



Computed Tomography Evaluation of Pancreatic Lesions

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Abstract

Imaging of the pancreas is challenging because of its anatomical location in the retroperitoneum and its intricate relationship with major blood vessels and bowel. Pancreatic cysts are common with prevalence of 49.1% and an incidence of 12.9% during 5 year follow up. Pancreatic cancer estimates approximately 3% of all cancers and is the 4th most frequent cause of cancer related death. The incidence is increasing and the overall survival has been altered a little in the recent years. The overall 5 year survival rate of pancreatic cancer ranges from 0.4% to 4%, the lowest for any cancer. CT has been the imaging modality of choice for evaluation of pancreatic pathology.

Aims & Objectives

- To evaluate the pancreatic lesions by computed tomography (CT)
- To determine the role of CT in detection of pancreatic lesions
- To assess the role of CT in characterizing pancreatic lesions into cystic/benign/malignant
- To diagnose various complications of pancreatic mass lesions

Materials & Methods: *The present hospital based cross sectional study was conducted in the Department of Radio-Diagnosis. CT scan of abdomen using a GE 16 slice helical CT machine using non-ionic iodine contrast injection with dose of 1.5-2ml/kg body weight was administered by intravenous route. For all cases, pancreatic size, morphology and duct was assessed. Calcifications in pancreatic parenchyma or duct was taken into consideration. Peripancreatic fluid whether present or not was analysed. Whether the peripancreatic fat planes were maintained or obliterated were taken into account. Any loculated collections in pancreatic parenchyma itself or elsewhere in relation to the pancreas were noted. Peripancreatic vasculature was also assessed for any thrombus or perivascular fat infiltration.*

Results: *In the present study, 85.29% were benign masses and 14.7% were malignant masses with head and uncinat process as the most commonly part (47.05%). Among the benign lesions, acute pancreatitis was most common (32.35%), followed by chronic pancreatitis (17.64%) and Carcinoma pancreas was seen in 8.82%. The most common CT signs of acute pancreatitis were diffuse gland involvement (61.53%), regular contour (69.23%), homogenous density (30.76%), necrosis (31%), fluid accumulation (53.61%), phlegmatous change (30.54%), pseudocyst (15.26%) and ascites in 7.63%. The most common CT signs of chronic pancreatitis were diffuse atrophy (57.14%), focal atrophy (28.57%),*

psudocyst(14.28%). Pancreatic duct dilation was seen in 57.14%, calculus in 42.85%. Similarly CBD duct dilation was seen in 85.71%, calculus in 14.28%.Calcification was seen in 42.85%. Among the cases with acute pancreatitis, 46.15% were mild, 38.46% were moderate and 15.38% were of severe grade according to CTSI.

Conclusion: *Contrast-enhanced multiphase pancreatic imaging by multislice computerized tomography along with its post-processing techniques is considered as the imaging modality of choice for diagnosis of pancreatic mass lesions and characterizing them into cystic, solid and in case of malignancy further playing a role in resectability. CT plays an important role in detecting as well as staging pancreatic cancer, grading of pancreatitis, and trauma cases. Better optimization of the imaging protocols with thinner sections aids in better resolution.*

Keywords: *Pancreatic masses, CT scan, Acute pancreatitis.*

Introduction

Imaging of the pancreas is challenging because of its anatomical location in the retroperitoneum and its intricate relationship with major blood vessels and bowel. Pancreatic cysts are common with prevalence of 49.1% and an incidence of 12.9% during 5 year follow up. Pancreatic cancer estimates approximately 3% of all cancers and is the 4th most frequent cause of cancer related death. The incidence is increasing and the overall survival has been altered a little in the recent years. The overall 5 year survival rate of pancreatic cancer ranges from 0.4% to 4%, the lowest for any cancer¹ CT has been the imaging modality of choice for evaluation of pancreatic pathology.

Patients presenting with inflammatory and malignant pancreatic diseases are common in daily practice. The diagnosis of different pancreatic diseases has recently become a recurrent problem. Imaging modalities are used to identify and characterize pancreatic lesions. When a neoplasm is suspected, the main task is to judge operability.

Ultrasound is limited in its usefulness as part of the early investigation of acute pancreatitis or traumatic pancreatic injury, whereas CT has been shown to be useful in helping to predict the outcome of acute pancreatic inflammation and to detect necrosis and fracture of the pancreas.

CT is the imaging modality of choice for preoperative assessment of pancreatic lesions. CT has fulfilled the main role of diagnostic imaging of the pancreatic disease, because the

comprehensive diagnosis of existence, quality and progress of the tumor can be done non-invasive.

CT scans provides detailed images of the cancer and its relationship to the surrounding structures such as major blood vessels around the pancreas. This information is crucial to make the determination whether a tumour in the pancreas is resectable or not. Helical CT enables to recognize small pancreatic arteries, and the evaluation of these should be considered in the staging of pancreatic carcinomas. Contrast-enhanced CT is the dominant imaging modality used for the diagnosis and staging of pancreatic ductal adenocarcinoma.

CT is associated with a wide range of sensitivities for pancreatic tumor detection (90% to 97%). In most centres, CT has replaced transabdominal ultrasound for the evaluation of pancreatic cancer. It has been well-established that CT is useful and is probably the single best modality for the diagnosis and staging of pancreatic adenocarcinoma.

Hence the present study was taken up to assess the role of CT in characterizing pancreatic lesions.

