Hydatid cyst of the pancreatic tail

Ultrasonic features including application of the Escudero-Nemenow sign

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Summary

Pancreatic involvement by Echinococcus granulosus is rare. A case of hydatid cyst of the tail of the pancreas is presented with the radiological and ultrasonic appearances. Real-time ultrasound examination revealed an alteration in shape of the cyst with respiration, analogous to the Escudero-Nemenow sign in pulmonary hydatid cyst fluoroscopy.

Case report

The patient, a 22-year-old Black man, had complained of epigastric pain and dyspepsia of increasing severity for 4 years.

On examination he was tender in the left hypochondrium, but no mass was palpable. Laboratory investigations showed an eosinophilia of 8%, and a normal serum amylase level of 250 U/I (normal range 70 - 300 U/I). Radiographs of the chest and abdomen, an oral cholecystogram and excretory urogram were normal. Barium meal examination, however, demonstrated a 'cascade' deformity of the stomach (Fig. 1). A barium enema showed displacement of the splenic flexure by a mass between the colon and the stomach (Fig. 2).

Supine ultrasound scans did not demonstrate the mass because of bowel gas, but showed a normal liver. Prone scans revealed a well-defined mass 8 cm in diameter. The latter was relatively anechoic, situated anterior to the left kidney and separate from the spleen. Good through transmission was present (Fig. 3), and multiple curvilinear internal echoes were visible (Fig. 4). Real-time ultrasound scans were remarkable. The mass and the left kidney moved in different time sequences on respiration. Deep breathing produced a peculiar change of shape in the mass, akin to that in a flaccid water-filled balloon rolled between a hand and a table top.

Because radiography and ultrasound had revealed a cyst in the pancreatic tail, a laparotomy was performed. The diagnosis was confirmed at operation, and multiple daughter cysts were evacuated. Histological examination confirmed the diagnosis of Echinococcus granulosus infestation.

Discussion

Pancreatic involvement in hydatid disease is rare. Belding1 gives an Australian incidence of less than 0.1%, while Rosch2 quotes a European figure of 0.3%. Hydatid disease is often multicentric. Balikian and Mudarris3 in a large series of cases of pulmonary hydatid cysts found concurrent hepatic cysts in 30%, but no

Fig. 1. Prone view of the stomach obtained during barium meal examination. The 'cascade' deformity of the greater curvature (arrowheads) and the displacement of the gas-filled splenic flexure are caused by the interposed soft-tissue mass.

Fig. 2. An early film obtained during barium enema examination shows an extrinsic impression on the splenic flexure (arrowheads).
pancreatic involvement. Rosch's states that such involvement is usually secondary to pulmonary or hepatic cysts, and that pancreatic hydatid calcifies. It is interesting, therefore, that in our patient no pulmonary lesions were present and no hepatic or splenic involvement or pancreatic calcification was found on radiographs or ultrasound scans.

'Cascade' stomachs are not always normal. The cascade deformity in our patient was caused by interposition of the soft-tissue mass between the barium-filled stomach and the air-filled body.

We have not unearthed any previous report on the use of diagnostic ultrasound in hydatid disease of the pancreas, although since Leopold's description many articles have appeared on pseudocysts and other pancreatic lesions. Well's has provided illustrations of hepatic and splenic hydatid cysts. A large mass in the pancreatic tail may be totally hidden by bowel gas on supine scans. We could find no 'sound window' through the overlying bowel gas. However, prone scans through the left kidney (as suggested by Haber et al.) showed the mass clearly. In Goldstein and Kartaghada's series of 6 patients with pancreatic tail neoplasms, 3 (2 of which were 7 cm in diameter) were invisible on supine scans but readily seen in the prone position. This scan position is therefore of considerable value and should not be limited to mere measurement of the pancreatic tail, as suggested recently by Meire and Farrant.

The relatively clear outline, the smooth wall, the ovoid shape and the predominant sonolucence with good through transmission were all features in favour of a pseudocyst, although the normal serum amylase level was not. We have seen internal echoes in pseudocysts complicated by haemorrhage and infection, as well as in a pancreatic cysto-adenocarcinoma. In their illustrated case report of the latter, Carroll and Sample show curvilinear internal echoes similar to those seen in our patient, but the overall echogenicity of the cystadenocarcinoma is greater than that of hydatid cyst and the transmission less. The curvilinear echoes in our patient obviously originated from daughter cysts.

The recent advances in real-time ultrasonic equipment have made it as essential as the image intensifier is to the radiologist. This fresh diagnostic field enables study of the alteration in shape of a mass caused by arterial and venous pulsation and respiration, and the movement of the mass relative to surrounding structures. The real-time scans in our patient were vital in the diagnosis in that: (i) the differing degree and timing of respiratory movement of the mass and the kidney showed that they were not intimately attached to each other; and (ii) the unusual rolling motion and continual change of shape of the mass suggested a collection of fluid under low pressure and contained within a flexible capsule. The similarity to the Escudero-Nemenow sign found in fluoroscopy of pulmonary hydatid cysts was quite remarkable.

The contained curvilinear echoes suggestive of daughter cysts on grey-scale scans and the unusual alteration in shape on real-time scans made the diagnosis of hydatid disease almost certain. Ultrasonically guided needle biopsy would have been a simple procedure with which to clinch the diagnosis, but it was considered hazardous in view of the danger of disseminating the possible hydatid disease.

It is now apparent that the Escudero-Nemenow sign can be successfully applied to real-time ultrasound scans and to organs other than the lung. It is, however, unlikely that the sign will be positive in, for example, the liver whose tissue turgor is greater than that of lung or pancreas.

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REFERENCES