



RESEARCH ARTICLE

ENDOSCOPIC MANAGEMENT OF BILIARY MALIGNANCY AND OUTCOME

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ABSTRACT

Background: Endoscopic retrograde cholangiopancreatography (ERCP) is being used as a safe therapeutic tool for the palliative management of biliary and pancreatic malignancy. This study was conducted to evaluate the clinical outcome of patients with pancreato-biliary malignancy admitted to our study hospital after endoscopic stenting.

Methods: We retrospectively identified patients who underwent ERCP stenting for biliary and pancreatic malignancy during January 2013 through December, 2015 at Crescent Gastroliver and General Hospital, Dhaka.

Results: We identified 311 patients who had biliary and pancreatic malignancy and underwent ERCP for stenting. Among 311, 124 (40%) had periampullary carcinoma, 112 (36%) had cholangiocarcinoma, 43 (14%) had carcinoma gall bladder and 28 (9%) had carcinoma head of the pancreas. Mean age of the patients was 56 years and more than half-58.1% (181/311) were male. Of 311, stenting was complete/successful for 274 (88%) and of these free flow of bile was established in 263 (96%) patients. Majority were introduced with single plastic stent. Stenting was not possible for 36 patients. Eighteen patients had complete obstruction and tight stricture of CBD, not allowing guide wire to negotiate, 6 cases with periampullary carcinoma and had completely destroyed papilla, 9 had infiltration and invasion to duodenum, not allowing the scope to second part of duodenum and stenting was not feasible for 3 case as right and left hepatic duct and their branches were cut off due to extensive hepatic metastasis. During ERCP, bleeding occurred in 12 patients and none had perforation. Of 274 successful stenting, 257 (94%) had no immediate complication. Only 6 patients developed post-ERCP pancreatitis and 11 patients developed post-ERCP cholangitis. At one month follow up 6 patients developed jaundice and restenting was done.

Conclusion: ERCP stenting can be used as a safe and effective palliative care option to improve the quality of life for Biliary and Pancreatic cancer patients.

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INTRODUCTION

Biliary malignant tumour is one of the most serious problem sometimes not cured by surgery. Malignant biliary obstruction (MBO) is caused by periampullary tumours, such as carcinoma of the papilla of Vater, pancreatic cancer and distal cholangiocarcinoma, gallbladder carcinoma and metastatic diseases. Malignant obstruction of the bile duct from these

tumours may cause debilitating symptoms like intense itching. Jaundice is one of the most common feature may increase the risk of infection if not treated before surgery¹. Jaundice also increases the complications after surgery¹. Thus, there is a benefit of endoscopic therapy to biliary drainage for relief of jaundice prior to surgical resection of these tumours. Systemic or loco regional therapies offer the potential for, in part to mitigate the complications of further biliary obstruction.

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Chemotherapeutic agents and radiation therapies have been applied for tumour control, but their efficacy is limited, with partial response rates with chemotherapy demonstrated to be 35.9%, and with a stable disease rate of only 26.9%.^{3,4}

As malignant hilar biliary obstructions are often inoperable due to poor outcome, seventy percent of the jaundiced patients who did not have an attempted resection and stenting were done.⁵ Endoscopic stenting is a widely accepted option for providing effective drainage in both extrahepatic and intrahepatic malignant strictures. It enables luminal drainage of blocked pancreatic & bile ducts by using stents. In patients with extrahepatic malignancies, uncovered self-expanding metal stents (SEMS) provide excellent palliation.^{6,7} Endoscopic biliary stenting is helpful before chemotherapy. Stent placement reduces cholestasis and allow the patient to begin chemotherapy regimens by reducing the risk of chemo toxicity in a cholestatic liver.⁸

There are different types of plastic stents (PS) regarding diameters, range from 7 Fr to 12 Fr. Therefore, a diameter of 10 Fr is thought to be the best combination of patency and technical ease of placement.⁹ Deviere *et al*¹⁰ demonstrated in 1988 that bilateral biliary stenting was associated with significantly improved survival and decreased development of cholangitis compared to unilateral stenting.

Aim and objectives

This study was conducted to evaluate the clinical outcome of patients with pancreatico-biliary malignancy with stricture admitted to our study hospital attempted endoscopic stenting.

METHODS

We retrospectively identified patients who underwent ERCP who had biliary stricture for biliary and pancreatic malignancy. Patients demographic and endoscopic procedure informations were collected from hospital records and endoscopy unit, during January 2013 through December, 2015 at Crescent Gastro Liver and General Hospital, Dhaka, which is specially designed for Gastrointestinal and hepatobiliary endoscopic interventions.

Intravenous propofol (solely) was given for anaesthesia, Standard duodenoscopes used for ERCP were either Olympus TJF-150 or Pentax ED-3470TK, with a 4.2 mm accessory channel. All data were analysed in SPSS version 20.

