Spontaneous rupture of mucinous cystadenoma of the pancreas

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Date accepted for publication 27 November 2006

Abstract

Pancreatic cysts that develop after abdominal trauma are generally considered to be pseudocysts. We present a patient with a post-traumatic peri-pancreatic cyst that later ruptured suddenly, leading to an acute abdomen. Following an urgent laparotomy and excision of the cyst, post-operative histopathological assessment showed this to be a mucinous cystadenoma of the pancreas. We have reviewed the literature on spontaneous rupture of mucinous cystadenomas of the pancreas.

Keywords

Mucinous cystadenoma; cystic neoplasm of pancreas; unusual causes of acute abdomen.

Case report

A 59-year-old lady presented to the Accident & Emergency Department with sudden onset of abdominal pain and transient loss of consciousness. She had suffered a blunt injury to her abdomen when she fell downstairs 3 years ago. A year after that she had presented to her local hospital with abdominal discomfort, and imaging had revealed a peri-pancreatic cyst, which was assumed to be a post-traumatic pseudocyst. Aspiration of about 300 ml of blood-stained fluid was done under ultrasound guidance on one occasion, but the cyst filled up again. Cytology of the fluid at that time did not suggest a neoplasm. When she arrived to our hospital on this occasion, she was in hypovolaemic shock with haemoglobin of 7 g/dl. Ultrasonography showed a cystic lesion in the abdomen (Fig. 1). Computed tomography (CT) scan revealed haemoperitoneum and a large cystic lesion involving the body and tail of the pancreas (Fig. 2). An intraperitoneal drain was inserted under CT guidance. She was initially treated conservatively with fluid resuscitation and blood transfusion, but her haemoglobin failed to improve in spite of 6 units of blood; the intra-abdominal drain continually drained bloody fluid. She was operated on after 12 h. At laparotomy, apart from significant haemoperitoneum, a large ruptured cyst was found in the lesser sac. It was difficult to determine if the lesion was inflammatory or neoplastic. Distal pancreatectomy with splenectomy was performed. Subsequent examination of the specimen proved it to be a mucinous cystadenoma (Figs. 3 and 4). She made a good recovery and remains well.

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Discussion

Mucinous cystic neoplasms (MCNs) of pancreas represent approximately 10% of pancreatic cysts and 1% of pancreatic neoplasms. These are potentially malignant tumours that occur almost exclusively in women during the fifth and sixth decades of life. These tumours mainly involve the body and tail of the pancreas. The most common presenting symptoms are abdominal pain and a lump in the abdomen. They appear as large, unilocular or multilocular macrocystic lesions.
Focal or circumferential calcification is present in about 10% of cases\(^1\). Unlike intraductal mucinous tumours, mucinous cystadenomas do not communicate with the pancreatic ductal system\(^2\). A histological diagnosis can be reached either from the resected specimen or by cytology obtained by fine needle aspiration (FNA) from the cyst. These tumours are composed of tall mucin-synthesizing cells and a characteristic cellular, ovarian stroma. One of the pitfalls in diagnosis is related to the tendency of the cyst lining cells of these tumours to slough. Epithelial denudation may be extensive, producing a histologic appearance that closely mimics that of a pseudocyst. In highly denuded MCNs, the presence of ovarian stroma is a helpful guide in making the diagnosis\(^3\). Biochemical analysis of cyst fluid may also be helpful in differentiating MCNs from pseudocysts. Pseudocyst contents typically have low viscosity (less than serum), and low concentrations of carcinoembryonic antigen (CEA) (<400 ng/ml), pS2 (<20,000 pg/ml) and mucin-like carcinoma-associated antigen (MCA) (<10 U/ml); MCNs contain viscous fluid with high concentrations of CEA, pS2 and MCA\(^4\).

Spontaneous rupture of a mucinous cystadenoma (MCA) is an exceptionally rare clinical entity. Our review of the literature revealed only two cases of sudden spontaneous rupture of MCA and one case of pseudomyxoma peritonei associated with slow leak from an MCA. One of the patients with sudden rupture was treated with pancreatectomy\(^5\) and the other, who was initially managed by internal drainage with a Roux-Y loop, was not further operated upon due to his age (85 years)\(^6\). The patient with pseudomyxoma peritonei was 89 years old and was managed with supportive care without any operation\(^7\).

**Teaching point**

All pancreatic cysts developing after an abdominal trauma should not be assumed to be pseudocysts. Cystic neoplasms of the pancreas should be considered in the differential diagnosis. Mucinous cystic neoplasms (MCNs), being potentially malignant, need surgical excision. Assuming that a cyst that has developed after an abdominal trauma is a post-traumatic pseudocyst may lead to inadequate treatment. FNA from the pancreatic cyst can help, but it may be negative in the presence of extensive denudation of the cyst wall. In such cases, the presence of residual ovarian stroma and biochemical analysis of cyst fluid may provide useful clues to the neoplastic nature of the cyst.

**References**