Aim & Objectives

Aim

- To evaluate the pancreatic lesions by computed tomography (CT)

Objectives

- To determine the role of CT in detection of pancreatic lesions

- To assess the role of CT in characterizing pancreatic lesions into cystic/benign/malignant
- To diagnose various complications of pancreatic mass lesions

Materials & Methods

Source of data

All patients with suspected pancreatic pathology referred to the Department of Radio-Diagnosis, Sri Siddhartha Hospital, Tumkur. Both Outpatients and Inpatients were included.

Study design: Cross-sectional study

Sampling method: Convenience sampling

Sample size: Sample size is calculated using the formula:

$$n = \frac{Z^2PQ}{(d)^2}$$

Where in,

$$\{Z^2\} = 1.96*1.96$$

P is the prevalence (24%)[73]

d = precision of the estimate: 15%

Assumed prevalence 24%

Z value for 95% level of significance

$$n = \frac{(1.96)^2 \times 24(76)}{(15*15)^2} = 31$$

With 10% non-response rate n=34

Study period: 24 months

Inclusion Criteria

1. Patients presenting to OPD with epigastric pain and clinically suggestive of pancreatic disease
2. Clinical history, examination and laboratory criteria suggestive of pancreatic disease
3. Finding of pancreatic pathology noted on other imaging modalities especially on ultrasound
4. Patients with findings suggestive of developing complications of pancreatic

lesions or those on follow up of established complications

Exclusion Criteria

1. Postoperative patients
2. Pregnant women
3. Patient with history of allergy to contrast
4. Patients with renal impairment
5. Psychiatric patients
6. Non-cooperative patients

Procedure

A hospital based cross sectional study was carried out in Sri Siddhartha medical college, Tumkur over a duration of 24 months. CT scan of abdomen was done on patients who fulfill the inclusion criteria by using a GE 16 slice helical CT machine using non-ionic iodine contrast injection with dose of 1.5-2ml/kg body weight was administered by intravenous route. For all cases, pancreatic size, morphology and duct was assessed. Calcifications in pancreatic parenchyma or duct were taken into consideration. Peripancreatic fluid whether present or not was analysed. Whether the peripancreatic fat planes were maintained or obliterated were taken into account. Any loculated collections in pancreatic parenchyma itself or elsewhere in relation to the pancreas were noted. Peripancreatic vasculature was also assessed for any thrombus or perivascular fat infiltration.

Method of collection of data

The study was conducted in department of Radio-Diagnosis, Sri Siddhartha medical college & hospital, Tumkur over a period of 24 months. The patients were given liberal verbal explanations and description about the topic of research. Informed written consent was taken from each patient under the study.

Statistical analysis

Data was collected from the semi structured pro-forma will be analysed and recorded. Data collected was computed in excel spreadsheet. The data was analysed by using EpiInfo version 7.2.2.6

Descriptive statistical analysis was done by mean and standard deviation for quantitative variables and frequency and percentages for categorical variables.

Observation and Results

A hospital based cross sectional study was carried out in Sri Siddhartha medical college, Tumkur for 24 months. The objectives of the study were:

- To determine the role of CT in detection of pancreatic lesions
- To assess the role of CT in characterizing pancreatic lesions into cystic/benign/malignant
- To diagnose various complications of pancreatic mass lesions

The results of the study are as follows:

Table 1: Age distribution of study population

| Age group | Frequency | Percentage |
|--------------------|-----------|------------|
| 20-29 years | 3 | 8.82 |
| 30-39 years | 5 | 14.71 |
| 40-49 years | 8 | 23.53 |
| 50-59 years | 13 | 38.23 |
| 60 and above years | 5 | 14.71 |
| Total | 34 | 100.00 |

Among the study population, 38.23% belonged to the age group of 50-59 years, followed by 40-49 years (23.53%), and 60 and above years, 30-39 years (14.71%) each. 8.82% was contributed 20-29 years.

Table 2: Gender distribution of study population

| Gender | Frequency | Percentage |
|--------|-----------|------------|
| Male | 25 | 73.52 |
| Female | 9 | 26.48 |
| Total | 34 | 100 |

Among the study population, 73.52% were males and 26.48% were females.

Table 3: Abdominal pain in the study population

| Abdominal Pain | Frequency | Percentage |
|----------------|-----------|------------|
| Present | 28 | 82.35 |
| Absent | 6 | 17.65 |
| Total | 34 | 100 |

Among the study population, 82.35% had pain abdomen.

Table 4: Loss of appetite among the study population

| Loss of appetite | Frequency | Percentage |
|------------------|-----------|------------|
| Present | 15 | 44.11 |
| Absent | 19 | 55.89 |
| Total | 34 | 100 |

Among the study population, 44.11% had loss of appetite.

Table 5: Nausea, vomiting

| Nausea, Vomiting | Frequency | Percentage |
|------------------|-----------|------------|
| Present | 8 | 23.52 |
| Absent | 26 | 76.48 |
| Total | 34 | 100 |

Among the study population, 23.52% had nausea, vomiting.

