

Male patient presenting with weight loss and painless jaundice

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PART A

A 69-year-old male was referred to our hospital with moderate weight loss (5 kg during a 6-month period), nausea, pale stool and fatigue and painless jaundice.

Ultrasonography, contrast enhanced CT (three phases) (**Figs. 1, 2**), MRI (**Fig. 3**) with MRCP (**Fig. 4**) and ERCP were performed.



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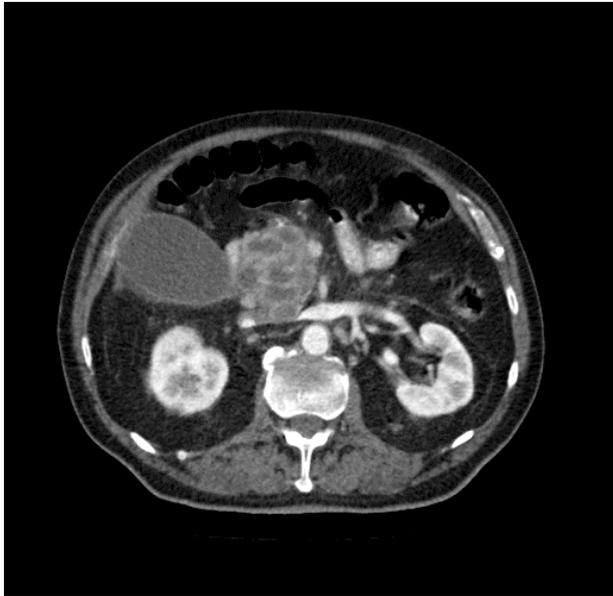


Fig. 1. Axial enhanced CT image of the abdomen.

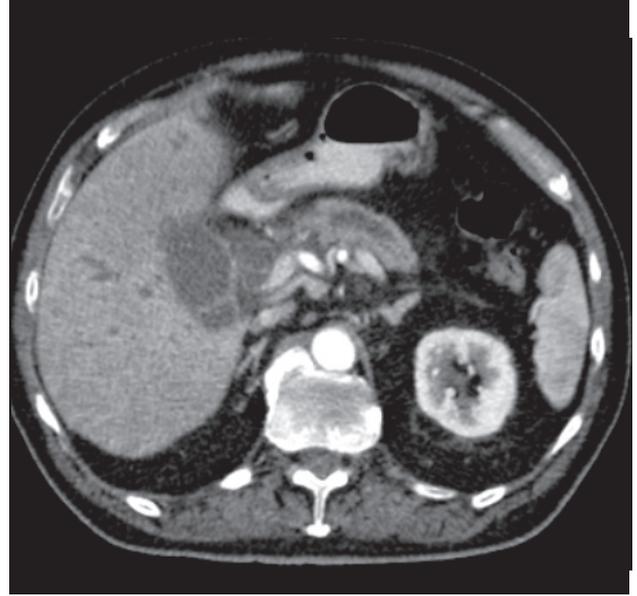


Fig. 2. Axial enhanced CT image of the abdomen.



Fig. 3. Axial T2 weighted MR image of the abdomen.

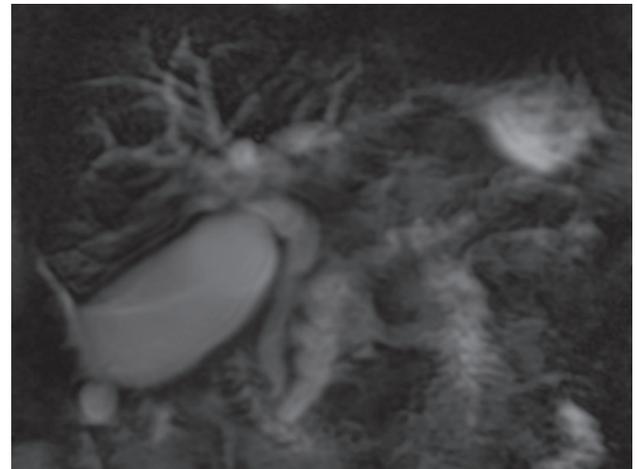


Fig 4. MRCP.

PART B

Diagnosis: Intraductal papillary mucinous neoplasm (IPMN) of the pancreas (mixed type), associated with intraductal carcinoma in situ

A multiloculated cystic lesion in the head and the uncinate process of the pancreas was disclosed by CT (Figs. 1, 2), MRI (Fig. 3), MRCP (Fig. 4) and ERCP (Fig. 5). The patient underwent a Whipple procedure (Fig. 6) and subsequently histology revealed IPMN of the pancreas, associated with intraductal carcinoma in situ.

IPMN of the pancreas is an infrequent pancreatic cystic neoplasm (70% occur in men with an average age of 65 years), being diagnosed with increased frequency nowadays [1]. It represents a low-grade malignancy arising from the epithelial lining of the main pancreatic duct (MPD) or its major side branches and is characterised by a papillary growth pattern, excessive mucin production, mucin retention in the pancreatic ducts and a good prognosis [2]. Three types are recognised: adenoma, borderline IPMN showing cellular dysplasia and intraductal papillary mucinous carcinoma either in situ or invasive [2, 3]. Different histologic patterns may coexist in the same lesion. According to the anatomic location of ductal involvement, IPMNs are divided into three types. Type (a) is the main duct type (MDT-IPMN) in which only the MPD is involved. Type (b) is the branch duct type (BDT-IPMN) in which only side branches are dilated, whereas type (c), as in our case, represents a combination of types (a) and (b). Types (b) and (c) are usually seen in the head or the uncinate process of the pancreas [2]. The current patient had a type (c) IPMN in the head and the uncinate process, with dilatation of MPD exhibiting a diameter of 14 mm. Types (a) and (c) IPMNs with a main pancreatic duct diameter greater than 10 mm are more likely to be malignant, while type (b) lesions not exceeding 3 cm in maximal diameter, are most probably benign and should followed by imaging [4].

