

Letters to the Editor

Role of contrast-enhanced ultrasound in clinical staging of pancreatic cancer

Key words: Ultrasound. Contrast-enhanced. Pancreatic cancer.

Dear Editor,

Pancreatic carcinoma (PC) is an aggressive disease that represents the fifth cancer-related cause of death in Spain. Surgery is the only potentially curative treatment, but in about 80% of patients the tumor is unresectable at diagnosis.

Due to its accessibility, safety and profitability, abdominal ultrasound is usually the first imaging technique to be performed when a PC is suspected. The main limitations of ultrasound in pancreatic assessment are the presence of bowel gas, obesity, operator dependency and low reproducibility. However, with experienced hands, ultrasound examination at the bedside can provide signs of advanced disease, such as ascites and/or hepatic metastasis.

The incorporation of contrast-enhanced ultrasound (CEUS) into clinical practice has improved the accuracy of ultrasound in PC diagnosis. Moreover, CEUS is a technique with few adverse effects that can be used in patients with renal failure or iodinated contrast allergy and it is less expensive than CT and MRI.

Case report

A 60-year-old woman presented with epigastric pain radiating to the back and wasting syndrome. An abdominal ultrasound demonstrated a solid lesion in the head of pancreas measuring 4 x 6 cm in diameter, with indistinct borders, heterogeneous and hypo-echoic pattern, without vascular invasion or ascites; and two liver

nodules of uncertain nature. Examination was completed with a conventional bolus intravenous injection of 2.4 ml of sonographic contrast agent, sulfur hexafluoride (SonoVue®, Bracco, Milan). Arterial phase (10-30 seconds) defined a hypo-enhancing lesion compared to the adjacent pancreatic tissue, which stenosed hepatic and splenic arteries. Venous phase (30-120 seconds) showed permeability of splenic-porto-mesenteric venous axis and liver scan in the delayed sinusoidal phase (>120 seconds) revealed several hypo-enhancing filling hepatic defects. In summary, ultrasound findings were consistent with a pancreatic malignant lesion with vascular and metastatic invasion. These data were corroborated with a helical CT. Figure 1 shows the similarity of the angiographic images with ultrasound and CT. Ultrasound guided fine needle aspiration of a liver nodule revealed definitive diagnosis of pancreatic adenocarcinoma and patient was treated with palliative chemotherapy.

Discussion

Clinical staging of PC should be as accurate as possible because it predicts survival and impacts on therapeutic decisions. Association of CT and endoscopic ultrasound is considered of election to determine loco-regional disease extension and vascular invasion, being a criterion of unresectability in most case.

There are few published studies about the role of CEUS in the management of PC. However, CEUS is a useful first stage technique in extension study of this neoplasm. Any abdominal ultrasound suspicious of PC could be completed with a CEUS during the same examination in order to determine the nature of the pancreatic mass, to study the retroperitoneal vascular permeability, and to rule out hepatic dissemination. In this way, initial management of PC could be modified and unnecessary explorations could probably be avoided.

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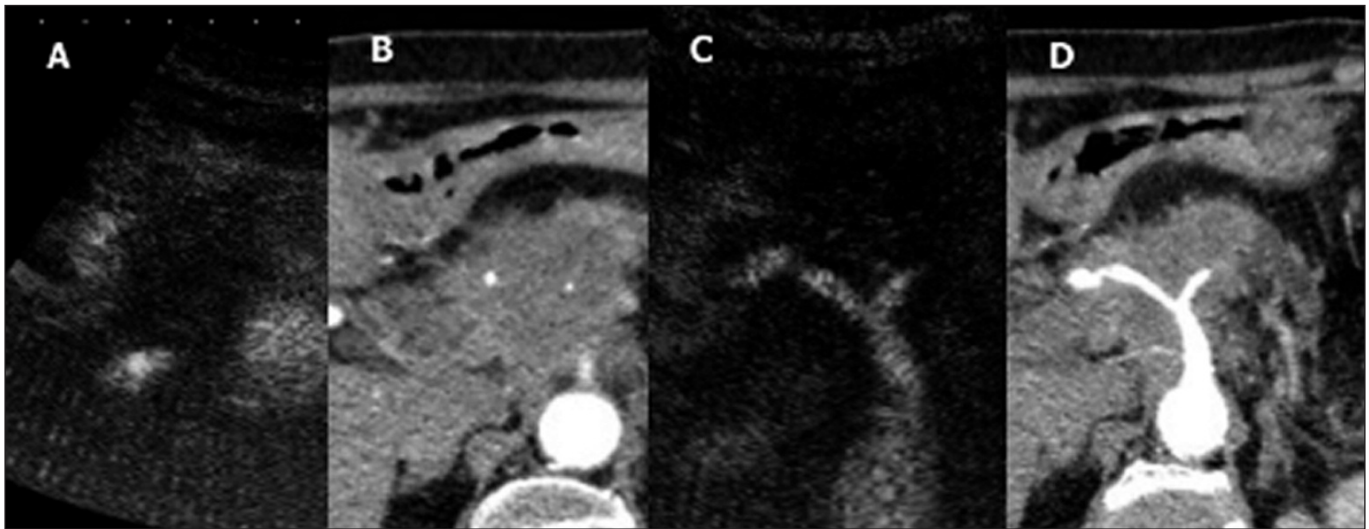


Fig. 1. Comparison of ultrasound and CT imaging. The figure shows a pancreatic mass without enhancing in CEUS (A) that is compatible with pancreatic adenocarcinoma. CT shows a hypodense mass (B). Also, the figure shows celiac trunk and invasion of hepatic artery in CEUS (C) and CT (D).

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