Table 6: Smoking status among the study population

| Smoking | Frequency | Percentage |
|---------|-----------|------------|
| Yes | 18 | 52.95 |
| No | 16 | 47.05 |
| Total | 34 | 100 |

Among the study population, 52.95% were smokers

Table 7: Alcoholism among study population:

| Alcoholism | Frequency | Percentage |
|------------|-----------|------------|
| Yes | 20 | 58.83 |
| No | 14 | 41.17 |
| Total | 34 | 100 |

Among the study population, 58.83% were alcoholics

Table 8: USG - etiology of pancreas:

| USG etiology | Frequency | Percentage |
|-------------------------------|-----------|------------|
| Acute pancreatitis | 11 | 32.34 |
| Chronic pancreatitis | 6 | 17.65 |
| Acute on chronic pancreatitis | 5 | 14.71 |
| Pseudocysts | 5 | 14.71 |
| Suspicion of malignancy | 6 | 17.65 |
| Others | 1 | 2.94 |
| Total | 34 | 100 |

Table 9: Part of the pancreas affected

| Part | Frequency | Percentage |
|--------------------------|-----------|------------|
| Head and uncinat process | 16 | 47.06 |
| Diffuse involvement | 10 | 29.41 |
| Body | 6 | 17.65 |
| Tail | 2 | 5.88 |
| Total | 34 | 100 |

Among the study population, head and uncinata process was involved in 47.06% followed by diffuse involvement (29.41%), body in 17.65% and tail in 5.88%.

Table 10: Type of mass

| Type of mass | Frequency | Percentage |
|--------------|-----------|------------|
| Benign | 29 | 85.29 |
| Malignant | 5 | 14.71 |
| Total | 34 | 100 |

Among the study population, 85.29% had benign masses and 14.71% had malignant masses.

Table 11: Type of pancreatic benign masses (n=29)

| Type of benign mass | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| Acute Pancreatitis | 11 | 37.93 |
| Chronic Pancreatitis | 6 | 20.69 |
| Acute on chronic pancreatitis | 5 | 17.24 |
| Pseudocyst | 4 | 13.79 |
| Acute pancreatitis with Pseudocyst | 2 | 6.90 |
| Chronic Pancreatitis with Pseudocyst | 1 | 3.45 |
| Total | 29 | 100 |

Table 12: Type of pancreatic malignant masses (n=5)

| Etiology | Frequency | Percentage |
|--------------------|-----------|------------|
| Carcinoma Pancreas | 3 | 60 |
| Metastasis | 2 | 40 |
| Total | 5 | 100 |

Table 13: The etiology of pancreatic mass (n=34):

| Etiology | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| Malignant (n=5) | | |
| Carcinoma Pancreas | 3 | 8.82 |
| Metastasis | 2 | 5.88 |
| Benign (n=29) | | |
| Acute Pancreatitis | 11 | 32.35 |
| Chronic Pancreatitis | 6 | 17.65 |
| Acute on chronic pancreatitis | 5 | 14.71 |
| Pseudocyst | 4 | 11.77 |
| Acute pancreatitis with Pseudocyst | 2 | 5.88 |
| Chronic Pancreatitis with Pseudocyst | 1 | 2.94 |
| Total | 34 | 100 |

Among the study population, acute pancreatitis was most common (32.35%), followed by chronic pancreatitis (17.65%) and acute on chronic pancreatitis (14.71%). Pseudo cyst was seen in 11.77%. Carcinoma pancreas was seen in 8.82%.

Table 14: CT signs of acute pancreatitis (n=13)
Gland appearance and density:

| Parameter | Sub group | Frequency | Percentage |
|-------------------|---------------|-----------|------------|
| Gland involvement | Diffuse | 8 | 61.54 |
| | Focal | 5 | 38.46 |
| Contour | Regular | 9 | 69.23 |
| | Irregular | 4 | 30.77 |
| Density | Homogenous | 9 | 69.23 |
| | Heterogeneous | 4 | 30.77 |

Table 15: Presence of necrosis in acute pancreatitis:

| Necrosis | Frequency | Percentage |
|----------|-----------|------------|
| None | 9 | 69.23 |
| <30% | 3 | 23.08 |
| 30-50% | 1 | 7.69 |
| Total | 13 | 100 |

Table 16: Presence of fluid accumulation in acute pancreatitis

| Fluid accumulation | Frequency | Percentage |
|--------------------|-----------|------------|
| None | 6 | 46.15 |
| Intra pancreatic | 3 | 23.08 |
| Extra pancreatic | 4 | 30.77 |
| Total | 13 | 100 |

Table 17: Other features in acute pancreatitis

| Other features | Frequency | Percentage |
|--------------------|-----------|------------|
| Phlegmatous change | 4 | 30.77 |
| Pseudocyst | 2 | 15.38 |
| Ascites | 1 | 7.69 |

Table 18: Signs of chronic pancreatitis (n=7):
Size of pancreas:

| Parameter | Sub group | Frequency | Percentage |
|------------|-----------------|-----------|------------|
| Size | Normal | 1 | 14.29 |
| | Diffuse atrophy | 4 | 57.14 |
| | Focal atrophy | 2 | 28.57 |
| Pseudocyst | | 1 | 14.28 |

Table 19: Ductal involvement

| Duct | Sub group | Frequency | Percentage |
|------------------|------------|-----------|------------|
| Pancreatic duct | Dilatation | 4 | 57.14 |
| | Calculus | 3 | 42.86 |
| Common Bile duct | Dilatation | 6 | 85.71 |
| | Calculus | 1 | 14.29 |

Table 20: Calcification in chronic pancreatitis:

| Calcification | Frequency | Percentage |
|---------------|-----------|------------|
| None | 4 | 57.14 |
| Yes | 3 | 42.86 |
| Total | 7 | 100 |

Table 21: Serum amylase levels in pancreatitis cases:

| Parameter | Mean | Standard Deviation |
|----------------------|--------|--------------------|
| Acute Pancreatitis | 91.46 | 23.25 |
| Chronic pancreatitis | 31.46 | 12.89 |
| P Value | <0.001 | |

Table 22: Serum lipase levels in pancreatitis cases:

| Parameter | Mean | Standard Deviation |
|----------------------|--------|--------------------|
| Acute Pancreatitis | 42.68 | 17.48 |
| Chronic pancreatitis | 10.28 | 9.46 |
| P Value | <0.001 | |

Table 23: CTSI of acute pancreatitis cases:

| CT severity Index | Frequency | Percentage |
|-------------------|-----------|------------|
| Mild | 6 | 46.15 |
| Moderate | 5 | 38.46 |
| Severe | 2 | 15.39 |
| Total | 13 | 100 |

Among the cases with acute pancreatitis, 46.15% were mild, 38.46% were moderate and 15.39% were of severe grade according to CT severity Index.

