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Original Research Article

Clinical Profile of Periampullary Tumour in a Tertiary Care Hospital

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Abstract

Background: The distal common bile duct (CBD), the ampulla of Vater, the duodenum, and the pancreatic head are all sites where peri-ampullary cancer can develop.

Methods: Over a three-year period, patients with periampullary tumours who were sent to the department of gastroenterology for ERCP underwent a retrospective analysis of their ERCP (Endoscopic Retrograde Cholangio Pancreatography) records. Consideration was given to the patient's demographic profile, clinical findings, and ERCP care. For continuous variables, the mean and standard deviation were utilised as statistics; frequencies and percentages were calculated for categorical variables.

Results: 86 individuals who had undergone ERCP for periampullary tumours for three years were retrospectively examined. Data interpretation showed that the majority of cases (23.6%) were between the ages of 41 and 50. There were 66.3% more men than women. Ampullary growth (46.5%) was the highest incidence, followed by lower CBD stricture (32.6%). Jaundice (77.9% of the presenting symptoms) and stomach pain (54.6%) were the two main ones. At presentation, 12 patients (14%) had cholangitis. The current study's mean bilirubin ranged from 11.76 to 23.72. In 98.8% of the instances, CBD cannulation was successful (precut sphincterotomy in 33.7% of cases, selective cannulation in 65.1%). In 84.7% of instances, a plastic biliary stent (PC) was used for biliary drainage, while in 15.2% of cases, a self-expanding metallic stent (SEMS) was used. Malignancy was discovered in 55% of ampullary growth biopsy cases and 35.7% of biliary brush cytology cases, respectively. Four patients with PC stents experienced block at three months.

Conclusion: The most typical variety of periampullary tumours was ampullary growth. 14% of cases had cholestasis when they were presented. Biliary drainage was successfully treated with ERCP. Sensitivity rates for ampullary growth biopsy and biliary brush cytology are 50% and 35.7%, respectively. 5% or less of PC stents were blocked.

Keywords: Peri-ampullary Carcinoma, Head of the Pancreas (HOP), Ampulla of Vater, Clinical profile

Introduction

Periampullary cancer is a diverse set of malignant disorders that can develop from the ampulla of Vater or within a 1-cm radius of it, infecting either the duodenum, pancreatic head, or ampulla of Vater, or the distal end of the common bile duct [1]. These disorders are grouped due to their shared clinical presentations, similar surgical approaches, and proximity to one another anatomically. [2-3] Duodenal cancer has the best prognosis, with a one and a half to two-year overall disease survival rate. Our goal is to examine peri-ampullary cancer, including its clinical characteristics, place of origin, and the function of imaging.

Methods

Study Plan

This study is a cross-sectional observational analysis of patients who presented with periampullary tumour symptoms over three years at a tertiary care facility (SCB Medical College, Cuttack, Odisha, India). The data were produced using a computerised electronic record system. Prior to the start of the investigation, ethical clearance was acquired. Patients who met the criteria for inclusion in the study—clinical characteristics, laboratory examinations, and imaging modalities—were admitted for periampullary tumours. Over three years, the profiles of 86 patients with periampullary tumours were examined. Patients were checked on one and three months after an ERCP. Data Analysis and Interpretation Data were entered into Microsoft Excel (Windows 7; Version 2007) and analyses were done using the Statistical Package for Social Sciences (SPSS) for Windows software (version 22.0; SPSS Inc, Chicago). For categorical data, frequencies and percentages were calculated, while descriptive statistics like mean and standard deviation (SD) for continuous variables were computed. The Chi-Square test for categorical variables was used to investigate associations between variables. To compare means between groups with more than two categories, an ANOVA was utilised. Pie charts and bar charts were utilised to visually show the data that had been evaluated. The significance threshold was set at 0.05.

Results

86 patients who met the inclusion criteria were included in the study over the study period, and their data was recorded. According to data analysis, the majority of periampullary tumour cases were detected in people between the ages of 41 and 50 (22 instances, or 25.6% of all cases), followed by people between the ages of 61 and 70 (19 cases, or 22.1% of all cases) (table 1).