RESULTS

We identified 311 patients who had biliary and pancreatic malignancy and underwent ERCP for stenting. Mean age of the patients was 56 years and more than half-58.1% (181/311) were male. Most of them (97%) had clinical jaundice [Table 1]. Next common feature was abdominal pain (74%). Anorexia and itching, weight loss, vomiting, abdominal mass, palpable gallbladder were 67%, 32%, 30%, 24%, 12% respectively. Raised serum bilirubin, alkaline phosphatase, aminotransferase, abnormal prothrombin time were 94%, 62%, 29%, 21% respectively [Table 2].

Table 1 Clinical information

Symptom-sign	N(%)
Jaundice	301 (97)
Abdominal pain	230 (74)
Anorexia	208 (67)
Vomiting	93 (30)
Itching	208 (67)
Abdominal mass	75 (24)
Weight loss	100 (32)
Palpable gallbladder	37 (12)

Table 2 Liver test findings.

Lab Findings	N(%)
Raised serum bilirubin	292 (94)
Raised serum alkaline phosphatase	193 (62)
Raised serum aminotransferase	90 (29)
Abnormal prothrombin time	65 (21)

Of 311, stenting was complete/successful for 274 (88%) and of these free flow of bile was established in 263 (96%) patients. Majority were introduced with single plastic stent. Stenting was not possible for 37 patients. [Table-3]

Failure of cannulation

Most common causes of failed cannulation is tight stricture and complete obstruction of CBD (5.7%). Infiltration to duodenum, periampullary carcinoma with completely destroyed papilla, extensive hepatic metastasis with cut off right & left hepatic ducts and their branches were 2.8%, 2.2%, 0.96% respectively. [Table-3]

Table 3 Unsuccessful ERCP

Cannulation failure	N(%)
Total	37 (12%)
Complete obstruction & tight stricture of CBD	18 (5.7)
Infiltration and invasion to duodenum	9 (2.8)
Periampullary carcinoma with destroyed papilla	7 (2.2)
Extensive metastasis with cut off right & left hepatic ducts and their branches	3 (0.96)

Of 274 successful stenting, 257 (94%) had no immediate complication. Only 6 patients developed post-ERCP pancreatitis and 11 patients developed post-ERCP cholangitis. At one month follow up 6 patients developed jaundice and restenting was done.

Early complication

The most common early complication was bleeding due to sphincterotomy but all are managed endoscopically. Cholangitis and pancreatitis developed in 3.5% and 2% of patients respectively; no duodenal perforation or anaesthesia related major complication occurred [Table -4].

Table 4 Early complications

Outcome	At first month-n(%)	At third month-n(%)
Reappearance of symptoms	6(2)	34(11)
Restenting required	6(2)	29(9)
Mortality	0(0)	17(5.5)

Long term outcome

Table 5 Long term outcome

Outcome	At first month-n(%)	At third month-n(%)
Reappearance of symptoms	6(2)	34(11)
Restenting required	6(2)	29(9)
Mortality	0(0)	17(5.5)

Of 311 cases, 124 (40%) had periampullary carcinoma, 112 (36%) had cholangiocarcinoma, 43 (14%) had carcinoma gall bladder and 28 (9%) had carcinoma head of the pancreas [Figure-1].

