Cystic degeneration of ductal adenocarcinoma of the pancreatic tail

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ABSTRACT
We present a 54-year-old Chinese man with a tumour at the pancreatic tail associated with a presumed cystic splenic lesion. Histological examination showed a pancreatic ductal adenocarcinoma with extensive cystic degeneration and invasion of the spleen, a rare imaging presentation for such a tumour.

Keywords: ductal adenocarcinoma, pancreatic ductal adenocarcinoma, pancreatic tumour, pancreatic cyst degeneration, splenic cystic lesion

INTRODUCTION
Pancreatic ductal adenocarcinoma is the most common pancreatic malignancy, and is typically a solid tumour. In cases where there is an associated cystic component, these are usually either pseudocysts or retention cysts. Extensive central tumour necrosis resulting in a large cystic component is unusual and may be misdiagnosed as other cystic neoplasms of the pancreas. We present the clinical, operative and pathological findings of such a case and discuss the differential diagnoses of cystic pancreatic masses as well as the management of pancreatic ductal adenocarcinoma.

CASE REPORT
A 54-year-old Chinese man presented with severe abdominal pain lasting for one day. There was no other gastrointestinal or urinary symptom and no previous medical history, in particular, that of pancreatitis or trauma. A family history of an uncle with pancreatic cancer was obtained. Palpation elicited mild periumbilical tenderness and a suspicious, firm, smooth mass in the left hypochondrium. Bowel sounds were present and a digital rectal examination was unremarkable. The abdominal radiograph confirmed a mass in that region causing elevation of the left hemidiaphragm, as well as displacement of the gastric bubble and splenic flexure. Subsequent computed tomography (CT) of the abdomen revealed a tumour at the pancreatic tail in continuity with a large septated cyst that appeared to be splenic in origin. Free perisplenic and perihepatic fluid raised the suspicion of simple reactive or malignant ascites, or even cyst rupture (Figs. 1a & b). Probable differential diagnoses included a pancreatic mucinous cystadenocarcinoma or cystic necrosis within a pancreatic ductal adenocarcinoma. Urgent laparotomy was performed the next day due to intractable pain. Intraoperatively, there was massive cystic splenic enlargement down to the level of the umbilicus. The cyst contained large amounts of an “anchovy sauce-like” material. A suspicious mass was noted along one aspect of the cyst adjacent to the pancreatic tail, and was subsequently confirmed at the intraoperative frozen section to be an adenocarcinoma. There were dense inflammatory adhesions to the pancreatic tail, stomach, transverse colon, left kidney and abdominal wall. Consequently, the distal pancreas, spleen and a cuff of the stomach were resected.

Gross examination of the resected specimen showed an opened cyst with a friable lining and a thickened, fibrotic wall (Fig. 1c). Cut sections revealed an ill-defined, hard, tan-yellow tumour, measuring 4 cm in maximum dimension at the tail of the pancreas, invading into the spleen via a narrow tract, and in continuity with the cyst. Histological examination of the tumour showed a moderately differentiated ductal adenocarcinoma. The spleen was compressed and invaded by the cystic component of the tumour, whose wall was lined by malignant columnar epithelium similar in histology to the tumour in the distal pancreas (Fig. 1d). No ovarian-type stroma was observed in the sections of the cyst wall sampled for histology to suggest a mucinous cystadenoma/cystadenocarcinoma. No invasion into the stomach was seen, and the pancreatic resection margin was free of dysplasia or tumour. Tumour marker levels for carbohydrate antigen 19-9 (CA 19-9) and carcinoembryonic antigen (CEA) were available only the subsequent day. They were markedly elevated, being 9,363 U/ml for CA 19-9 (normal 0–37.0 U/ml) and 26.7 µg/L for CEA (normal 0–3.5 µg/L). The patient was discharged on the fifth postoperative day and a referral was made to the medical oncologist for radiochemotherapy. However, he declined follow-up treatment, with the unfortunate development of tumour recurrence, and eventually succumbed to the disease one year later.
Pancreatic pseudocysts, which occur in association with pancreatitis, are the commonest of cystic pancreatic lesions.\(^2\) Chronic pancreatitis may coexist with an underlying pancreatic cancer, either as a risk factor for malignancy or as a consequence of chronic inflammation accompanying the tumour.\(^3\) Hence, pancreatic adenocarcinoma coexisting with or complicated by a pseudocyst is a differential diagnosis in our case, but there was no past history or evidence of pancreatitis at presentation. Cystic pancreatic neoplasms are the next most common group of cystic lesions of the pancreas and are not as rare as originally thought. The more common subtypes, accounting for 90% of this category, are mucinous cystic neoplasms (MCN), intraductal papillary mucinous neoplasms (IPMN) and serous cystic neoplasms (SCN).\(^4\) Most cystic neoplasms are potentially premalignant or malignant and cystic neoplasm mimicking a splenic cyst has been reported. SCNs are usually benign microcystic adenomas with a low incidence of malignant transformation, although Shintaku et al reported a case and cited another documented case where a serous cystadenocarcinoma was found to have invaded the spleen. \(^4\) MCNs represent a broader spectrum,
ranging from benign cystadenomas with the potential for malignant transformation to cystadenocarcinomas with metastatic potential. Six cases of MCN presenting as a splenic cyst have been reported in the literature and two of these presented with spontaneous rupture of the spleen. The latter survival rate, quoted prognosis compared and or when the important role cells have been concerns arising from cytological examination to indicating amylase Fluid accuracy malignant alone often images have been utilised amylase surgical risk -benefit ratio of surgery which indicating pancreatic adenocarcinoma with extensive cystic necrosis forming a large cyst that splays the spleen with splenic invasion, mimicking a pancreatic tail tumour with a splenic cyst, is a very unusual presentation. This case serves to illustrate that, apart from the more common pseudocysts and true cystic pancreatic neoplasms, cystic change in otherwise typically solid pancreatic malignancies should be considered in the differential diagnosis of a cystic pancreatic lesion.

REFERENCES