Osteosarcoma metastasizing to pancreas confirmed by endoscopic ultrasound-guided fine-needle aspiration

An 18-year-old male with a history of osteosarcoma of the proximal part of the left tibia presented complaining of upper abdominal pain and vomiting. Osteosarcoma had been diagnosed 4 years previously and been treated with amputation and chemotherapy. Laboratory tests revealed mild anemia (hemoglobin 114 g/L, reference range 120–150 g/L), and normal serum amylase and bilirubin. Abdominal computed tomography (CT) showed a cystic–solid mass measuring 4.3 × 4.5 cm on the head of the pancreas (Fig. 1). Thoracic CT revealed another mass in the inferior lobe of the left lung (Fig. 2). No calcification was seen in either lesion. Endoscopic ultrasound (EUS) was carried out using an electronic echoendoscope (GF-UE260-AL5 for radial scanning and GF-UCT240-AL5 for linear scanning; Olympus, Tokyo, Japan) and this showed more clearly a mass containing necrotic areas in the pancreatic head and neck and a dilated pancreatic duct (Fig. 3 and Fig. 4). Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of the pancreatic mass using a 22-gauge needle (EchoTip Ultra; Cook Medical Inc., Winston-Salem, NC, USA) confirmed the diagnosis of metastatic osteosarcoma (Fig. 5 and Fig. 6). Pancreatoduodenectomy and thoracotomy with resection of the left inferior lobe was then performed, followed by chemotherapy. At 7 months postoperatively the patient had recovered from the treatment and remained free of detectable disease.

Osteosarcoma possesses a high potential for metastasis. The most common sites of metastatic osteosarcoma are the lung, pleurae, and bone. Metastasis to the pancreas is extremely rare [1], and pulmonary metastases usually occur before pancreatic metastases [2]. Our case demonstrates that EUS-FNA is a useful method for definitive diagnosis of pancreatic metastasis in a patient with a history of extrapancreatic malignancy.

**Competing interests:** None

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**Fig. 1** Abdominal CT showed a cystic–solid mass on the head of the pancreas in an 18-year-old male patient.

**Fig. 2** Thoracic CT revealed another mass in the inferior left pulmonary lobe.

**Fig. 3** Endoscopic ultrasound showed the mass located on the pancreatic head and neck and a dilated pancreatic duct. Pan, pancreas; pd, pancreatic duct; sv, splenic vein; con, confluence; sma, superior mesenteric artery.

**Fig. 4** Thoracic CT revealed another mass in the inferior left pulmonary lobe.
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