CASE REPORT

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Chondrosarcoma of the Posterior Mediastinum: A Rare Case Report

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Chondrosarcoma is a malignant mesenchymal tumor originating from cartilage and it produces cartilage matrix. The cartilage of the pelvis and long bones most frequently affected sites. Posterior mediastinum is a rare localization for chondrosarcoma. The symptoms of posterior mediastinum chondrosarcoma are nonspecific. Also, the differential diagnosis of posterior mediastinal masses is extensive. Therefore, radiological imaging plays an important role in the diagnosis. In this report, a case of chondrosarcoma originating from posterior mediastinum was presented with imaging findings.

Key words: *Chondrosarcoma, mediastinum, computed tomography, magnetic resonance imaging*

Posterior Mediasten Kondrosarkomu: Nadir Bir Olgu Sunumu

Kondrosarkom kartilaj kökenli malign mezenkimal tümördür ve kartilaj matriks üretir. Pelvis ve uzun kemiklerin kartilajı en sık etkilenen yerlerdir. Posterior mediasten, kondrosarkom için nadir bir lokalizasyondur. Posterior mediasten kondrosarkomun semptomları nonspesifiktir. Posterior mediastinal kitlelerin ayırıcı tanısı geniştir. Bu nedenle radyolojik görüntüleme tanıda önemli bir rol oynar. Bu yazıda posterior mediasten kaynaklı kondrosarkom olgusu, görüntüleme bulguları ile sunulmuştur.

Anahtar Kelimeler: *Kondrosarkom, mediasten, bilgisayarlı tomografi, manyetik rezonans görüntüleme*

Introduction

Chondrosarcoma is developing in cartilage cells and the second most common primary bone malignancy after osteosarcoma. It accounts for 20 % to 27 % of primary malignant bone tumors (1). The commonest sites of skeletal distribution are the humerus, femur ribs and pelvic bones. Posterior mediastinum is a rare localization for chondrosarcoma. Approximately 10 % of chondrosarcomas are seen as spinal mass and it is mostly seen in the thoracic vertebra (2). Symptoms are nonspecific. Therefore, radiological imaging plays an important role in diagnosis. In this case report, radiological findings of the case of chondrosarcoma originating from the posterior mediastinum were presented.

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Case Report

Informed consent was received for this study from the patient. 37-year-old male patient was admitted to the clinic with pain in the back and chest that continued for 3-4 months. There was no significant feature in his history and family history and laboratory values. Chest X-ray, contrasted thorax Computed Tomography (CT) and thorax magnetic resonance imaging (MRI) examinations were performed radiologically. The chest radiographs showed a posterior mediastinal opacity (Figure 1a, b). Contrast-enhanced thorax CT scan showed left paravertebral mass lesion at the level of the thoracic 5-6 vertebrae. Intermediate plans were obliterated between the lesion, the vertebral corpus, and the adjacent costa. The lesion was 6x7x8 cm in size and contained calcifications. The lesion was low-density (30-35 HU) and well-circumscribed. It also did not cause marked bone destruction. (Figure 2a, b). Thorax MR imaging was requested to evaluate spinal involvement. The mass lesion was heterogeneous isointense on T1-weighted images and heterogeneously hyperintense on T2-weighted images. The Mass had hypointense septa on T2-weighted images and the lesion was restricted on diffusion-weighted MRI. In addition, peripheral contrast enhancement was observed on the mass (Figure 3a-d). The mass was surgically totally excised with a left thoracotomy incision. As a result of histopathological examination, it was reported as low-grade chondrosarcoma (Figure 4). No clear pathological finding was detected on the post-operative control thorax of the patient.