Table 1. Distribution of sample according to age and profile

Age	No.	Percent
≤40	7	5.8
41-50	20	25.6
51-60	17	20.9
61-70	18	22.1
71-80	14	17.4
>80	10	8.1

Mean (SD)	60.80 (13.20)	
Range	36-86	
Profile	**No.**	**Percent**
Ampullary Growth	39	46.5
Lower CBD Stricture	27	32.6
Ca Head of Pancreas	15	18.6
Duodenal malignancy	5	2.3

In the current study, male patients made up 57 cases (66.3%), while female cases made up 29 cases (33.7%). Ampullary growth accounted for the majority of periampullary tumour cases, accounting for 40 instances (46.5%), followed by lower CBD stricture (32.6%), and 16 cases of pancreatic head cancer (18.6%), and 2 cases of duodenal malignancy (2.3%). (table 1). Jaundice (77.9%) was the most presenting symptom, followed by pruritis (24.4%), stomach pain (54.6%), and vomiting (1.16%). At presentation, cholangitis affected 12 individuals out of 86 (14%). Patients with D2 growth had a mean distribution of 23.72 serum bilirubin, those with lower CBD stricture had a mean distribution of 17.09 serum bilirubin, and those with pancreatic cancer at the head of the pancreas had a mean distribution of 14.2 serum bilirubin, and those with ampullary growth had a mean distribution of 11.76 serum bilirubin. In 98.8% of the cases, CBD cannulation was successful (of which precut sphincterotomy was performed in 33.7% of the patients); 1.2% of the patients could not be cannulated.

Nine of the 29 patients who received precut sphincterotomies were unable to be cannulated at first; they were recannulated 48 hours later. One patient, who had pancreatic cancer and was unable to be cannulated, eventually underwent PTBD (Percutaneous Transhepatic Biliary Drainage). Of the 85 patients who had ERCP, 72 patients (84.7%) received a plastic stent, and 13 patients (15.2%) received a SEMS (self-expandable metallic stent) for biliary drainage. Ampullary biopsy results from 40 patients who initially had ampullary growth showed that 18 patients (45%) had chronic non-specific inflammatory lesions, 16 patients (40%) had moderately differentiated adenocarcinomas, 4 patients (10%) had poorly differentiated adenocarcinoma, and 2 patients (5%), well-differentiated adenocarcinoma. A biliary brush cytology report on 28 individuals who initially had a lower CBD stricture indicated benign ductal epithelial cells in 18 patients (64.2%) and malignant cells in 10 patients (35.7%). Within 3 months, 4 patients required stent block and stent exchange readmissions. Two of the four patients who had stent exchange had pancreatic cancer in the head, while the other two had ampullary growth.

Discussion

Most cases of periampullary tumours are reported in older age groups. The incidence of ampulla malignancies increased after the age of 30, but it increased more quickly after the age of 50 in both men and women; the typical age of diagnosis is between 60 and 70 years. In our analysis, 86 patients with periampullary tumours presented most frequently between the ages of 41 and 50 (25.6%) and 61 to 70 (22.1%). [4]

Our study's findings were comparable to those of Sultan HM et al. in which the studied group's mean age was 56 years, with a range of 32–73 years [5]. According to Albores-Saavedra J et al, data from the surveillance, epidemiology, and end outcomes registries have shown that the average age of diagnosis is between 60 and 70 years old [6-8]. The gender ratio in the current study was 1:0.52, which is consistent with studies by Lillemoe KD,

Cameron JL, Pain JA (1:0.76), and Parks RW (1:0.98). (4-6). Women were shown to be more frequently affected (0.36/100000) than men (0.56/100000, P0.05) in research by Albores-Saavedra J et al [6].

In our research, ampullary growth (46.5%) and lower CBD stricture (32.6%) were the two conditions with the highest number of instances. Jaundice (77.9% of the presenting complaints) and stomach pain (54.6%) were the two most common. When they were first seen, 14% of patients had cholangitis. Obstructive jaundice is the most typical presenting sign of ampullary carcinoma, according to Bakkevold KE et al. (85%). [9,10,11].

