Neuroendocrine tumor of the pancreas with cystic appearance mimicking a progressive intraductal papillary mucinous neoplasm: pitfall in medical imaging

Pancreatic cystic lesions are increasingly being recognized on imaging studies. Among these, intraductal papillary mucinous neoplasms (IPMNs) frequently exhibit a spectrum of neoplastic transformation and follow-up is recommended according to the Sendai [1] and Fukuoka criteria [2], with the preference being for magnetic resonance imaging (MRI) [3]. Endoscopic ultrasound (EUS) can help to verify the absence of thickened walls or mural nodules [2].

We report on a 75-year-old woman who was referred to our emergency department with nausea and chest pain. Her physical examination was unremarkable and her laboratory parameters were within the reference ranges, except for a slightly elevated lipase. Computed tomography (CT) of the abdomen revealed a cystic lesion between the body and tail of the pancreas (Fig. 1). On EUS, a connection between the cystic lesion and the main pancreatic duct (MPD) was seen (Fig. 2) and therefore a branch duct IPMN was diagnosed. MRI showed a 1.8 × 1.5-cm cyst with a connection to the MPD (Fig. 3 and Fig. 4).

After 2 months the patient was re-examined with a contrast-enhanced EUS. The cyst showed an increased size with a persistent contrast-enhancing thickened wall (Fig. 5; Video 1). Because of these “worrisome features” of the lesion and its rapid growth (now 24 mm) a 19-gauge needle biopsy was performed. The fluid showed a carcinoembryonic antigen (CEA) level of 212.3 U/mL and a positive string sign [4], suggestive of mucinous cyst content [5]. A lipase value of 114812 U/mL proved that there was involvement of the pancreatic duct.

Histology unexpectedly revealed cells of a well-differentiated neuroendocrine tumor (Fig. 6) with no evidence of a mucinous epithelium. Immunohistochemistry showed positivity for synaptophysin and somatostatin receptor. The patient was referred for a surgical resection. This case adds to concerns about the current management of pancreatic cystic lesions and shows that every neoplasm of the pancreas that involves the pancreatic duct can mimic IPMN. In pancreatic cysts with worrisome features, a thorough investigation should be undertaken.

Competing interests: None
Fig. 6  Histology of the 19-gauge biopsy (magnification ×40 in all images) showing monomorphic, plasmacytoid-like small cells consistent with a neuroendocrine tumor (NET) and pancreatic exocrine tissue in the background stained: a with hematoxylin and eosin (H&E); b–d immunohistochemically demonstrating: b low mitogenic activity with the Ki-67 index being <5% (MIB1 antibody); c positivity for somatostatin receptor 2; d positivity for synaptophysin.

References

Corresponding author
Dane Wildner, MD
Department of Medicine 1
Friedrich-Alexander-Universität
Erlangen-Nürnberg
Ulmenweg 18
91054 Erlangen
Germany
Fax: +49-9131-8535252
dane.wildner@uk-erlangen.de

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Magnetic resonance imaging (MRI) showing a pancreatic cyst with connection to the main pancreatic duct and thickened walls; magnetic resonance cholangiopancreatography (MRCP) suggesting a branch duct intraductal papillary mucinous neoplasm (BD-IPMN); contrast-enhanced transabdominal and endoscopic ultrasound (EUS) using 4.8 mL SonoVue (equates to Lumason) showing the hyperenhanced thickened wall and a fine needle biopsy of the lesion being taken.