

Original Research Article

Histopathological study of pancreatobiliary tumors in a tertiary care center: a 7 year study

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ABSTRACT

Background: The aim of this study was to comprehensively analyse the histopathological spectrum of pancreatobiliary tumors with special reference to ampulla of Vater.

Methods: The retrospective study was done for 5 years and a prospective study was carried out for 2 years in the Department of Pathology.

Results: A total of 110 cases were included; 103 underwent a standard Whipple procedure and 7 underwent localised resection (partial pancreatectomy). The average age was 52.64 years (16-80 years) and males outnumbered females (3:2). Malignant (93.63%) lesions outweighed benign lesions (6.36%). Among malignant lesions, 71 (68.93%) were peri-ampullary, 15 (14.56%) were pancreatic, 11 (10.67%) were duodenal and only 6 (5.825%) were cholangiocarcinoma. The most common presenting feature was jaundice followed by pain in the abdomen. The mean tumor size was 2.38 cm (0.5-15cm). The pathological stage of most of the tumors was T2 (58.2%), followed by T3 (22.7%), T1 (11.8%) and T4 was only 1.8%. Proximal duodenal resection margin was free in 90.9%, distal duodenal resection margin was free in all cases, CBD resection margin was involved in only 2 cases (1.8%), while the pancreatic duct resection margin was involved in 2.7%. The nodal status was N0 in 61.8%, N1 in 23.6% and Nx in 9.1%.

Conclusions: Adenocarcinoma (well differentiated-47.3%) is the most common histological variant of pancreatobiliary region.

Keywords: Ampulla, Pancreatobiliary tumors

INTRODUCTION

Carcinomas of the Ampulla of Vater are rare tumors, accounting for 0.2% of gastrointestinal cancers. Compared with other biliary tract neoplasms, these tumors have a relatively favourable prognosis after

surgical resection.¹ There are four possible sources of origin of a tumor in this region:

- The duodenal mucous membrane covering the papilla of Vater,
- The terminal common bile-duct,
- The proximal main pancreatic duct,

- The ampulla of Vater.²

As a group, the four tumors that make up the entity of periampullary adenocarcinoma account for more than 30,000 cancer related deaths in the United States per year. It is the fifth leading cause of cancer related death in United States, ranking behind lung, breast, colorectal and prostate cancer. Surgical resection remains the foundation of treatment for patients with potentially curable disease.³ Clinically, most individuals are over the age of 60, and there is slight male predominance.^{4,5} Most ampullary tumors are adenocarcinomas.⁶

METHODS

The study was conducted in the Department of Pathology at the Sher-i-Kashmir Institute of Medical Sciences (SKIMS) Srinagar, Kashmir and included retrospective data analysis for 5 years and a prospective analysis over a period of 2 years. The retrospective study was taken from June 2007 to May 2012. The cases were collected from the record section of the Department of Pathology. The prospective study of the resected specimens of the pancreatobiliary tract received in the Department was carried out over a period of 2 years from May 2012 to June 2014.

The age and sex of each patient was recorded. All the relevant clinical information was gathered. The specimens were examined externally and then opened as per the conventional method after overnight fixation in 10% formalin. Gross photographs of the specimens were taken. A minimum of four sections from the tumor were taken. Sections from the resection margins and the adjacent fat were taken to show the extension of the tumor. The associated lymph nodes were dissected and grossed. Hematoxylin and Eosin stained slides were studied to get a detailed information about the morphology of the lesion.

RESULTS

103 patients underwent a standard Whipple procedure (93.63%) and 7 patients (6.36%) underwent localised resection (partial pancreatectomy). For the overall cohort, the age range was between 16-80 years with the mean age of 52.64 years (Table 1). 66 patients were males and 44 were females with a male to female ratio of 3:2. Out of the 110 cases studied, 103 (93.63%) were malignant while only 7 cases (6.36%) were operated for benign lesions. The tumors were mostly seen to be periampullary (72 cases, 65.5%), followed by pancreas (21 cases, 19.1%), duodenum (11 cases, 10%) and least common was CBD (6 cases, 5.5%). Mean tumor size was 2.38 cm (range 0.5cm-15cm). Of the various gross morphological types seen, the most common was polypoid. Most commonly seen lesion was adenocarcinoma (well-differentiated type)-52 cases (47.3%). Out of these, 46 cases belonged to the peri-

ampullary region (41.81%), 3 cases each (2.72%) were present in duodenum and pancreas respectively (Table 2).

Table 1: Age distribution of patients.

Age group (years)	Frequency	Percent %
11-20	3	2.7
21-30	5	4.5
31-40	12	10.9
41-50	28	25.5
51-60	34	30.9
61-70	23	20.9
71-80	5	4.5
Total	110	100

Table 2: Site distribution of patients.

Site	Frequency	Percent %
Peri-ampullary	72	65.5
Pancreas	21	19.1
Duodenum	11	10
CBD	6	5.5
Total	110	100

The diagnosis of adenocarcinoma (moderately well differentiated) was made on histopathology in 13 cases (11.81%), out of which 8 belonged to periampullary region (7.27%), 3 (0.90%) were in pancreas and 2 (1.81%) were seen in duodenum.

