

Histomorphological Spectrum of Pancreatic Carcinoma – A Retrospective Study

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Abstract

Introduction: Pancreatic cancer is dominated by exocrine pancreatic cancer. The most common histological type is adenocarcinoma in 95% of cases. Surgery remains the only curative treatment. However, only 20% of pancreatic cancers are judged to be operable at the time of diagnosis.

Aim: The aim of this study was to comprehensively analyze the histopathological spectrum of pancreatic lesions.

Materials and Methods: This retrospective study was conducted in all pancreatic lesion cases. The specimens were examined externally and then opened as per the conventional method after overnight fixation in 10% formalin.

Results: A total of 26 (52%) biopsy samples were obtained, 4 (8%) cyst excision, 11 (22%) partial pancreatectomy, and 9 (18%) Whipple's procedure specimen. Mean tumor size was 2.64 cm range 0.6–13 cm. Of the various gross morphological types seen, the most common was polypoid. Malignant lesions were 16 (32%) cases of adenocarcinoma, 6 (12%) cases of the neuroendocrine tumor, and 4 (8%) cases of solid pseudopapillary tumor of the pancreas.

Conclusion: Histopathology is mandatory in many of the lesions which present as cystic and solid masses. It also aids in avoiding unwanted radical surgeries in patients which will increase the morbidity and mortality.

Key words: Histopathology, Immunohistochemistry, Neoplastic, Non-neoplastic, Pancreas

INTRODUCTION

Carcinoma of the pancreas is the fourth most frequent cause of death from cancer in men, is increasing in frequency, and still has a very poor prognosis.^[1] Despite diagnostic advances, including arteriography and endoscopic pancreatography, diagnosis is often delayed because the early symptoms are frequently vague; as a result, >90% of patients present with advanced regional or metastatic disease at the time of diagnosis.^[2] Pain occurs in 80–85% of patients with advanced stage disease, is often the dominant symptom, and may be related to shortened survival.^[3] The management of patients with pancreatic carcinoma poses many problems. The diagnosis is usually made late, generally because the patients

present late, but it is not unusual to find patients who have had many negative investigations for vague upper abdominal symptoms only to be diagnosed as having pancreatic carcinoma many months later. Staging the disease is equally difficult and often inaccurate.^[4] The results of treatment are to date discouraging even in those patients diagnosed early. However, the outlook is not totally dismal; in recent years, the results for surgical resection of pancreatic lesions have improved; adjuvant treatment may finally be having an effect, although small, on this relentless disease.^[5]

Non-neoplastic and neoplastic lesions of pancreas present as solid and cystic masses. Due to various imaging techniques, accurate diagnosis of pancreatic lesions has been improvised. However, histopathology plays an important role in diagnosing the neoplastic conditions which help in deciding the treatment modalities and prevent unwanted morbidity due to extensive surgery.

Aim

The aim of this study was to comprehensively analyze the histopathological spectrum of pancreatic lesions.

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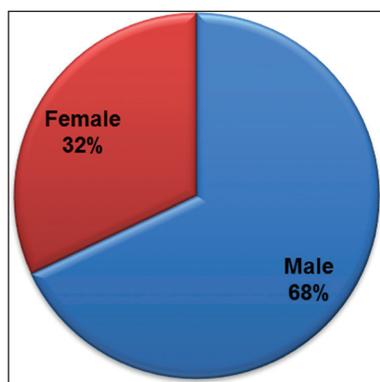


Figure 1: Distribution of gender

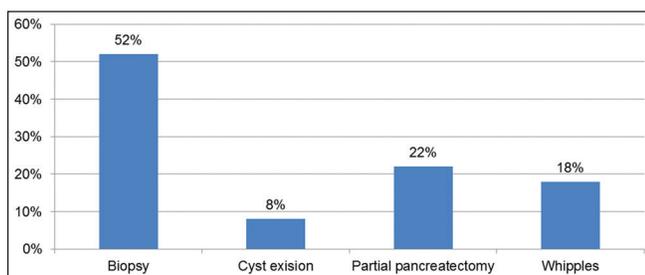


Figure 2: Distribution of specimen received

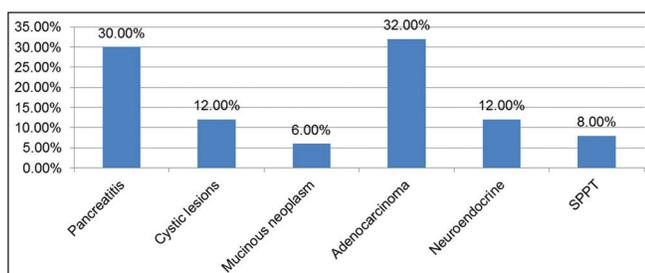


Figure 3: Non-neoplastic and neoplastic diseases of the pancreas

MATERIALS AND METHODS

This retrospective study was conducted in the Department of Pathology at Coimbatore Medical College and Hospital. All pancreatic lesions presented to the Department from 2016 to 2018 were included in the study. The age and sex of each patient were 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 was 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 detailed information about the morphology of the lesion.

