

ORIGINAL ARTICLE

Role of multi-detector computed tomography in the evaluation of pancreatic tumors



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KEYWORDS

MDCT;
Pancreas;
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Abstract Objective: The purpose of this study was to determine the role of multidetector computed tomography (MDCT) in evaluation and prediction of pancreatic tumors resectability.

Patients and methods: The study included 20 patients who had pancreatic masses, 16 males and 4 females, and their age range was 30–70 years with a mean age of 58.0 years. All the patients underwent non-contrast and contrast enhanced Multi-slice CT using a 16-slice machine. The gold standard for diagnosis was histopathology and operative data.

Results: Adenocarcinoma as reported by pathological studies was found in 8 patients, cyst adenocarcinoma in one patient, infiltrative adenocarcinoma in 2 patients, intraductal papillary mucinous tumor in 2 patients, mucinous cyst adenocarcinoma in one patient, pancreatic pseudo cyst in 2 patients and mucinous cystadenoma in 4 patients. According to MDCT criteria 6 patients were considered suitable for tumor resection and 14 patients were considered inoperable with unresectable tumor, one out of the 6 operable patients was unresectable during operation due to the invasion of the superior mesenteric vein with infiltration of the mesenteric root.

Conclusion: Contrast-enhanced multiphase pancreatic imaging by multislice computerized tomography (MSCT) with its postprocessing techniques represents the image of choice for diagnosis and predicting pancreatic masses and resectability.

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Abbreviations: MDCT, multidetector CT; MSCT, multislice CT; MPR, multiplanar reformation

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1. Introduction

Imaging of the pancreas is challenging because of its anatomic location in the retroperitoneum and its intricate relationship with major blood vessels and bowel. Computed tomography (CT) has been the initial imaging modality of choice for evaluation of pancreatic pathology (1).

Pancreatic cancer is the fourth most frequent cause of cancer-related death. The incidence is increasing and the overall survival has been altered a little in recent years (2). The overall 5 years survival rate of pancreatic cancer ranges from 0.4% to

Table 1 Age and sex frequency distribution of the studied 20 patients with pancreatic mass.

Age	Female		Males		Total	Percentage (%)
> 30–40	0	0	1	5%	1	5
> 40–50	2	10%	3	15%	5	25
> 50–60	2	10%	10	50%	12	60
> 60–70	0	0%	2	10%	2	10
Total	4	20%	16	80%	20	100

Table 2 Show different multislice CT manifestations of the pancreatic masses detected in the studied 20 patients.

Multislice CT manifestation	Number of the patients	Percentage (%)
Margin		
Ill-defined	12	60
Well-defined	8	40
Density pattern		
Mixed	11	55
Hypodense	7	35
Hyperdense	2	10
Pattern of enhancement		
Homogenous	11	55
Heterogeneous	9	45
Calcification	1	5

4%, the lowest for any cancer. Currently surgical resection offers the best chance of cure, however more than 80% of patients present with advanced and unresectable disease. The key to increase resection rates of pancreatic cancer lies with early diagnosis (3).

Recent improvements in imaging techniques have made it possible to improve the diagnostic accuracy for detection, staging, and indicating surgical resectability of pancreatic cancer (4). Improvements in CT technology during the past decade, with fast image acquisition and improved spatial resolution, have increased the accuracy of CT for lesion detection and characterization. Axial CT images are not sufficient to demonstrate the complex anatomy of the pancreas and have made it mandatory to have multiphasic and multiplanar imaging of the pancreas (5).

Multislice CT is the most efficient non invasive technique in the assessment of pancreatic cancer, multislice CT allows excellent visualization of the pancreatic cancer during the different stages of contrast enhancement, thereby facilitates detection of small pancreatic lesions and evaluation of peripancreatic structures. 3D multiplanar reformatted images can be used to solve different diagnostic problems and to help communicate findings to clinicians (6).

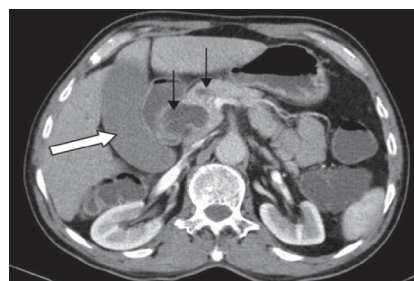
The aim of this study was to determine the role of multidetector computed tomography (MDCT) in evaluation and prediction of pancreatic tumors resectability.



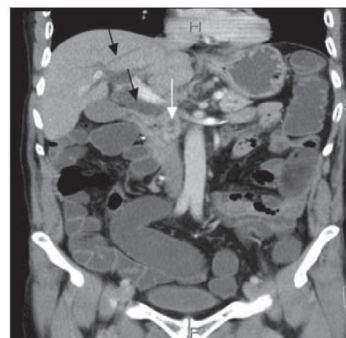
(A) Axial non contrast CT



(B) Axial contrast enhanced CT at portal phase



(C) Axial contrast enhanced CT at Portal phase at higher level



(D) Curved multiplanar reformatting projection

Fig. 1 (A–D) 62 year old male patient presented with jaundice, vomiting and epigastric pain (A)-Pre-contrast CT scan shows pancreatic head mass (white arrow). (B & C)-Post-contrast CT scan shows a small ill defined relatively mildly enhanced pancreatic head mass (white arrow), marked dilatation of the CBD and the pancreatic duct (black arrows) also GB is markedly distended (black arrow). (D)-Curved multiplanar reformatting shows dilated intrahepatic bile ducts and CBD (black arrows) that end abruptly by the mass (white arrow). Excised Biopsy revealed: *pancreatic adenocarcinoma*.

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