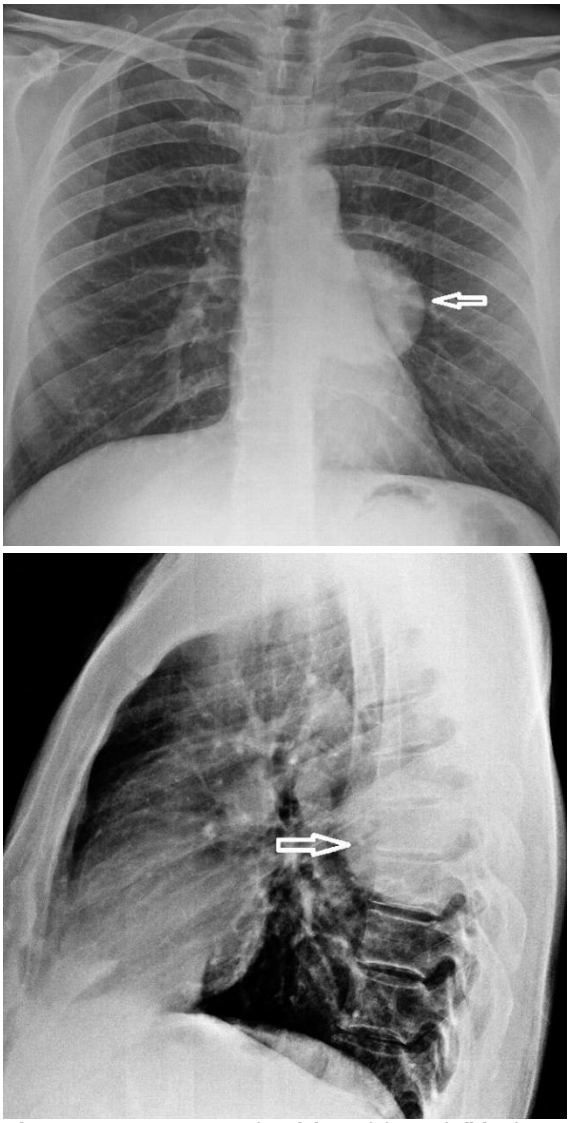

Figure 1. Posteroanterior **(a)** and lateral **(b)** chest X-rays showing radiopacity on the posterior mediastinum (arrow).

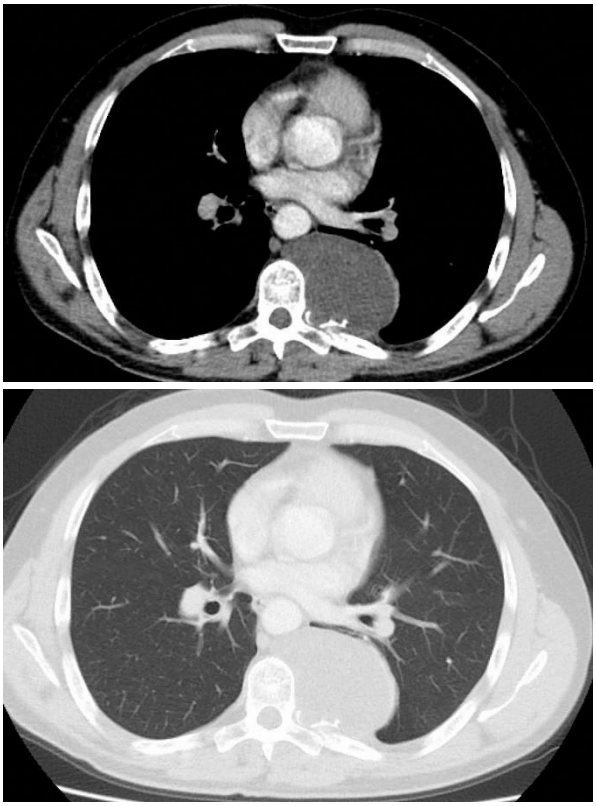

Figure 2. Contrast-enhanced thorax Computed Tomography shows thoracic paravertebral soft tissue mass, associated with the ring and arc pattern of calcifications on axial plane (a, b).

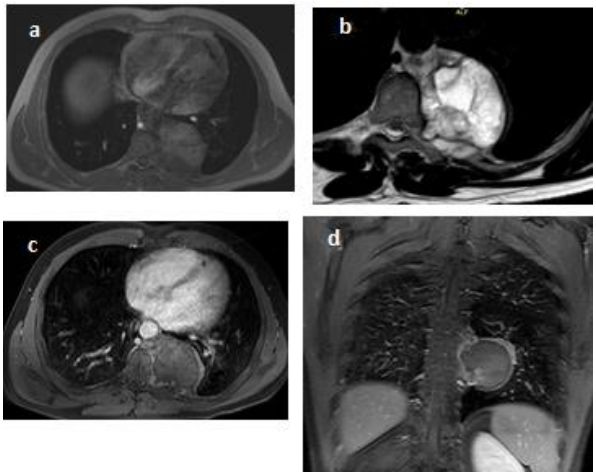

Figure 3. Magnetic resonance imaging shows heterogeneous paravertebral soft-tissue mass on axial T1 **(a)** and axial T2 **(b)** sequence and also peripheral contrast enhancement was observed on the axial **(c)**, coronal **(d)** sequence on the mass.