In this investigation, hyperbilirubinaemia persisted even after stenting to lower the level of the condition with the goal of increasing the overall success of the operation. This could be caused by a partial stent obstruction or by hepatocyte malfunction as a result of persistent hyperbilirubinaemia. [12-14] Along with jaundice and pruritus (48% of cases), weight loss was a prominent symptom in 36% of them. This may be due to decreased appetite as well as a direct cancer-related effect. In 56% of patients, radiologic imaging revealed the presence of a mass, demonstrating the value of abdominal imaging techniques like USG and CECT in the diagnosis of periampullary cancer.

According to this study, which is consistent with research by Malla et al [14], the ampulla of Vater (34%) and the head of the pancreas (36%) were the most common sites of carcinoma genesis.

In research by Warren et al, 4.9% of patients with malignant jaundice had cholangitis at presentation, but in our analysis, 14% of patients did. In the current investigation, the mean value of total bilirubin was 14.23 mg/dl, and duodenal cancer was associated with greater bilirubin levels.

The mean ALP in our study was 1061.84. When Steer ML et al. analysed the laboratory results of pancreatic cancer, they found that the average total bilirubin levels were 8 to 9 mg/dl and the average alkaline phosphatase levels were 269.1 IU/L. [15]. By inserting CBD stents, ERCP treats malignant obstructive jaundice palliatively [16]. In our study, 98.8% of patients had successful CBD cannulation, with precut sphincterotomies being performed on 33% of patients. Only 1.2% of patients failed the procedure. Nine of the 29 patients who had precut sphincterotomies were recannulated after 48 hours because they were unable to be cannulated the first time.

One patient who was unable to receive a cannula and had pancreatic cancer received PTBD (Percutaneous Transhepatic Biliary Drainage) insertion in the end. Our study's findings were comparable to those of the study by Van der Gaag et al., in which initial common bile duct (CBD) stenting was performed in around 75–100% of all patients with malignant obstructive jaundice [17]. 15 (or 75%) of 20 patients had effective stenting, according to Sultan HM et al. According to a 2010 study from the Netherlands, the percentage of initial successful stent insertion varied between 69 and 83% in several hospitals [17]. An Italian study found that 86% of endoscopic biliary decompression procedures were successful [18].

Malignant pancreatic head neoplasm initial effective stent implantation rate was 70% according to a 2012 study from Macedonia [19]. In addition, a 2012 study from Indonesia found that 30.3% of patients with malignant obstructive jaundice underwent effective endoscopic biliary decompression [20] Emre Balik et al. found that compared to patients without this disease, the cannulation failure rate was 78-fold higher in patients with periampullary tumours that invaded or warped the ampulla of Vater. In our study, 73 patients received a plastic stent, while 13 individuals received a SEMS (self-expandable metallic stent).

For the patients in the current investigation, the stenting exchange rate was modest

(4.7%). To swap and block stents, 4 patients were readmitted. Two of the four patients who had stent exchange at three months had pancreatic cancer and two had ampullary growths. There were no metallic stent blockages at that time. Comparing our study to a previous one, where patients with malignant biliary obstruction treated with plastic stents required a stent change at 3 months, the stent exchange rate was lower in our study. [21,22]. Malignancy was found in 55% of patients who had an ampullary biopsy.

According to earlier research, the sensitivity of an ampullary biopsy for periampullary tumours ranged from 21 to 81%. [23-26]. In 10 patients (35.7%) with biliary brush cytology results, cancer was found. 35.7% of individuals who had biliary brush cytology showed cancer, according to Yamaguchi et al. The findings were consistent with earlier research where it has been reported that biliary brush cytology has a diagnostic accuracy of 45 to 85% for detecting cancer [27-32]. The absence of endoscopic ultrasonography in the aforementioned cases and the cases' biassed referral to our hospital for ERCP were the study's limitations. [33]

Conclusion

The most prevalent type of periampullary tumour in our investigation was ampullary growth. 14% of cases had cholestasis when they were presented. In the majority of patients, ERCP and biliary drainage can be completed. Sensitivity rates for biliary brush cytology and ampullary growth biopsy were 55% and 35.7%, respectively. PC stent block at three months was 4.6%.

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