An Unusual Case of Cavernous Hemangioma of the Rib in a Young Man with Lung Tuberculosis: A Brief Review and Case Report

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Abstract

Hemangiomas are benign vascular tumors that usually involve the liver, skin, eyes and central nervous system. Hemangioma of the bone is unusual and is generally observed in the vertebrae or skull while hemangioma of the costae is extremely rare. Hemangioma of the rib and chest wall tuberculosis may be misdiagnosed as chest wall tumors. We herein report a case of hemangioma of the rib with a tuberculosis infection of the pleura.

Key words: cavernous hemangioma, tuberculosis

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Introduction

Hemangiomas are slowly growing neoplasms that account for 1% of bone tumors (1). They are predominantly found in the spine and skull and are uncommonly observed in the ribs or long bones (2, 3). Hemangiomas usually expansively grow and disrupt the cortex thus they can be misdiagnosed as aggressive tumors or infectious processes (4). Mycobacterium tuberculosis infection with drug resistant species is highly prevalent in southeastern Turkey (5). Mycobacterial infection of the thoracic cage is rare and is difficult to discern clinically and on radiographs (6). We herein present the case of a young man from southeastern Turkey with coincidentally detected hemangioma of the rib and lung tuberculosis with pleural involvement.

Case Report

A 30 year old man was admitted with coughing and chest pain lasting for six weeks. A physical examination of the patient was unremarkable. A chest X-ray examination revealed a lesion measuring 6 cm in diameter with sclerotic margins on the eighth right rib (Fig. 1). A computed tomographic examination revealed a mass measuring 6×4 cm in size on the eighth rib, pleural nodularity and a cavitary lesion in the right lung parenchyma (Figs. 2, 3). Except for a slightly elevated sedimentation rate (sedimentation rate: 28 mm/h), all laboratory data, including biochemical parameters and hemogram findings, were within the normal ranges. The patient had no history of thoracic surgery or trauma, although his family history was positive for lung tuberculosis. Three samples of sputum were obtained to assess the presence of M. tuberculosis. Acidfast bacilli were positive on a sputum smear examination. The Bactec system confirmed the diagnosis. Antituberculostreatment was initiated. Although the hemostatic parameters were normal, a biopsy procedure was complicated by hematoma of the rib. We performed surgery and complete resection of the lesion combined with an incisional biopsy of the pleural nodularity (Fig. 4). The patient’s postoperative course was uneventful. A histopathologic examination revealed a lesion composed of dilated blood vessels with thick vascular walls containing smooth muscle (Fig. 5). A pleural biopsy indicated multiple lesions...
granulomas with epitheloid cells and caseating necrosis (Fig. 6). A pathologic examination confirmed the diagnosis of rib hemangioma and chest wall tuberculosis. At the sixth month of follow-up, the patient was found to be free of symptoms and any evidence of recurrence.

**Discussion**

Eightynine percent (89%) of rib tumors are malignant. The differential diagnosis of rib lesions includes metastatic deposits, infections, fibrous dysplasia, osteochondroma, eosinophilic granuloma, chondrosarcoma, osteogenic sarcoma, Ewing sarcoma and hemangioma (7).
Hemangiomas may be of cavernous, capillary or mixed types. Cavernous hemangiomas are composed of dilated vessels lined by endothelial cells (7). These lesions originate from intraosseous tissue and form extraosseous components, leading to bone expansion (8). The aggressive nature of bone hemangiomas can mimic that of malignant lesions (2).

Patients with bone hemangiomas are usually asymptomatic, and the lesions are incidentally found on radiographic examinations. Affected patients usually have solitary hemangiomas however approximately 20-30% of patients may have multiple lesions (9). The presence of fat density on MRI examinations, well-defined rather than infiltrative borders and sclerotic margins and a honeycomb appearance are highly suggestive of bone hemangiomas (10-12). Bone hemangiomas commonly exhibit hypointensity on T1 images and hyperintensity on T2 images depending on the quantity of vascularity and adipose tissue (2).

Tuberculosis infection may present with a variety of radiographic findings, including upper zone lung infiltrates, lower or middle zone consolidation, nodular or miliary disease, and intrathoracic adenopathy and/or pleural effusions. However, upper zone fibronodular shadows involving one or both apices are seen in most of cases (13). Sputum smears and cultures play a crucial role in the diagnosis of M. tuberculosis infection. The presence of acidfast bacilli on microscopic examinations of respiratory secretions supported by suitable clinical, epidemiologic and radiographic findings is the mainstay of diagnosis. However, patients with a tuberculosis infection may present with uncharacteristic radiographic findings and negative microscopic results (14).

Although radiological techniques provide complementary data on the differential diagnosis of hemangima, performing a biopsy and/or surgical resection is essential for making a definite diagnosis (8). Our patient experienced hematoma of the rib during the biopsy procedure. Subcutaneous and visceral hemangiomas may be associated with thrombocytopenia and bleeding. Platelets are activated within the hemangima and subsequently removed from the circulation. In addition, mild disseminated intravascular coagulation (DIC) may occur with the consumption of fibrinogen (15). Therefore, hemangima of the rib may lead to excessive bleeding either spontaneously or subsequent to surgical intervention.

Tuberculosis, as well as hemangima should therefore be considered in patients with atypical sites of skeletal involvement or parenchymal lesions of the lungs, and the diagnosis should be confirmed based on histopathological examinations of resected, aspirated or curetted material. Carefully evaluating every radiological abnormality is crucial, and even when the diagnosis of the disorder is confirmed, possible accompanying disorders should also not be overlooked.

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References