

Simultaneous Bilateral Secondary Pneumothorax



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ABSTRACT

Simultaneous bilateral pneumothorax is a very rarely condition that is mainly seen in patients with underlying metastatic disease or lung cancer. It is estimated that < 1% of all cases of spontaneous pneumothorax are tumor-associated and most commonly due to the metastatic osteogenic or soft tissue sarcomas .

Key words: *Simultaneous bilateral secondary pneumothorax, osteosarcoma*

Aynı Anda Görülen İki Taraflı Sekonder Pnömotoraks

ÖZET

Aynı anda görülen iki taraflı pnömotoraks, altta yatan metastatik hastalık veya akciğer kanseri olan hastalarda görülen oldukça nadir bir durumdur. Spontan pnömotoraks olgularının %1'inden azının tümör ilişkili oluşu tahmin edilmektedir ve çoğunluğu metastatik osteojenik veya yumuşak doku sarkomlarına bağlıdır.

Anahtar kelimeler: *Aynı anda bilateral sekonder pnömotoraks, osteosarkom*

INTRODUCTION

Spontaneous pneumothorax is a rarely occurrence of primary lung cancer or metastasis. All cases of spontaneous pneumothorax are tumor-associated and metastatic osteogenic or soft-tissue sarcomas are associated most commonly with pneumothorax significantly in the setting of cytotoxic chemotherapy or radiotherapy. Pneumothorax after chemotherapy has been reported only in cases with osteogenic sarcoma, synovial sarcoma, fibrosarcoma, germinal tumors, and lymphoma with lung metastasis (1-4).

CASE

11-year-old boy had osteogenic sarcoma of left distal femur (Figure 1). Although the patient was scheduled for amputation of the primary tumors, the parents re-

fused the operation and go ahead the adjuvant chemotherapy. About 12 months after the chemotherapy, he presented with acute onset of dyspnea. Physical examination revealed extreme agitation, and tachypnea. Bilateral hyperresonant percussion notes and diminished breath sounds were detected on auscultation. An x-ray film of the chest was taken and it showed bilateral pneumothorax (Figure 2). Computed tomography of the thorax demonstrated peripheral pulmonary nodules and bilateral pneumothorax (Figure 3). The patient was transferred to the operation room, where bilateral chest drains were inserted promptly. This led to a dramatic clinical and radiological recovery (Figure 4). The patient discharged from the hospital after pull out the drain. Removal of the primary tumor and bilateral metastectomy via video-assisted thoracoscopy were recommended to the parents.

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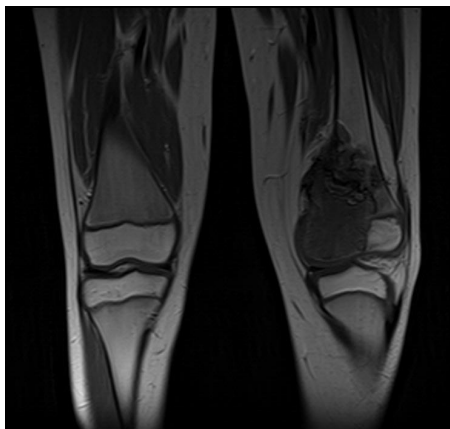


Figure 1. Magnetic resonance imaging is showing diffuse osteolysis of the left distal femur. Biopsy revealed osteosarcoma.

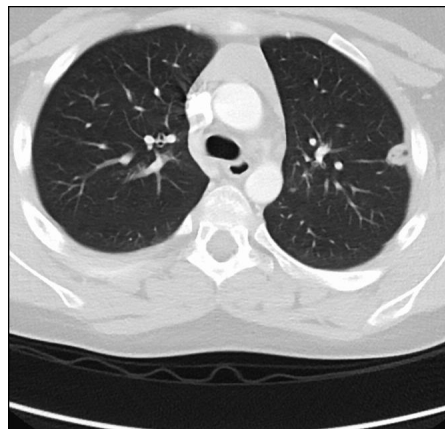


Figure 3. Chest computed tomographic image is showing pulmonary metastases.

DISCUSSION

Osteosarcoma lung metastasis are commonly occurred and spread of disease include symptomatic complaints, cough, dyspnea, chest pain and pneumothorax (1). pneumothorax caused by metastasis represents less than 2% of whole spontaneous pneumothorax cases. Approximately 80% of secondary spontaneous pneumothorax cases are associated with metastatic osteogenic sarcoma. Patients with metastatic osteosarcoma in the lung have a higher risk of spontaneous pneumothorax than patients with other carcinomas (2,5). Bilateral pneumothorax may require extended hospital stay and could result in death. Tube drainage is necessary and effective for most cases

of bilateral pneumothorax improvement.(5) (Figure 4). There are several mechanisms underlying pneumothorax. Firstly including tumor tissue rupture at the lung periphery, a check valve mechanism due to bronchiolar obstruction by tumor tissue, and secondly direct metastasis to a pulmonary cystic lesion (2). Treatment of pneumothorax is urgent if it is simultaneous and bilateral. Some reports have suggested that chemotherapy could increase the relative risk, due to necrotic changes, from 14%, and the period from chemotherapy initiation to pneumothorax onset ranged between first and seventh days(6). In our advice for the thoracic surgeons, firstly controlled of the primary tumor and also resec-



Figure 2. Posterior-anterior chest radiograph is showing bilateral pneumothorax.

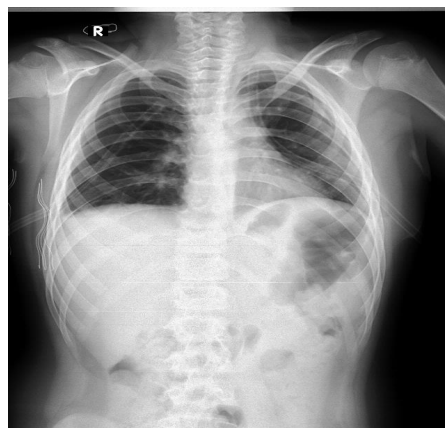


Figure 4. Posterior-anterior chest x-ray is showing lung expansion after tube drainage.

tion of the lung metastasis. A spontaneous pneumothorax in a patient with a malignant disease should raise the suspicion of occult pulmonary metastases. The lung is the most frequent site for metastasis of osteosarcoma. Moreover, pulmonary metastasis has a major factor on the prognosis of those patients. The 5-year overall survival rate for patients who underwent a first pulmonary metastasectomy for Osteosarcom was as high as 40% in several reports. Complete surgery is an essential component of curative second-line therapy. Chemotherapy, particularly chemotherapy with more than one agent, may contribute to limited improvements in outcome (6). It is necessary to follow patients with osteosarcoma for their life threatening pulmonary complication such as simultaneous bilateral pneumothorax and keep metastases in mind when pulmonary nodules are investigated. Chest computed tomography detects minimally pneumothorax or subpleural lung metastasis an emergency situation and early diagnosis and management can improve prognosis and quality of life of the patient.

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