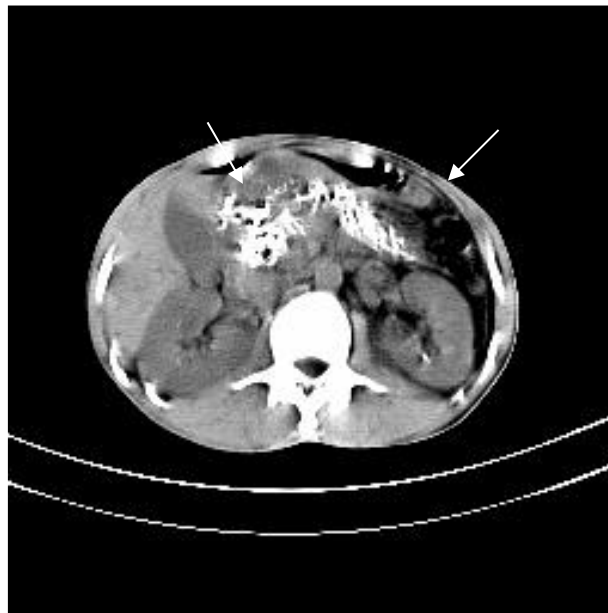


Figure 1: Axial section of CECT Abdomen showing calcifications in pancreas



Figure 2: Axial section of CECT Abdomen showing pseudocyst in pancreatic head

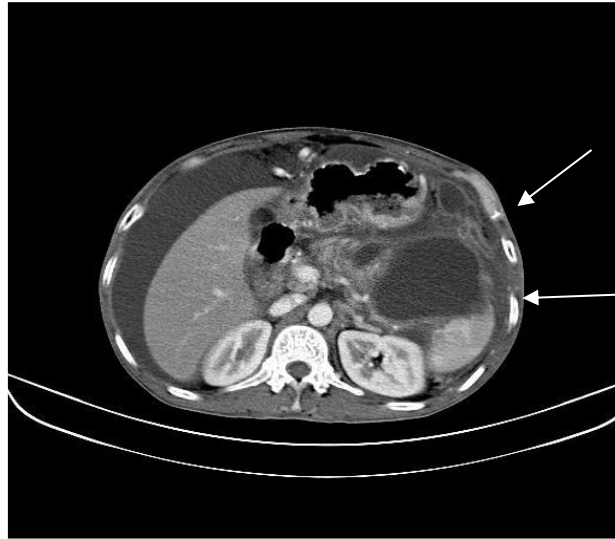


Figure 3: Axial section of CECT Abdomen showing multiple loculated collections in pancreatic body and tail region

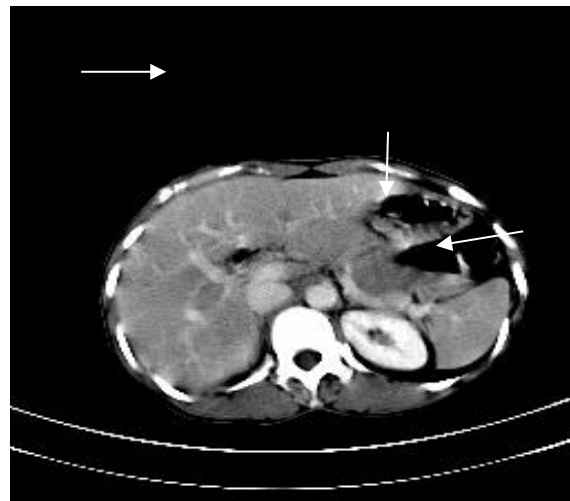


Figure 4: Axial section of CECT Abdomen showing multiloculated hypodense lesion in pancreatic head

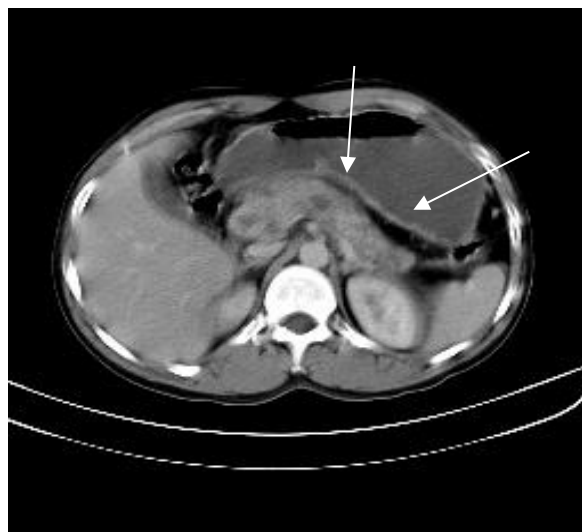


Figure 5: Axial section of CECT Abdomen showing necrotic components in pancreatic head and body with loss of peripancreatic fat planes

