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CASE REPORT

A Case of Primary Vertebral Osteosarcoma Metastasizing to Pancreas

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ABSTRACT

Context Osteosarcoma is the most common malignant bone tumor in children and adolescents and possesses a high potential for metastasis. The most common sites of osteosarcomatous metastases are the lungs, pleurae, and bone; the pancreas being extremely rare. **Case report** We report the computed tomography findings of a rare case of pancreatic metastasis in a 14-year-old boy with primary vertebral osteosarcoma being followed-up for 6 years. On abdominal CT, a huge mass containing necrotic and calcified areas and causing bone destruction was seen between thoracic vertebra 7 and sacral vertebra 1 involving both the vertebrae and paravertebral soft-tissue. A large metastatic mass with an irregular contour was also visualized in the pancreatic head and peripancreatic region having tomographic findings similar to the vertebral mass. Tru-cut biopsy of the pancreatic mass confirmed the diagnosis of osteosarcoma metastasis. **Conclusions** Although extremely rare, osteosarcoma metastasis should be included in the differential diagnosis of pancreatic mass lesions, particularly in patients with a primary tumor.

INTRODUCTION

Osteosarcoma is the most common malignant bone tumor in children and adolescents, and possesses a high potential for metastasis. The most common sites of metastasis of osteosarcoma are the lung, pleurae, and bone; the pancreas being extremely rare. Osteosarcoma predominantly involves the metaphysis of tubular bones, and primary vertebral osteosarcoma is a rare entity [1, 2]. We report the computerized tomography (CT) findings of a rare case of primary vertebral osteosarcoma metastatic to the pancreas.

CASE REPORT

A 14-year-old boy being followed-up for 6 years with a diagnosis of primary vertebral osteosarcoma presented at our hospital with complaining of nausea, vomiting, diarrhea, melena, and jaundice. On physical examination, jaundice of the skin and sclera with paraplegia of the lower extremities were observed. Laboratory examination revealed anemia (hemoglobin: 10 g/dL, reference range: 14-18 g/dL; hematocrit: 28.3%, reference range: 42-52%), increased hepatic enzymes (alanine aminotransferase: 48.9 U/L, reference range: 0-41 U/L; aspartate aminotransferase: 144.3 U/L, reference range: 0-38 U/L), hyperbilirubinemia (total bilirubin: 20.08 mg/dL, reference range: 0-1.10 mg/dL; direct bilirubin: 14.23 mg/dL, reference range: 0-0.30 mg/dL; indirect bilirubin: 5.84 mg/dL, reference range: 0-0.80 mg/dL), and hypocalcemia (calcium: 7.87 mg/dL, reference range: 8.4-10.3 mg/dL).

On abdominal CT using heterogeneous contrast enhancement, a 22x17 cm huge mass containing necrotic and calcified areas and causing bone

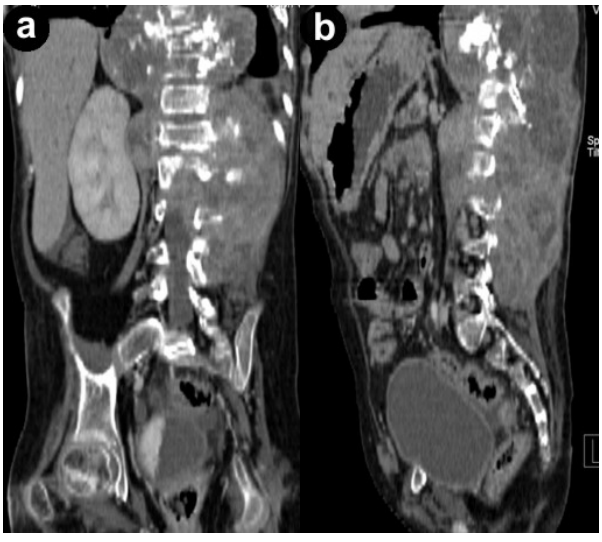

Figure 1. On abdominal CT using heterogeneous contrast enhancement, a huge mass containing necrotic and calcified areas and causing bone destruction is seen between thoracic vertebra 7 and sacral vertebra 1 involving both the vertebrae and the paravertebral soft-tissue.

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Key words Neoplasm Metastasis; Osteosarcoma; Pancreas; Spine

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destruction was seen between thoracic vertebra 7 and sacral vertebra 1 involving both the vertebrae and paravertebral soft-tissue (Figure 1). Also an 8.0x7.5 cm metastatic mass with an irregular contour was detected on the pancreatic head and in the peripancreatic region (Figure 2) having tomographic findings similar to the vertebral mass. Intra-and extrahepatic bile ducts were dilated owing to the compression of common bile duct by the metastatic mass. The pancreatic canal was also dilated (Figure 3). The adjacent duodenal wall was not clearly distinct from the mass, depicting possible invasion, which also explained the cause of the melena. Tru-cut biopsy of the pancreatic mass confirmed the diagnosis of osteosarcoma metastasis; histopathology revealed amorphous pink colored osteoid structures with oval-shaped pleomorphic multinucleated tumor cells.

