Original Article

Spectrum of pancreatic lesions in a tertiary care centre in south India

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Abstract

Objective: To analyse the spectrum of pancreatic lesions in a tertiary care centre of south India. **Design:** Observational study. **Setting:** University affiliated tertiary care centre. **Patients:** 45 cases of histopathologically proven pancreatic lesions presented to the department of Pathology between 2011-2014. **Results:** Among the 45 cases of pancreatic lesions studied 62% were males and 37.7% females which is due to alcohol abuse being the important factor for pancreatic lesions. The mean age group overall was 42.7 years. The materials sent for histopathology included incisional biopsy (64.4%) which was the most common, cyst excision (6.6%), partial pancreatectomy (20%) and Whipples in another 20% of cases. the lesions were divided as non neoplastic and neoplastic. The most common non neoplastic lesion reported was pancreatitis (28.9%). Neoplastic was again grouped as benign and malignant. Among the 11.1% benign lesions there were 60% of pseudocyst and mucinous cystadenoma and 40% of serous cystadenoma. The most common malignant tumor was pancreatic adenocarcinoma (31.1%) followed by 13.3 % of neroendocrine tumors and 8.8% of solid pseudopapillary tumor of pancreas. Immunohistochemical markers were used for neuroendocrine lesions (synaptophysin, chromogranin and Ki67 labelling index) and Solid psedopapillary tumor of pancreas (vimentin, CD10 and betat catenin). **Conclusions:** Histopathological diagnosis still is golden standard for the pancreatic lesion diagnosis. Because of the overlapping features of pancreatic lesions in radiology, histopathological diagnosis becomes mandatory to avoid unwanted radical surgeries. Immunohistochemical confirmation also is essential in some lesions.

Keywords: Pancreas, Non neoplastic, neoplastic, histopathology, Immunohistochemistry.

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INTRODUCTION

About 1% of hospitalised patients are diagnosed with pancreatic lesions. Non-neoplastic and neoplastic lesions of pancreas presents as solid and cystic masses. Due to various imaging techniques, accurate diagnosis of pancreatic lesions has been improvised. However histopathology plays a major role in diagnosing the neoplastic conditions which helps the clinicians decide on the treatment modalities and prevent unwanted morbidity due to extensive surgery. Non neoplastic lesions include pancreatitis, intra pancreatic accessory spleen, congenital anomalies such as nesidioblastosis, prominent pancreatic lobulation and rare miscellaneous conditions. Neoplastic lesions include pancreatic adenocarcinoma, pancreatic neuroendocrine tumor, solid pseudopapillary tumor, pancreatoblastoma, pancreatic lymphoma, metastases to the pancreas, and rare miscellaneous neoplasms. Immunohistochemistry is also mandatory in the diagnosis of certain entity. One of the most common diagnoses in pancreatic pathology besides pancreatic cancer is chronic pancreatitis[1]. Pancreatic malignancies continue to be amongst the cancers with highest mortality rates in gastrointestinal neoplasms[2] In the present study, we evaluated the spectrum of benign and malignant lesions presented in our centre.

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MATERIALS AND METHODS

This is an observational study done at Sri Ramachandra University. All pancreatic lesions presented to the Department of pathology from 2011-2014 were included in the study. A total of 45 cases with the clinical diagnosis of pancreatic pathology studied. Clinical details of the patient such as age, sex was obtained from hospital records. Patients undergoing whipples procedure for periampullary carcinoma were excluded from the study. All the lesions were grouped as non-neoplastic and neoplastic diseases.

RESULTS

There were a total of 45 cases of which 28 males and 17 females (Table 1) with a mean age of 42.7 (range 27-78) (Table 2). A total of 24 (64.4%) biopsy material was obtained, 3(6.6%) cyst excision, 9 (20%) partial pancreatectomy and 9 (20%) Whipples procedure specimen (Table 3).

Table 1: Gender break up of pancreatic lesions

Gender	No. of cases (45)
Males	28
Females	17

Table 2: Age wise break up of the pancreatic lesions

Age group	No. of cases (45)
20-40	20
40-60	17
60-80	8

Table 3: Various samples received for the lesions

Procedure	No. of cases (45)
Biopsy	
Non guided - 14	24
CT guided - 10	
Cyst excision	3
Partial Pancreatectomy	9
Whipples	9

The lesions after the final histopathological diagnosis were grouped as non -neoplastic amd neoplastic diseases. The non neoplastic diseases observed in our centre was Pancreatitis, there was a total of 13 (28.9%) (Fig:1 and 2) (Table 4) cases which comprised IgG4 disease also. The neoplastic conditions were broadly classified as benign and malignant. The benign lesions (Table 4) observed were 5 (11.1%) cases of cystic lesion which comprises 3 (60%) pseudocyst and 2 (40%) serous cystadenomas (Fig:3), 3 (60%) cases of mucinous neoplasm (Fig:4). Malignant lesions were 14 (31.1%) (Table 4) cases of adenocarcinoma (Fig:6), 6 (13.3%) cases of neuroendocrine tumor (Fig:5) and 4 (8.8%) cases of solid pseudo papillary tumor of pancreas (Fig:7).