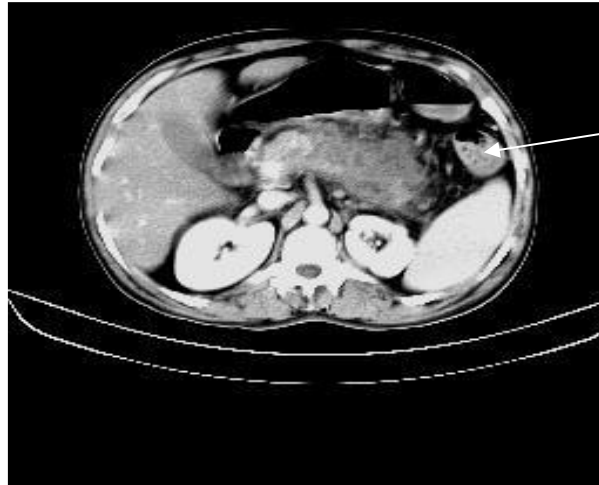


Figure 6: Axial section of CECT Abdomen showing bulky irregular pancreatic body and tail with peripancreatic fat strandings in the tail region

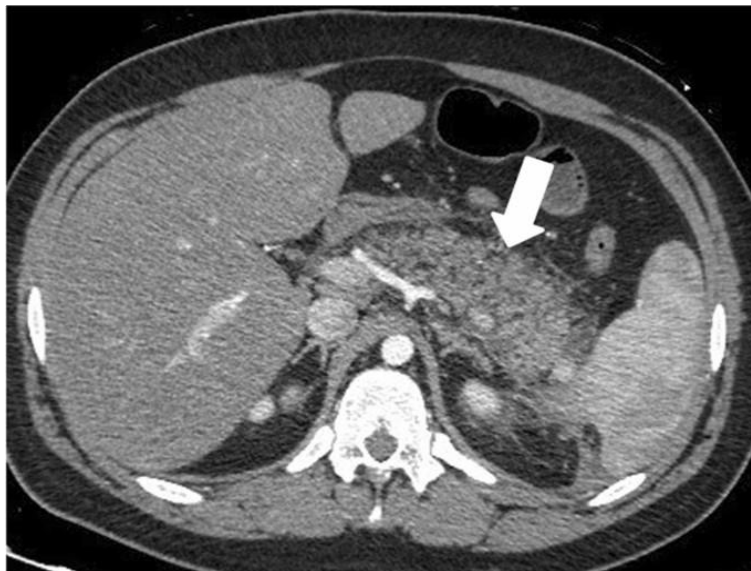


Figure 7: Axial section of CECT Abdomen showing Acute Pancreatitis

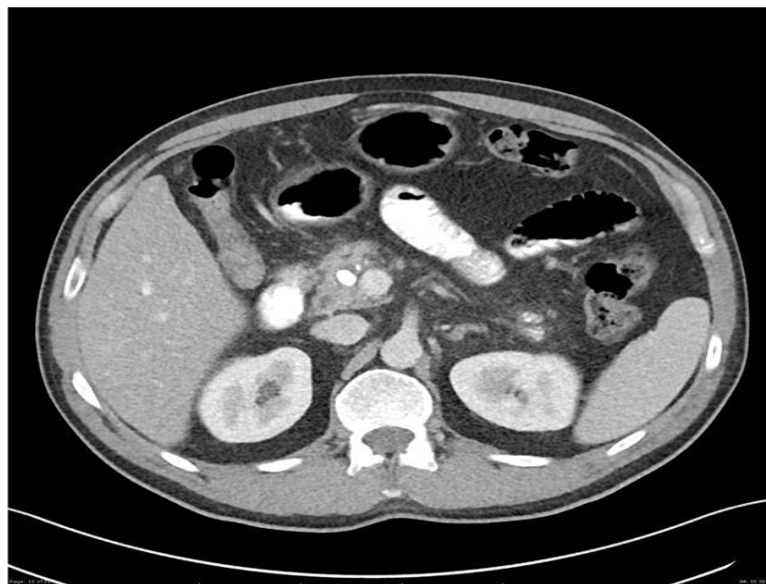


Figure 8: Axial section of CECT Abdomen showing chronic pancreatitis

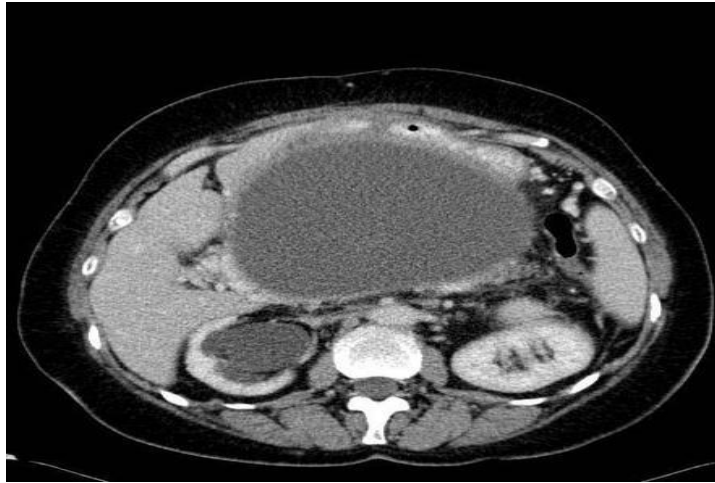


Figure 9: Axial section of CECT Abdomen showing Pseudocyst of pancreas



Figure 10: Axial section of CECT Abdomen showing acute on chronic pancreatitis:



