

Chondrosarcoma Presenting as a Posterior Mediastinal Mass: A Report of a Rare Condition

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Abstract

Case Report

Introduction: Reports of mediastinal chondrosarcoma are very rare. We report the first case of primary chondrosarcoma of the posterior mediastinum in our department which was a successful R0 resection by Uniportal VATS of this rare entity. **Case Presentation:** A 39-year-old woman with a medical history of cholecystectomy four years ago, without any history of personal or familial cancer. The patient complains of insomnia and posterior chest pain with a VAS (8/10) gradually increasing over 3 months. The clinical examination was strictly normal, with no palpable chest mass, and the lymph node areas were free. Vital values were normal. On the chest CT scan, we noted a posterior mediastinal mass of tissue density and measured (43 x39x39 mm) next to the costovertebral groove level at D4D5D6. An MRI dorsal lumbar spine was then requested which revealed a posterior mediastinal mass, located on the left costovertebral level at D5D6, with regular contours without infiltration of the spinal cord, measuring (47x51x49 mm), in T1 hyposignal and T2 hypersignal. This appearance was suggestive of a spinal schwannoma. After a multidisciplinary consultation, the decision was to perform a complete resection of this mass by uniportal vats, which was successfully achieved. Histological examination revealed a mediastinal chondrosarcoma with R0 resection margins. The patient is currently in perfect health and no longer feels chest pain after 3 months of surgery and the control CT scan shows no recurrence.

Discussion: Primary chondrosarcomas arising in the mediastinal compartment are exceedingly rare. The clinical manifestations of patients with any type of mediastinal mass is that of compression of adjacent structures and consequently, these individuals may present with symptoms of dyspnea, cough, chest pain, back pain, or other non-specific symptoms. On the other hand, several patients will be asymptomatic and their mediastinal tumor may be discovered during a routine radiographic examination. Historically, the subtypes of chondrosarcomas described in the mediastinum show the same spectrum as those that have been described in bone. Grossly, when these tumors occur in the anterior mediastinal Compartment, they appear to be larger than those in the posterior mediastinum. The 5-year OS for primary mediastinal chondrosarcoma is poor, but surgical resection can be successful and should be considered whenever possible. Radiation may offer an important survival advantage but the contribution of chemotherapy remains unclear. **Conclusion:** Primary mediastinal chondrosarcomas are a very rare entity, requiring multidisciplinary management, their treatment remains surgery with R0 excision which constitutes the gold standard with regular clinical and radiological monitoring because recurrence is very frequent, especially in the posterior form.

Keywords: Posterior Mediastinal Mass, Chondrosarcoma, Uniportal VATS, Thoracic surgery.

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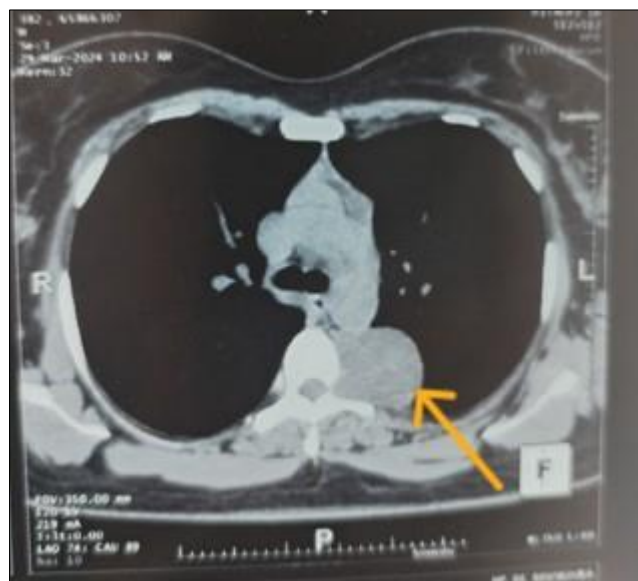
INTRODUCTION

