imaging modalities are useful. Traditionally, ultrasound (US) has been the preferred first-line imaging technique for suspected gallbladder disease. Given its rapid ascendancy, computed tomography (CT) has also become a mainstay in evaluating gallbladder disease, whereas magnetic resonance imaging (MRI) is generally considered a problem-solving tool. Recent technologic advancements have now prompted the use of contrast-enhanced US (CEUS), high-resolution ultrasound (HRUS), and advanced MRI sequences for gallbladder evaluations, enabling greater diagnostic precision and facilitating the distinction between benign and malignant gallbladder disease.[6- 10]Hence; the present study was conducted for assessing Biliary Enteric Anastomosis in Benign Biliary Disorders.

In the present study, out of 100 patients, 61 percent of the patients belonged to the age group of 40 to 60 years while 21 percent of the patients belonged to the age group of less than 40 years. 62 percent of the patients were males while the remaining were females. On assessing the Uni-variate analysis for risk factors associated with complications, it was seen

that albumin levels of less than 3.5 g/dL were significant risk factors for occurrence of complications.Our results were in concordance with the results obtained by previous authors who also reported similar findings. Zafar SN et al, in a previous study, reviewed the medical records of all patients who underwent BEA for benign diseases. Majority (53%) had choledocholithiasis with impacted stone or distal stricture, followed by traumatic injury to the biliary system (33%). Thirty-four patients (43%) underwent a hepaticojejunostomy, 19 patients (24%) underwent a choledochojejunostomy, and choledochoduodenostomy was performed in 26 patients (33%).[11] Similar findings were observed in the study conducted by Singh DP et al. In their study, a total of 121 cases of biliary enteric anastomosis in BBD were evaluated. In the choledochoduodenostomy group, there were no leaks, no restrictures, and no mortality. Five (10.41 %) patients had cholangitis attacks and 2 (4.17 %) patients had sump syndrome. The choledochojejunostomy group had no leaks, no restrictures. Two (7.14 %) patients had repeated cholangitis and 2 (7.14 %) patients had sump syndrome, no mortality. The hepaticojejunostomy group had 3 cases of anastomotic leak of which 2 healed spontaneously and 1 needed resurgery. There was restricture in 2 cases, in which resurgery was successful—one death, no cholangiocarcinoma.[12]
In the present study, out of 100 patients with BBD, Choledochoduodenostomy (CDD), Choledochojejunostomy (CDJ) and Roux-en-Y hepaticojejunostomy (HJ) were carried out in 41 percent, 29 percent and 30 percent of the patients respectively. In a similar study conducted by DP Singh et al, CDD, CDJ and HJ procedures were carried out in 38.6 percent, 23.7 percent and 37.8 percent of the patients respectively.[12]

In the present study, while evaluating the complications, it was seen that leak and strictures were seen in 2 percent and 1 percent of the patients respectively. Cholangitis was seen in 3 percent of the patients.In the study conducted by Zafar et al, early complications occurred in 39 (49%) patients - 41% had local complications and 25% had systemic complications. Most frequent complications were wound infection (23%) and bile leak (10%). Four (5%) patients died. On multivariate analysis, low serum albumin level and higher ASA levels were the independent factors predicting the early complications following BEA.[11]In a similar study conducted by Kadaba RS et al, authors assessed the risk factors and management of anastomotic leak and stricture following biliary-enteric anastomosis. Younger age and biliary reconstruction following injury appeared to be significant risk factors for biliary strictures but multivariable analysis showed that only younger age was significant.Biliary-enteric anastomoses have a low incidence of early and late complications.[13]

CONCLUSION

From the above results, the authors concluded that Biliary enteric anastomosis is a safe and effective method for the management of BBD.

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