Discussion

Calcifications on the ring and arc pattern are typical for the chondroid matrix. The paravertebral mass included calcifications on the ring and arc pattern on CT images. (3, 4). Extension into the surrounding soft tissue and cortical destruction of the adjacent bone are typical for chondrosarcoma (3-5). In our case, no obvious bone destruction wasattributed to the low grade of chondrosarcoma. The mass lesion was hypointense compared with muscle. Hypoatenuation may be associated with the cystic content of the hyaline cartilage component. The mass was heterogeneous isointense on T1-weighted MR images and heterogeneously hyperintense on T2-weighted MR images. The lobule structure of the tumor is due to the fibrovascular septa (6). Imaging findings were compatible with chondrosarcoma.

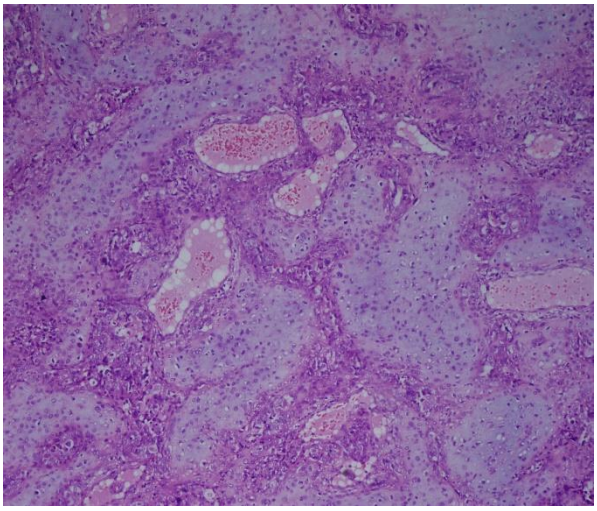

Figure 4. Histopathological assessment revealed undifferentiated spindle cells and focal areas of well-differentiated cartilaginous tissues (hematoxylin and eosin stain, magnification ×100).

Chondrosarcoma grows slowly and symptoms develop slowly. The peak period of chondrosarcoma is 30-44 years old (3-5). The age of our patient was also 37 years old.

Clinical features of chondrosarcoma are non-specific. Pain is the most common symptom (3). Palpable soft tissue mass is seen in 28-82% of patients. Pathological fractures occur in 3-17% of patients (3, 5).

Approximately 10% of chondrosarcomas are seen as spinal mass (2). It is mostly seen in the thoracic vertebra and more common in male (2). Patients are usually middle-aged and have back pain and/or neurological symptoms (7). The neurological symptom rate is 45% in patients with spinal chondrosarcoma (3-5). These paraspinal masses may include destructive lesions and calcifications (2).

In the differential diagnosis of chondrosarcoma, enchondroma comes first. It is difficult to distinguish them with imaging. However, pain is more often associated with chondrosarcoma. Soft tissue mass and cortical destruction are more likely for chondrosarcoma (8). Enchondromas are intramedullary cartilage neoplasms with benign imaging features. Enchondromas comprise lobules of mature hyaline cartilage. Cartilaginous lobules may contain calcification in the ring and arc pattern (9). Osteochondromas demonstrate medullary continuity and the cartilage cap (4). It may be thin or thick. Ring and arc calcifications may accompany. Chordomas can cause destructions in the vertebral corpus and may contain soft tissue mass. Calcifications are usually located in peripherally (4). Chordoma is the most common non-lymphoproliferative malignant tumor in adult vertebrae. The second most common is chondrosarcoma (4, 5). Chondroblastomas are benign cartilaginous neoplasm and rare. It characteristically arises in the epiphysis of a long bone and rarely seen in the spine. Chondroblastoma is seen as well-defined lytic lesion with thin sclerotic rim (10). Bone metastasis is a less likely diagnosis. Because the patient has no primary tumor history and has a single lesion. Paraspinal nerve sheath tumors cause vertebral body scalloping. But calcification is seen rarely (11). Also, extramedullary hematopoiesis should be considered in differential diagnosis. Most common intrathoracic finding is a posterior mediastinal mass. These paraspinal masses may be either unilateral or bilateral and have smooth, sharply-delineated, often lobulated margins. Fat can be seen if chronic burnt out lesion is there but calcification is very atypical.

Although the patient's mass lesion contains coarse calcification, the lesion was mostly hypodense. This condition distinguishes chondroid neoplasms from osseous neoplasm (osteoblastoma, osteoid osteoma, and osteosarcoma) (4).

The differential diagnosis of posterior mediastinal masses is extensive. Although posterior mediastinum is a rare localization for chondrosarcoma, our patient had radiologic findings of chondrosarcoma. Ring and arc calcifications and the heterogeneous hyperintense T2 signal of the paraspinal mass should suggest chondrosarcoma. The clinical and radiological findings were consistent with chondrosarcoma. The mass lesion was totally excised and histopathologically chondrosarcoma was diagnosed.

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