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 [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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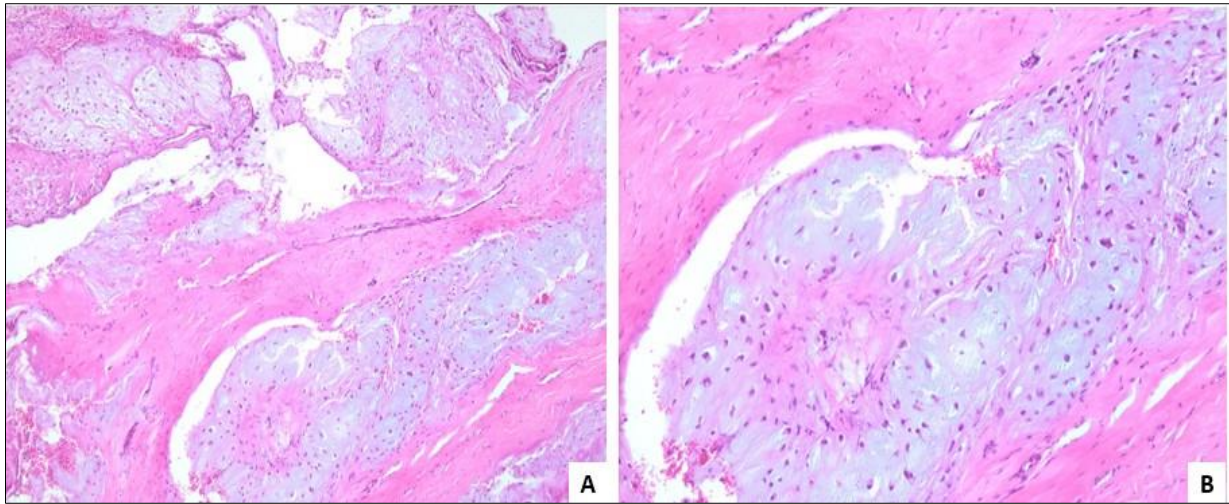


Figure 3: Histology of the specimen, using standard hematoxylin-eosin staining, showing a tumor proliferation of moderate cellular density, organized into chondroid lobules separated by dense fibrous tracts (photo A, x100). The tumor cells are stellate, with scant basophilic cytoplasm and hyperchromatic nuclei (photo B, x200)

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 was attributed to the low grade of chondrosarcoma. The mass lesion was hypointense compared with muscle. Hypoattenuation 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, 7]. Imaging findings were compatible with 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 [10]. 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 [11]. Chordoma is the most common non-lymphoproliferative malignant tumor in adult vertebrae. The second most common is chondrosarcoma. 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. 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

hematopoietic 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) [12].

Chondrosarcoma grows slowly and symptoms develop slowly. The peak period of chondrosarcoma is 30-44 years old [13]. The age of our patient was also 37 years old. Clinical features of chondrosarcoma are non specific. Pain is the most common symptom [14]. Palpable soft tissue mass is seen in 28-82% of patients. Pathological fractures occur in 3-17% of patients [15]. Approximately 10% of chondrosarcomas are seen as spinal mass. It is mostly seen in the thoracic vertebra and more common in male. Patients are usually middle-aged and have back pain and/or neurological symptoms. The neurological symptom rate is 45% in patients with spinal chondrosarcoma. These paraspinal masses may include destructive lesions and calcifications.

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.

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 by Uniportal VATS approach and histopathologically chondrosarcoma was diagnosed.

CONCLUSION

Mediastinal mesenchymal chondrosarcoma has been noted in the literature with only a few cases being in the posterior mediastinum. This diagnosis may be under diagnosed. Given the paucity of uniform treatment regimens and clinical trials outcome data, it is difficult to determine exact prognosis and treatment recommendations.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author Contribution

S. HAFIDI: study design, data collection, data analysis, and writing.

A. MELLOUKI: study design, data analysis.

N. ID EL HAJ: study design, data analysis.

M.KARKOURI: study design, data collection, and analysis.

S. BOUBIA, M. KARKOURI, M. RIDAI: data analysis and reviewers.

Research Registration: N/A

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