RESULTS

In this study, 50 cases were included, in which 34 are male and 16 are female cases [Figure 1]. The average of the study cases was 46.4 years range from 24 to 68 years. A total of 26 (52%) biopsy samples were obtained, 4 (8%) cyst excision, 11 (22%) partial pancreatectomy, and 9 (18%) Whipple's procedure specimen [Figure 2]. The lesions were classified into non-neoplastic and neoplastic diseases after histopathological diagnosis [Figure 3]. Mean tumor size was 2.64 cm (range 0.6–13 cm). of the various gross morphological types seen, the most common was polypoid. Pancreatitis was observed in 30% of specimens which was also comprised IgG4 diseases. In benign lesions, 12% were cystic lesions which included three pseudocyst and three serous cystadenomas, and three mucinous neoplasms. Malignant lesions were 16 (32%) cases of adenocarcinoma, 6 (12%) cases of the neuroendocrine tumor, and 4 (8%) cases of solid pseudopapillary tumor of the pancreas.

DISCUSSION

Age is a key risk factor for pancreatic cancer, with the median age at diagnosis of pancreatic cancer at 72 years. Less than 10% of patients develop pancreatic cancer before the age of 50, and this younger group is likely to include a higher proportion of patients with underlying predisposing genetic disorders. There is a male predominance of the disease that is likely explained by higher smoking rates in men than women.^[6,7]

Cystic lesions of pancreas consist of a broad spectrum of reactive, benign, and malignant conditions. They may be classified into non-neoplastic and neoplastic cysts. Dietrich and Jenssen has classified pancreatic cystic lesions into simple retention cysts (true lining), pseudocysts (no lining), and neoplastic cysts.^[8]

The early detection of pancreatic cancer is very important. Pancreatic cancer reportedly requires 5 years to acquire the metastatic ability, and patients die within an average of 2 years following diagnosis.^[9] Patients with new symptoms, changes in the site or intensity of pain, and jaundice were suspected of having pancreatic cancer. Early-onset diabetes mellitus (DM) and deterioration of DM also suggest the presence of pancreatic cancer.^[10]

Pancreatic adenocarcinoma and its variants account for 90% of all pancreatic carcinomas.^[11] Approximately 60–70% of pancreatic adenocarcinomas arise in the head of the pancreas with the remainder being found in the body (15%) and tail (15%). At the time of diagnosis, most

pancreatic adenocarcinomas have already spread beyond the pancreas, and nodal metastases are not uncommon.^[12]

Morphological variants of pancreatic adenocarcinoma recognized in the World Health Organization classification of pancreatic tumors have different histological features compared to conventional pancreatic adenocarcinomas. These variants also differ in terms of prognosis and may have a different molecular signature.^[13,14]

Endocrine neoplasms of the pancreas are neoplasm with predominantly neuroendocrine differentiation. Most are well-differentiated and low-grade neoplasms. They are classified as well-differentiated (low-intermediate grade) and poorly differentiated (high grade) neuroendocrine carcinoma. Mucinous cystic neoplasm (MCN) is composed of epithelial cells that produce mucin and is associated with an ovarian-type stroma. The neoplastic cells form cysts contain mucoid fluid. They can be classified as follows: MCN with low grade, moderate, and high-grade dysplasia based on the architectural and cytologic atypia. MCN almost exclusively occur in women. If there is an associated invasive component, the lesion is designated as MCN with an associated carcinoma.^[15]

CONCLUSION

The term pancreatic cancer is all-encompassing and not all pancreatic cancers are created equal. The majority of pancreas tumors are lineage-specific, and classification is dependent on careful histologic examination and the use of ancillary studies to accurately determine cell of origin (endocrine, exocrine, ductal, and mesenchymal) or line

of differentiation. Some, however, can show divergent differentiation.

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