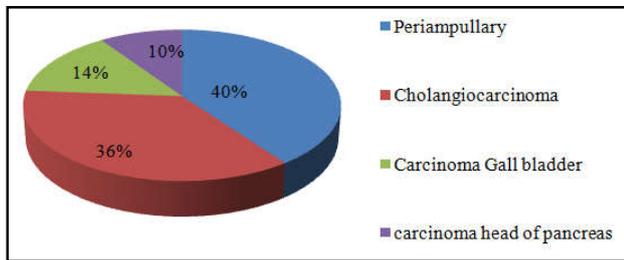


Figure 1 Types of biliary malignancy

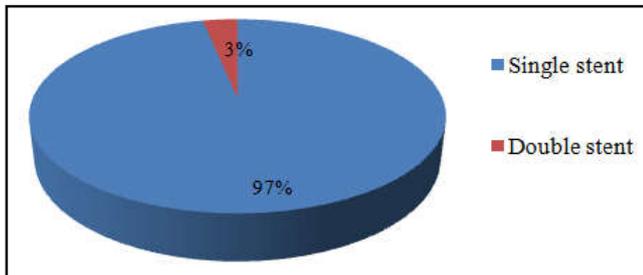


Figure 2 Number of stents in each ERCP

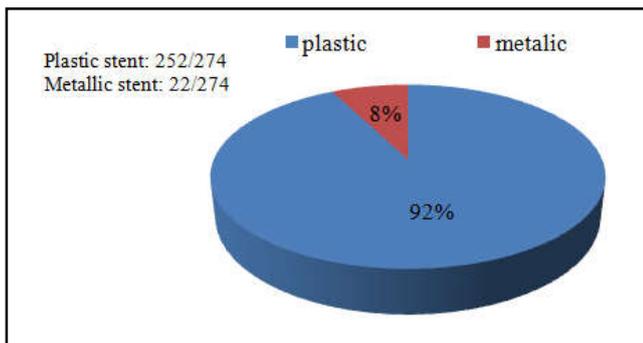


Figure 3 Type of stents

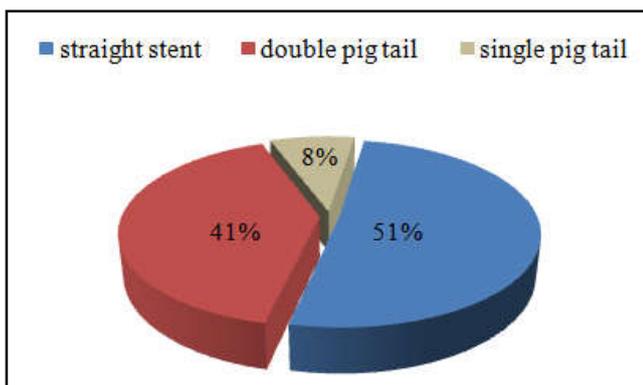


Figure 4 Shape of stent

DISCUSSION

Biliary malignancy often leads to bad outcome. During the 1992-2009 period in United States, among 19,031 biliary tract cancers cases gallbladder [41.3%], extrahepatic bile duct [32.9%], ampulla of Vater [19.8%]¹¹In our study, 40% had ampullary carcinoma which is more than that of above study;

conversely 14% had carcinoma gall bladder which was less than study report.

Another study report in USA, the most common was pancreatic cancer, then gall bladder cancer and biliary tract cancer comparatively less frequent.¹²

The incidence of pancreatic cancer and biliary tract cancer in male in our study report more than half (58.1%) which is similar in US men compared to women.¹³Endoscopic stenting has become a widely used method for the management of various malignant and benign pancreatico-biliary disorders. Biliary stent placement is a well-established technique for palliation of patients with inoperable MBO and both PSs and SEMSs are routinely used in current practice. In systematic review (10 trials) by Hong *et al*¹⁴, endoscopic placement of SEMSs was associated with a significantly higher successful drainage rate, lower early adverse event rate, longer stent patency and longer patient survival than PS placement. In our study, stenting was complete/successful for 274 (88%) and of these free flow of bile was established in 96% patients.

In our study re-stenting required at one month and at three months in 2% and 9% of patients respectively. On the other hand, one study report 3-month and 6 month biliary stent dysfunction rates were 26% and 41%, respectively.

Although ERCP is relatively safe procedure it carries some complications. ES-induced uncontrolled hemorrhage occurred in 57 patients (3.93%). Complications like post-ERCP pancreatitis occurred in 3.9%.¹⁷In our study cases, of 274 successful stenting, majority had no immediate complication. Bleeding occurred in 4% patients. 3.5% patients developed post-ERCP cholangitis, 2% of patients developed post-ERCP pancreatitis and none had perforation. At one month follow up 6 patients developed jaundice and restenting was done.

A large systematic review showed perforation 3.8 (95%CI 1.8-7.0), pancreatitis 13.1 (95%CI 11.0-15.5), bleeding 7.7 (95%CI 5.7-10.1), cholangitis 16.1 (95%CI 11.7-21.7),¹⁸Cholangitis development in cholangiocarcinoma was observed among 39.4% of patients with effective ERCP.¹⁹In one study 55% had an identifiable aetiology for unsuccessful cannulation which includes a long and mobile intraduodenal portion of the bile duct, periampullary diverticulum, an unstable position or a small papilla. Peripapillary diverticulum was cited as the cause of 14% of the unsuccessful biliary cannulations.²⁰In our study, unsuccessful cannulation was 12%. Most common causes of failed cannulation is tight stricture and complete obstruction of CBD (5.7%). Infiltration to duodenum, periampullary carcinoma with completely destroyed papilla, extensive hepatic metastasis with cut off right & left hepatic ducts and their branches were 2.8%, 2.2%, 0.96% respectively.

CONCLUSION

Malignant biliary stricture is one of the conditions that is not always resulting to favourable outcome with operative treatment and chemo-radiotherapy; often avoided for this reason. In these patients endoscopic stenting is a widely accepted strategy for providing effective drainage in malignant strictures. To relieve from pain, jaundice and itching endoscopic management may be the best option of treatment, Plastic stents were still used frequently, may be helpful at least for short term relieve of

symptoms with less complications, despite guidelines recommending metal stent for better results.

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