Different imaging modalities may be used to evaluate patients with suspected IPMN, including transabdominal ultrasound, CT, MRI, MRCP, ERCP, and endoscopic

ultrasound (EUS), each having its advantages and disadvantages.

A cystic multiloculated pancreatic lesion is the most common imaging finding, while the rest of the pancreatic parenchyma may be atrophic. Marked dilatation of the MPD (>10 mm), multifocal involvement of the MPD, presence of an enhancing mural nodule or a solid mass on CT or MRI, intraluminal calcifications and common bile duct obstruction may be indicative of invasive carcinoma.

CT or MRI are useful to demonstrate the extent of the disease by identifying associated lymphadenopathy, vascular invasion and metastatic deposits [2, 5-9]. ERCP discloses a diffuse or segmental dilatation of the MPD and/or the side branches, often with filling defects secondary to mural nodules or mucus plugs. The papilla is usually found patulous with mucus protruding from the orifice, resembling a “fish-eye”. The main advantage of ERCP is the ability to obtain cytology by aspiration of the duct contents, as well as the ability to perform therapeutic maneuvers to clear the MPD and deplete the biliary tree. EUS, when available, may well characterise IPMN, especially in the head of the pancreas, with the additional advantage of performing fine-needle aspiration of the cystic lesions for cytologic evaluation and assessment of tumour markers and amylase levels [5, 8, 9].

One of the most reliable clues for the diagnosis of IPMN is the presence of communication between the cystic lesion and the pancreatic ductal system and can be accurately demonstrated by MRCP. MRCP readily delineates the internal architecture of the ductal system and its communication with the cystic lesions. In other cystic lesions such as serous cystadenoma and mucinous cystadenoma or cystadenocarcinoma, there is no such communication. However, pancreatic pseudocysts may communicate with MPD. Differentiation from pseudocyst necessitates the absence of elevated amylase levels in the aspirate, if available. **R**

Conflict of interest

The authors declared no conflicts of interest.



KEY WORDS

Intraductal papillary mucinous neoplasm (IPMN); MR imaging/diagnosis; MRCP; CT; Pancreas/neoplasms



Fig. 1. Axial enhanced CT image of the abdomen: A cystic mass (arrow) with enhancing septations is identified in the head of the pancreas.

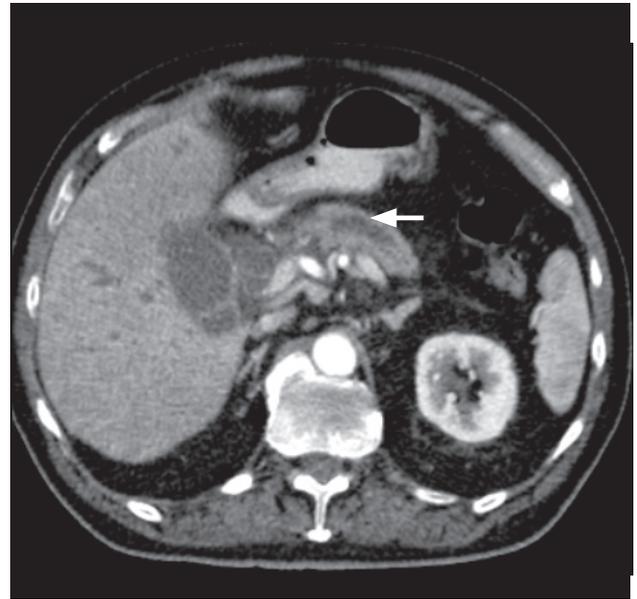


Fig. 2. Axial enhanced CT image of the abdomen shows the dilated pancreatic duct (arrow).



Fig. 3. Axial T2 weighted MR image of the abdomen shows a multiloculated cystic lesion in the head of the pancreas (arrow).



Fig. 4. MRCP demonstrates dilation of the intrahepatic bile ducts, common bile duct and pancreatic duct. A multiloculated cystic lesion in communication with the main pancreatic duct is seen (arrow).



Fig. 5. Endoscopic view of the duodenum during ERCP shows a bulging papilla with a patulous orifice, through which abundant thick mucus is protruding.

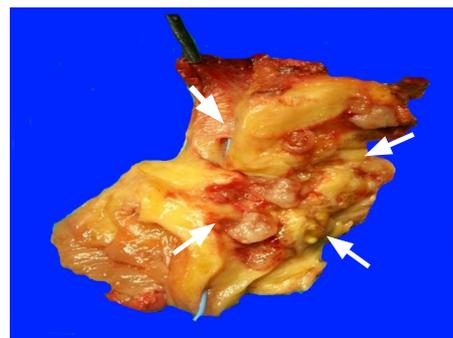


Fig. 6. The patient underwent a Whipple procedure and the surgical specimen is shown (arrows).

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