Table 4: Non - neoplastic and neoplastic diseases of Pancreas

Category	Diagnosis	No.of cases
Non neoplastic	Pancreatitis	13
Neoplastic Benign	Cystic lesions (pseudocyst, seous cystadenoma)	5
	Mucinous neoplasm	3
Malignant	Adenocarcinoma	14
	Neuroendocrine	6
	SPPT	4

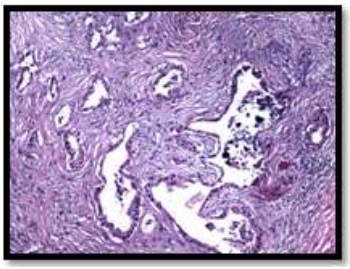
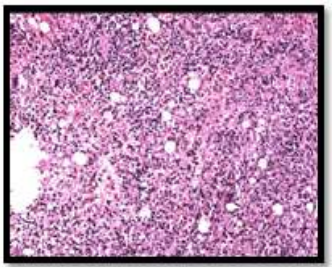


Figure 1:



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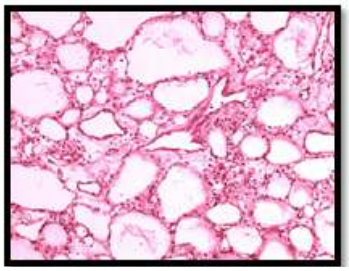

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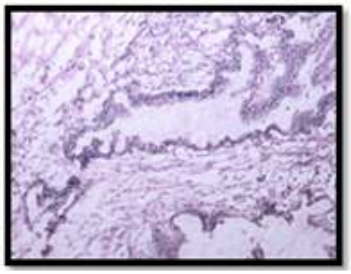

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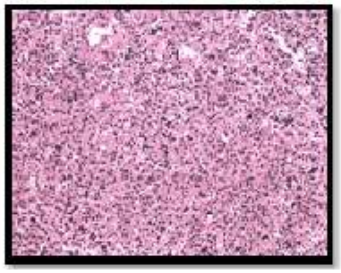

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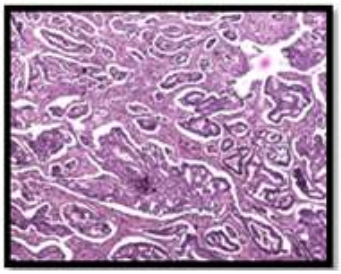

Figure 6:

Figure 1: Pancreatitis HandE 200X; **Figure 2:** Pancreatic abscess HandE 200X; **Figure 3:** Pancreatic Serous cystadenoma HandE 200X; **Figure 4:** Mucinous cystadenoma HandE 400X; **Figure 5:** Pancreatic neuroendocrine tumor HandE 200 X; **Figure 6:** Pancreatic adenocarcinoma HandE 200 X

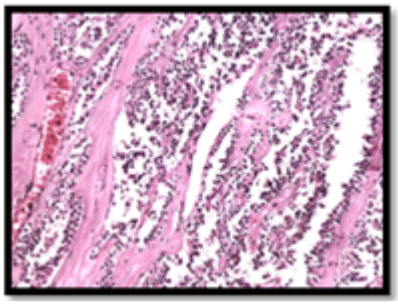

Figure 7: Solod pseudopapillary tumoe of pancreas HandE 400 X

Immuno histochemistry work up was done for neuroendocrine tumors and solid pseudopapillary tumor of pancreas. Synaptophysin (Fig:8) and chromogranin (Fig:9) was used for neuroendocrine tumor and CD 10 (Fig:10), Beta catenin (Fig:11) for solid pseudopapillary tumor of pancreas.