Adenocarcinoma (papillary type) was seen to be the diagnosis in 12 cases (10.90%), 11 of which were periampullary (10%) and 1 was pancreatic (0.9%). Next in frequency was mucinous type of adenocarcinoma and malignant neuroendocrine tumor (5 cases each, 4.5% respectively). Lymphovascular invasion was seen in 29 cases (26.36%). Perineural invasion was seen to be present in 28 cases (25.45%).



Figure 1: Gross photograph of an infiltrative growth in the pancreas.

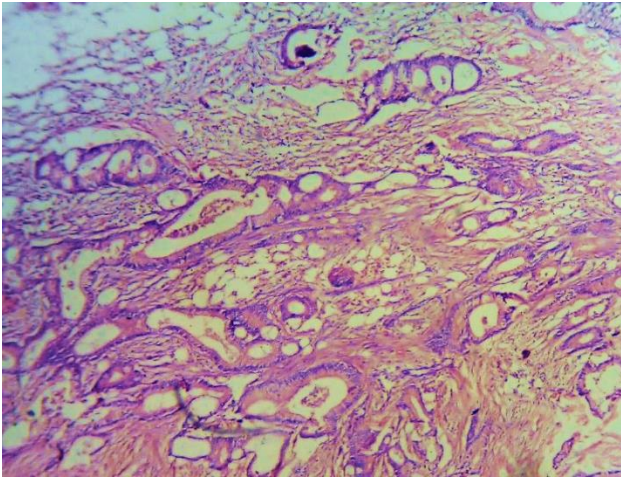


Figure 2: Photomicrograph of Adenocarcinoma (well differentiated) infiltrating into the subserosal fat (H and E 10x).

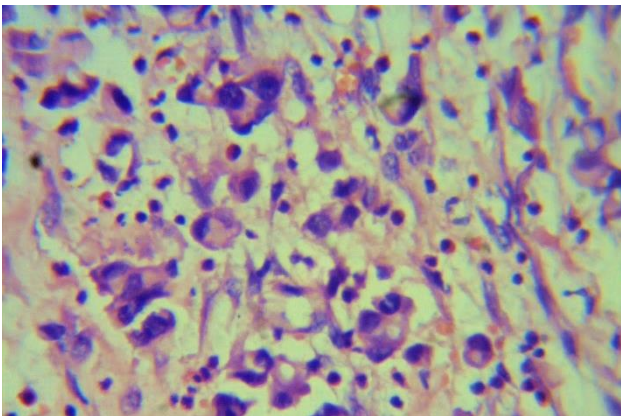


Figure 3: Photomicrograph of Signet ring cell Adenocarcinoma showing signet cells with intracytoplasmic mucin (H and E 40x).

DISCUSSION

The tumor was seen in patients between 16 to 80 years with the mean age of 52.64 years which correlated well with world's literature (Table 1).⁷⁻¹⁰ In this study, males exceeded females (60% versus 40%) with a male to female ratio of 3:2.^{7,8} Most of the patients were symptomatic (70.9%) while only a few were asymptomatic (29.09%). Amongst the symptomatic patients, the most common presenting symptom was jaundice, with 62 patients (56.4%) being icteric and 48 patients (43.6%) being non-icteric. It was followed by pain in the abdomen seen in 54 patients (49.1%).^{7,8} Malignant lesions (93.63%) outweighed benign lesions (6.36%).^{8,11,12} Most of the malignant lesions were peri-ampullary in origin (71 cases, 68.93%), 15 cases (14.56%) were seen to be arising from the pancreas, 11 (10.67%) were tumors arising from the duodenum and only 6 cases (5.825%) were present in the lower CBD (cholangiocarcinoma) (Table 2).^{7-10,13} Among the benign lesions studied (7 in this present series), it was observed

that 2 cases were those of solid-cystic papillary neoplasm of the pancreas.

The most common morphology seen on gross examination was the polypoid type (32 cases, 29.1%), followed by the infiltrative type (22 cases, 20%). Ulceroinfiltrative, ulcero-proliferative and nodular types were also seen- 16, 15 and 13 cases respectively (14.5%, 13.6% and 11.8% respectively). Figure 1 shows the gross photograph of an infiltrative growth in the pancreas. Figure 2 shows the photomicrograph of adenocarcinoma (well differentiated) infiltrating into the subserosal fat (H and E 10x) while Figure 3 shows signet ring adenocarcinoma.

Besides these, other macroscopic types seen were ulcerated and stenosing types (4.5% each).⁷ We found that most of the tumors turned out to be well differentiated adenocarcinomas (52 cases, 47.3%). The microscopic diagnosis of moderately differentiated adenocarcinoma was made in 13 cases. Adenocarcinoma (papillary type) was present in 12 cases. 5 cases of mucinous adenocarcinoma were noted.^{7,8,14} Other microscopic variants seen were neuroendocrine tumor (5 cases, 4.54%), malignant GIST (2 cases), solid-cystic papillary neoplasm of the pancreas (2 cases), benign mucinous cystadenoma of the pancreas and intraductal papillary mucinous neoplasm of pancreas (IPMN) (1 case each).^{8,11,15-19}

CONCLUSION

Tumors of the pancreatobiliary tract and ampulla of Vater are seen in this population. Adenocarcinoma (well differentiated) is the most common histologic subtype. It is mostly encountered in elderly population (mean age 52.64 years).

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Ethical approval: The study was approved by the Institutional Ethics Committee

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