Figure 11: Axial section of CECT Abdomen showing Ca pancreas

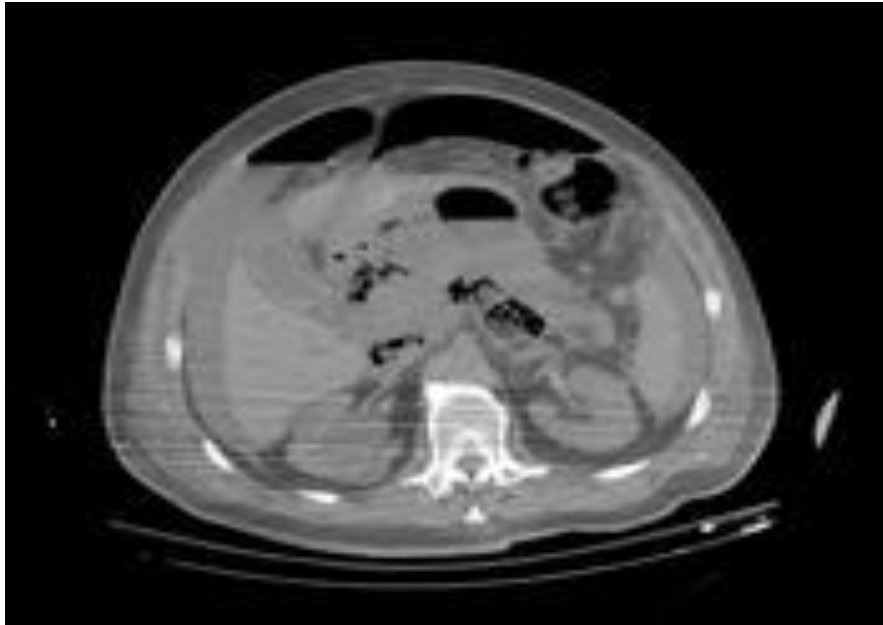


Figure 12: Axial section of CECT Abdomen showing necrotizing pancreatitis

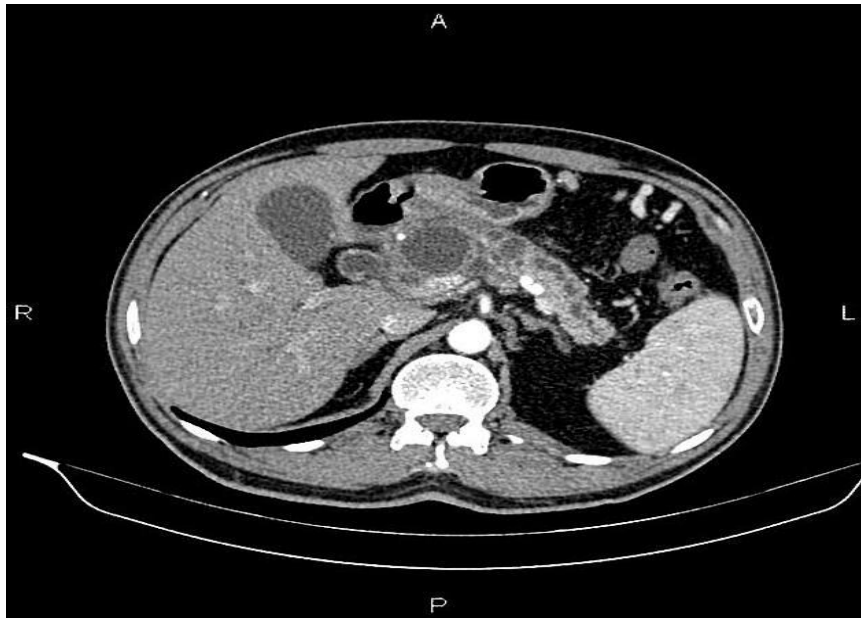


Figure 13: CECT Abdomen showing chronic pancreatitis with pseudocyst

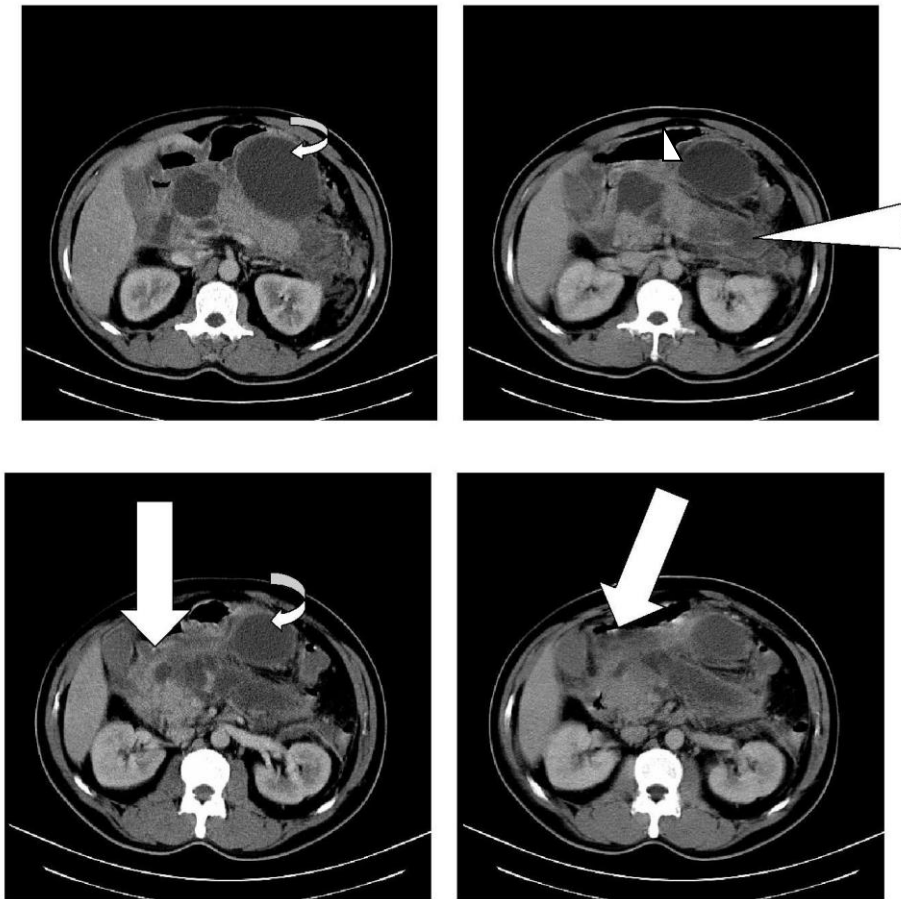


Figure 14: Axial section of CECT Abdomen showing diffusely bulky pancreas with necrotic components within, loculated collections, irregular mass lesion involving pancreatic head with peripancreatic fat strandings.

Discussion

A hospital based cross sectional study was carried out in Sri Siddhartha medical college, Tumkur for 24 months. The objectives of the study were:

- To determine the role of CT in detection of pancreatic lesions
- To assess the role of CT in characterizing pancreatic lesions into cystic/benign/malignant
- To diagnose various complications of pancreatic mass lesions

The results of the study are discussed below:

Age Distribution

In the present study, 38.23% belonged to the age group of 50-59 years, followed by 40-49 years (23.53%), and 60 and above years, 30-39 years (14.71%) each. 8.82% was contributed 20-29 years. In a study done by Dipala Shah et al¹, the

commonest age group among the patients was 60-69 years (34 %) followed by 50-59 years age group (30 %) patients. In a study done by Tantawy HI et al⁴, the age group mostly affected in this study was in between (50-59) years.

In a study done by Pawar SN et al⁸, The commonest age group affected was between 30 to 50years.

Gender Distribution

Among the study population, 73.52% were males and 26.48% were females. In a study done by Dipala Shah et al¹, pancreatic lesions were more common in males (54%) than females (46%). In a study done by Tantawy HI et al⁴, males were 19 in number (63.4%) and females were 11 in number (36.6%). In a study done by Singh A et al⁷, 71% were males and 29% were females. In a study done by Pawar SN et al⁸, 75% were males and 25% were females.

Clinical Features

In the present study, 82.35% had pain abdomen, 44.11% had loss of appetite, and 23.52% had nausea and vomiting. In a study done by Dipala Shah et al¹., most of the patients 43 (86%) were presented with abdominal pain followed by 34 (68%) patients with loss of appetite / weight.

Smoking

In the present study, 52.95% were smokers. In a study done by Dipala Shah et al¹, 23 patients (46%) with personal history of smoking.

Alcoholism