DISCUSSION

Osteosarcoma is an osteoid producing tumor. The demonstration of anaplastic stromal cells and the osteoid they produce is helpful for the histological diagnosis. The classic type osteosarcoma presents as osteoblastic (50-78%), chondroblastic (4-25%), and fibroblastic (4%). Furthermore, telangiectatic (1-4%), small cell (less than 1%), osteoclast rich (less than 1%), periosteal and parosteal (2%) types may also be observed [1].

Patients having osteosarcoma present with signs and symptoms lasting for a mean duration of 3 months. The most common clinical symptoms are pain (90%), bone expansion (50%), restriction of movement (45%), and pathologic fractures (8%). Metaphysis of long tubular bones are mostly involved: distal femur (50%), proximal tibia (25%), proximal humerus (10%), and proximal fibula (5%). The tumor may rarely originate from the diaphysis of long tubular bones, and axial bones such as the pelvis or vertebrae [1, 2]. The osteosarcoma in our patient was of primary vertebral origin.

Osteosarcoma is the most common malignant bone tumor of childhood and adolescence, and has a high potential for metastasis. The most common metastatic sites are the lungs, bone, and pleurae. Less commonly,

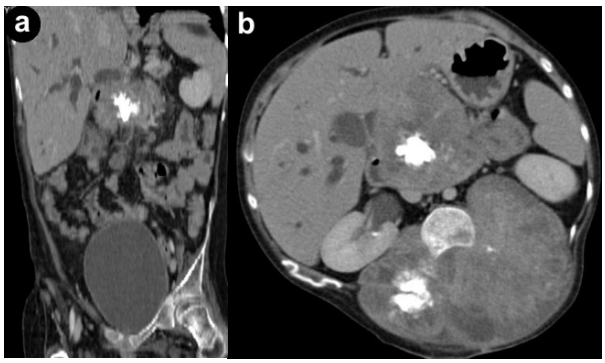

Figure 2. On abdominal CT a large metastatic mass with irregular contour was also visualized on pancreatic head and peripancreatic region having tomographic findings similar to the vertebral mass.

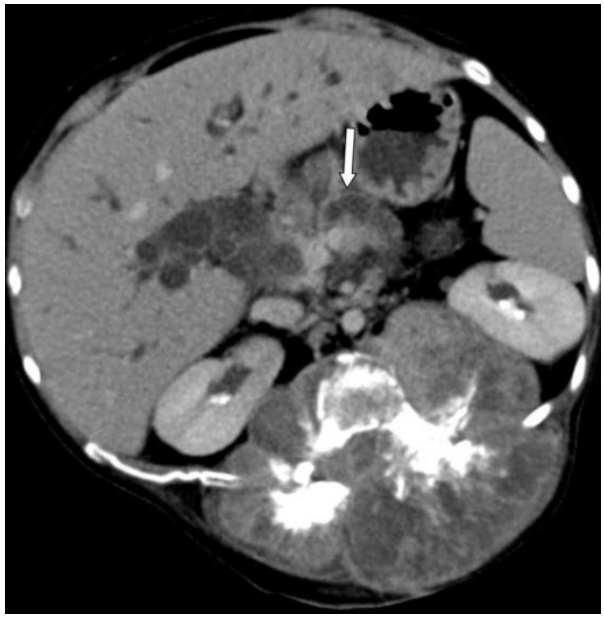

Figure 3. On abdominal CT the pancreatic canal was dilated (arrow).

the liver, brain, and regional lymph nodes are other sites of metastasis. Gastrointestinal system metastases are rare [1].

The metastatic lesions of pancreas are extremely rare, having an incidence of 1.6-11% at autopsies. Tumors metastasizing to the pancreas include lung carcinoma, gastrointestinal tract carcinoma, breast carcinoma, renal carcinoma, melanoma, lymphoma, and (osteo)sarcoma. The metastatic lesions of the pancreas are usually large, well-defined, and solid masses some of which contain cystic components (especially ovarian carcinoma and melanoma) [2, 3, 4, 5, 6]. In our patient, the pancreatic metastasis was a huge solid mass possessing calcifications and necrotic areas.

The treatment of choice for osteosarcoma is surgical excision. Chemotherapy should also be applied before and after the operation in order to decrease the size of the tumor and to prevent its recurrence and dissemination [4, 6]. Our patient died two weeks after the diagnosis of pancreas metastasis.

In conclusion, although extremely rare, osteosarcoma metastasis should be included in the differential diagnosis of pancreatic mass lesions, particularly in patients with a primary tumor.

Conflict of interest The authors have no potential conflicts of interest

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