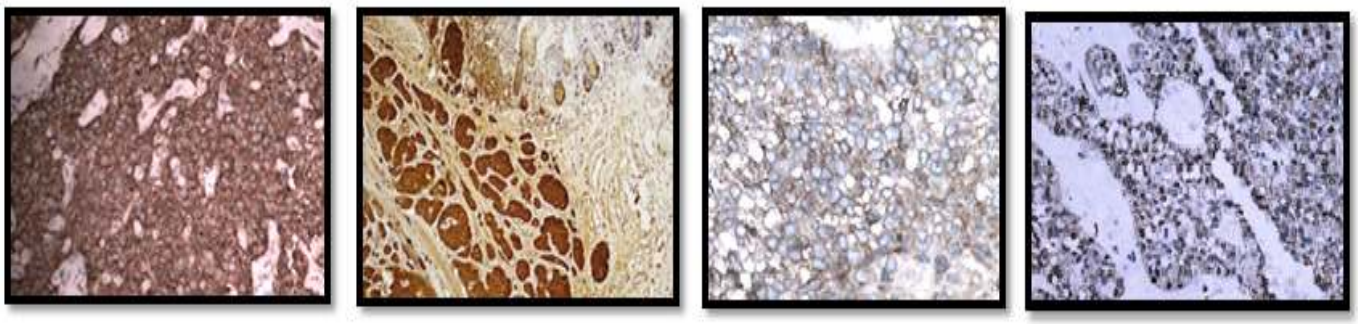

Figure 8 **Figure 9** **Figure 10** **Figure 11**

Figure 8: Synaptophysisn IHC membrane positivity 200 X; **Figure 9:** Chromogranin IHC Membrane positivity 100 X; **Figure 10:** CD 10 IHC membrane positivity 400 X; **Figure 11:** Beta catenin IHC nuclear positivity 400 X

DISCUSSION

Our study was conducted on 45 cases of pancreatic lesions over a period of three years. In our study out of the 45 cases, 28 (62.2%) were men, which is similar to the epidemiology studies shown by others. According to Lanckisch PG *et al*[l3] men were commonly affected by pancreatic lesions than women. The most common non neoplastic disease was pancreatitis and the prevalence seems to be increasing due to high quality imaging techniques[4]. The increasing trend also is correlated with increase alcohol consumption in developing countries like India[5]. In females the most common cause of pancreatitis is gall stones. The most common age group affected in our study was 40-60 years, this trend is similar to the study done by Yadav D *et al*[6]. The neoplastic disorders were discussed as benign and malignant lesions. The benign lesions were 17.7% and malignant 53.3%. The benign cystic lesions reported in our centre were pseudocysts, serous cystadenoma and mucinous cystadenoma. Even though the modern radiological modalities have made the diagnosis of these cystic lesions accurate and possible, the clinical behaviour of these lesions are always controversial, hence an excision is suggested for such benign cystic lesions[7]. The most commonly reported neoplastic lesion was pancreatic adenocarcinomas. The most common age group affected was 50-70 years. This is similar to study done by Chang KJ *et al*[8] whose study had a mean age of 66.6 years. Pancreatic adenocarcinoma accounts to 95% of the primary neoplastic lesion[2]. The next common malignant tumor was neuroendocrine tumor accounting to 13.3% cases. Neuroendocrine tumor is a rare tumor of pancreas[9]. They were graded based on the college of American pathologists protocol. Most of the tumors were of low grade. Of the 6 cases of neuroendocrine tumor 4 cases were of grade I and 2 were of grade II. The most common age of presentation in our study was 50-60 years. This was similar to the study done by G.Q. Phan *et al*[10] in which 51 years was the mean age. Immunohistochemical markers routinely used for neuroendocrine tumors are synaptophysin, chromogranin and Ki 67 index for grading the tumor. Solid pseudo papillary tumor (SPPT) of

pancreas is a rare tumor accounting to 6% of all the pancreatic neoplasm[11]. WHO classifies it as a tumor of malignant potenrial. In our study there were four cases of SPPT and all of them were women in the age group of 20-30 years of age. This was similar to the findings done by Sunkara.S *et al*[12]. Vimentin, CD 10 and beta catenin immunohistochemical stains were used to confirm the diagnosis. SPPT can behave benign however there can be malignant features in some, hence a histopathological examination is always mandatory[13].

CONCLUSION

Even though radiological diagnosis of pancreatic lesions have improved drastically over the age due to advanced imaging modalities, Histopathology is mandatory in many of the lesions which presents as cystic and solid masses. It also aids in avoiding umwanted radical surgeries in patients which will increase the morbidity and mortatlity. Immuno histocchemical work up is also facilitated especially in neuroendocrine lesions. Solid psedopapillary tumor of pancreas which is of malignant potential needs to sampled to look for malignant component, as the lesion is got an excellent prognosis if completely removed.

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