In the present study, 58.83% were alcoholics. In a study done by Dipala Shah et al¹., 29 patients (58%) with personal history of alcoholism tend to have pancreatic mass lesions.

Part Involved

In the present study, most of the patients had involvement of head and uncinata process was involved in 47.06% followed by diffuse involvement (29.41%) and body (17.65%) and tail (5.88%). In a study done by Dipala Shah et al¹, 50 % of tumors occupied the head & uncinata process of the pancreas, 16% involved the body, 4 % involved the tail and 30 % diffusely involved the organ.

Type of masses

Among the study population, 85.29% had benign masses and 14.71% had malignant masses. In a study done by Dipala Shah et al¹., 28 patients (56%) were diagnosed to have malignant lesions while 11 patients (22 %) had benign lesions. In a study done by Pawar SN et al⁸., 18% were malignant lesions of pancreas, rest all were benign.

Etiology of mass

In the present study, acute pancreatitis was most common (32.35%), followed by chronic pancreatitis (17.65%) and acute on chronic pancreatitis (14.71%). Pseudocyst was seen in 11.77%. Carcinoma pancreas was seen in 8.82%. In a study done by Dipala Shah et al¹., Out of 28 malignant cases, 25 (50%) had adenocarcinoma type of pancreas, 2 (4%) had carcinoma with metastasis and 1 (2%) patients had sarcomatoid type of malignancy. Out of 11 benign lesions, 5

(10%) patients had cystic mucinous neoplasm, 1 (2%) had serous neoplasm, 2 (4%) had cystadenoma, 1 (2%) had solid papillary epithelial neoplasm and 2 (4%) patient had neuroendocrine tumour. 22 patients (44%) of pancreatic mass lesions tend to have vascular complications. In a study done by Tantawy HI et al⁴., 11 patients were diagnosed with acute pancreatitis, 1 with acute on chronic pancreatitis and 18 patients with pancreatic neoplasms. In a study done by Gulve SS⁶., 105 (58.33 %) patients presented with acute pancreatitis followed by 43 (23.89 %) patients with chronic pancreatitis, 21 (11.67 %) patients with acute exacerbation of chronic pancreatitis, 10 (5.56 %) participants with carcinoma pancreas and 1 (0.56 %) participant with pancreatic trauma. In a study done by Singh A et al⁷., Acute pancreatitis was seen in 52 cases, chronic pancreatitis in 25 cases, 5 cases each of acute on chronic pancreatitis and isolated pseudocysts, 11 cases of pancreatic neoplasms, 2 cases of congenital pancreatic lesions and one case of pancreatic laceration. In a study done by Pawar SN et al⁸], The commonest pathology in this study was chronic pancreatitis(48%) followed by acute pancreatitis (32%) and pancreatic carcinoma (18%).

