Early Pancreatic Cancers: Pearls, Pitfalls and Mimics

H A Siddiki, MD, J G Fletcher, MD, N Takahashi, MD, J L Fidler, MD, N Dajani, MD, J E Huprich, MD, D M Hough, MD
Department of Radiology, Mayo Clinic, Rochester, MN

PURPOSE
To display a spectrum of early and atypical presentations of adenocarcinoma of the pancreas, in addition to imaging pitfalls and mimics, in a case-based presentation and review.

BACKGROUND
Pancreatic cancer is the 2nd most common malignant tumor of the GI tract, and is the 3rd leading cause of cancer death, with a median survival of 4-6 months. Surgical resection is the only chance for cure, with small tumors being associated with long-term survival. Early and small pancreatic cancers may present with subtle or atypical findings, which if unrecognized, will delay diagnosis. Conversely, several diseases are often erroneously confused with pancreatic cancer.

Imaging Technique
CT
- Spiral CT
- Acquire all phases: arterial, portal venous, delayed
- Multiplanar reconstruction
- 3D volume rendering
- Dual-energy CT

Overview and Test Cases

Atypical Findings of Pancreatic Cancer
- Masses
- Atrophy of gland upstream to tumor
- Signs of locally advanced or distant disease
- Any combination of these findings

Pitfalls in Tumor Detection
- Pancreatic ductal dilatation
- Acinarization
- Obstruction
- Ductal mural irregularity
- Intraductal neoplasia
- Presence of stone

Pancreatic Cancer Mimics
- Chronic pancreatitis
- Metastases
- Neoplasms that mimic pancreatic cancer
- Intimal fibroplasia
- Focal edema

Case 1: Patient with symptomatic pancreatitis. CT and MR imaging are available. What are the findings and diagnosis?

Case 2: What are the findings and diagnosis?

Case 3: Mid-50-year-old female with breast cancer. What are the findings and diagnosis?

Case 4: Sd stent placed for biliary obstruction. What are the findings and diagnosis?

Case 5: Coronal images from a CT of the chest and abdomen. What are the findings and your diagnosis?

Case 6: What are the findings and your diagnosis?

Case 7: What are the findings and diagnosis?

Case 8: What is your differential? What is the next step?

Case 9: CT enterography performed for abdominal pain. What are the findings and diagnosis?

Case 10: Known pancreatic ductal stricture (arrow). What is your diagnosis?

Case 11: What imaging features favor chronic pancreatitis over pancreatic cancer?

Case 12: What are the findings and diagnosis?

Discussion

Atypical Findings
- Masses
- Characterization of mass: is it solid, cystic, or mixed?
- Presence of blood vessels
- Presence of calcifications
- Presence of necrosis

Pitfalls
- Ductal obstruction
- Acinarization
- Ductal mural irregularity
- Intraductal neoplasia

Mimics
- Chronic pancreatitis
- Metastases
- Neoplasms that mimic pancreatic cancer
- Intimal fibroplasia
- Focal edema

CONCLUSIONS
- Radiologists should be aware of atypical findings in pancreatic cancer, which should not preclude its diagnosis.
- Radiologists should be aware of potential pitfalls, which can lead to a failure to detect pancreatic cancer.
- Pancreatic cancer mimics can often be distinguished by paying attention to key differential points.