CT features in acute pancreatitis

In the present study, the most common CT signs of acute pancreatitis were diffuse gland involvement (61.54%) and focal gland involvement (38.46%) regular contour (69.23%) and irregular contour (30.77%), homogenous density (69.23%) and heterogenous density (30.77%), necrosis less than 30% was observed in 23.08% cases and necrosis more than 30% was observed in 7.69% of cases, fluid accumulation (53.85%), phlegmatous change (30.77%), pseudocyst (15.38%) and ascites was observed in 7.69%. In a study done by Gulve SS⁵., In acute pancreatitis bulky parenchyma was observed in 103 (98.09 %) cases followed by the heterogenous enhancement in 65 (61.90%) cases, necrosis less than 30 % in 18 (17.14 %) cases, necrosis more than 30 % was observed in 1 (0.95%) case and

normal pancreatic parenchyma was observed in 2 (1.9 %) cases. In a study done by Singh A et al⁷, In patients with acute pancreatitis, pancreas showed diffuse enlargement in 43 patients, focal enlargement in 7 patients and normal size in 2 patients. The contour was found to be normal in 38 patients and irregular in 14 patients. Attenuation of the gland was homogeneous in 27 patients was heterogeneous in 25 patients. Peripancreatic fat stranding was seen in 50 patients. Acute fluid collections were seen in 35 patients. Pseudocysts were noted in 12 patients. Necrosis was seen in a total of 26 patients. Ascites was seen in 26 patients. Pleural effusion was seen in 11 patients. Venous thrombosis was seen in 11 patients. In a study done by Pawar SN et al⁸, the most common CT signs of acute pancreatitis were diffuse gland involvement (68.75%), regular contour (37.5%), heterogenous density (68.7%), necrosis (6 cases – 37.5%), fluid accumulation (56%), phlegmatous change (43.75%), pseudocyst (18.75%) and ascites in 18.75%. Pleural effusion was seen in 50%

CT features in chronic pancreatitis

In the present study, the most common CT signs of chronic pancreatitis were diffuse atrophy (57.14%), focal atrophy (28.57%), and pseudocyst (14.28%). Pancreatic duct dilation was seen in 57.14%, calculus in 42.85%. Similarly Common Bile duct dilation was seen in 85.71%, calculus in 14.29%. Calcification was seen in 42.85%. In a study done by Gulve SS⁸, In chronic pancreatitis main pancreatic duct dilatation was observed in 26 (60.46 %) cases followed by atrophic parenchyma in 22 (51.16 %) cases, and calcification in pancreas observed in 18 (41.86 %) cases. There was diffuse involvement of pancreas in all the cases of chronic pancreatitis. In a study done by Singh A et al⁷, In cases of chronic pancreatitis gland atrophy was seen in 26 cases and gland enlargement was seen in 4 cases. Pancreatic duct was dilated in 27 cases. Common bile duct was dilated in 2 cases. Pancreatic parenchymal calcifications were seen in 27 cases. Pseudocysts were seen in 14 cases. Peripancreatic

inflammatory changes were seen in 5 cases. In a study done by Pawar SN et al⁸, the most common CT signs of chronic pancreatitis were diffuse atrophy (54.16%), focal atrophy (16.16%), pseudocyst (83.33%). Pancreatic duct dilation was seen in 79.16%, calculus in 20.84%. Common Bile duct dilation was seen in 29.16%, calculus in 4.16%. Calcification was seen in 12.5%.

Severity of Acute Pancreatitis

In the present study, among the cases with acute pancreatitis, 46.15% were mild, 38.46% were moderate and 15.39% were of severe grade according to CT severity Index. In a study done by Gulve SS⁵, As per modified CTSI out of 105 cases of acute pancreatitis, 28 (26.67 %) cases were of mild acute pancreatitis, 58 (55.24 %) cases were moderate acute pancreatitis and 19 (18.10 %) were of severe acute pancreatitis. In a study done by Singh A et al⁷, In the study mild grade on according to modified CT severity score was assigned to 13 patients, moderate grade to 19 patients and severe grade to 20 patients. Pleural effusion and ascites were more commonly associated with higher grades of pancreatitis

Conclusion

A hospital based cross sectional study was carried out in Sri Siddhartha medical college, Tumkur for 24 months to determine the role of CT in detection of pancreatic lesions.

Contrast-enhanced multiphase pancreatic imaging by multislice computerized tomography along with its post-processing techniques is considered as the imaging modality of choice for diagnosis of pancreatic mass lesions and characterizing them into cystic, solid and in case of malignancy further playing a role in resectability. It not only enables proper assessment of pancreatic size and morphology, but also hepatobiliary system, spleen, bowel loops, and even surrounding vasculature bed and the celiac and pre/para aortic group of lymph nodes can be assessed and commented upon in the same setting. Infiltration of the peripancreatic structures and possible pancreatic

infiltration by other tumours can be well appreciated.

Contrast enhanced MDCT plays an important role in detecting as well as staging pancreatic cancer. CT plays an important role in grading of pancreatitis and trauma cases, which correlate fairly well with the clinical outcome and also describes the appropriate mode of treatment.

Better optimization of the imaging protocols with thinner sections aids in better resolution, thereby enabling for accurate determination of benign and malignant pancreatic lesions and also in tumour staging

References

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