

Osteosarcoma of Rib Treated with Regorafenib: A Case Report

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Abstract

Osteosarcoma is a common primary malignant bone tumor in young adults presenting with back and chest pain complaints. Here, we presented a rare case of osteosarcoma.

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Introduction

Osteosarcoma is the most common primary malignant bone tumor among young adults.¹ It is more frequently seen in men than women. It usually originates from the metaphysis of long bones. Primary osteosarcoma rarely occurs in the rib. Modalities such as surgery, chemotherapy, and radiotherapy form the basis of the treatment, which should be planned in a multidisciplinary way. In this report, a case of osteosarcoma originating from the rib and spreading to the cervical and thoracic vertebrae is discussed.

Case Report

A 23-year-old female patient was admitted to our center with left-back pain for almost a year. In thoracic computed tomography (CT), a mass originating from bone with mixed density, causing erosion in the cortex, and covering the entire posterior and lateral arches and most of the anterior arch of the 1st left rib was detected (Figure 1). The mass at the level of T1 vertebra was compressing the left lung apex. The 1st rib, expanded by the mass, was completely removed by dissection. Resected material was reported as 8x8 cm osteoblastic type osteosarcoma and surgical margins were





Figure 1. X-ray graph before diagnostic surgery.

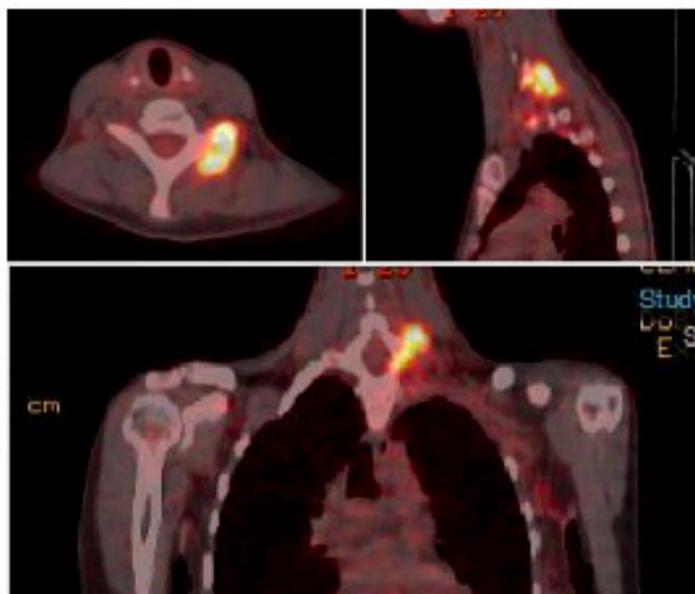


Figure 2. Systemic evaluation after diagnostic surgery.

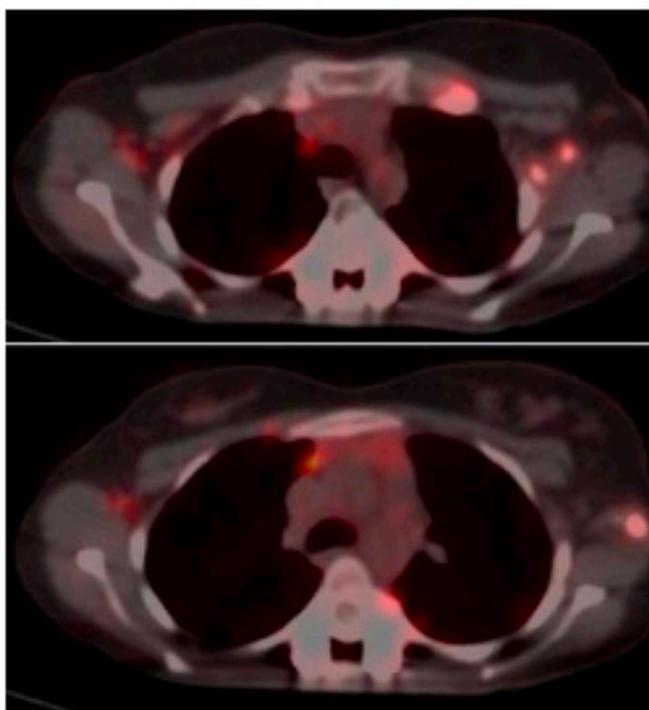


Figure 3. Recurrence at left axilla and left 1st costochondral junction in PET-CT.

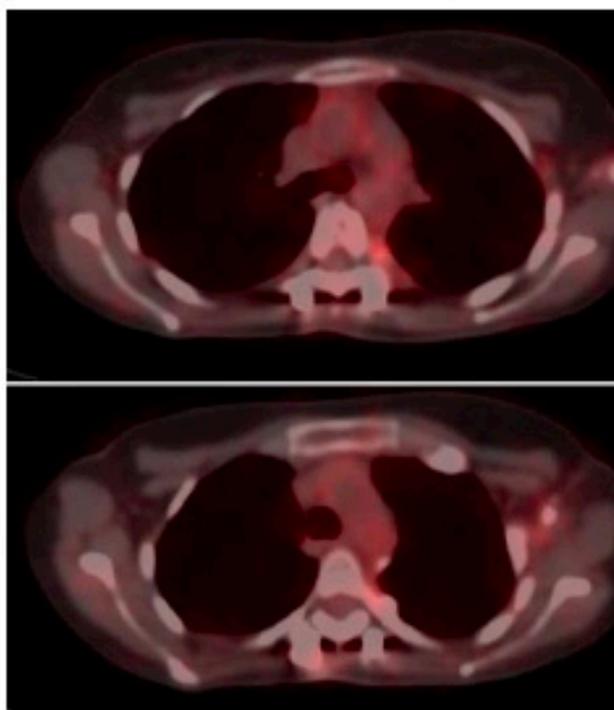


Figure 4. PET-CT images after local radiotherapy and regorafenib treatment.

positive. The PET-CT for systemic evaluation showed a hypermetabolic mass (Suv-max 12-16) of 27x28 mm in the left half of the T1 vertebra corpus and the left transverse process of the C7 vertebra (Figure 2). Thereon, the patient was treated with doxorubicin and cisplatin. The PET-CT following the third cycle of chemotherapy demonstrated a partial response, and the patient was evaluated as

resectable. All of the C7, T1, and T2 vertebrae and the posterior arch of the 2nd left rib were removed with en bloc resection. The mass was reported as 6x4.5 cm osteosarcoma. Surgical margins were positive, and necrosis was 10%. Radiotherapy was planned for the patient since the margins were positive, with the low chemotherapy response, interpreted as grade 1. 45 Gy radiotherapy was

administered to the cervicodorsal region in 25 fractions. The chemotherapy regimen was changed, and docetaxel and gemcitabine were started. During the follow-up after adjuvant chemotherapy, a nodular lesion was detected in the left axilla on CT in the 4th month, and the biopsy was compatible with recurrence. PET-CT scan showed increased metabolic activities within nodular lesions in the left axilla and 1st left costochondral junction (Figure 3). Regorafenib was started after local radiotherapy. The patient continues to be followed up in the tenth month under regorafenib treatment (Figure 4).

Discussion

Osteosarcoma is the most common malignant tumor with the origin of bone in adults. Although malignant bone tumors located in the chest wall are most commonly originating from the ribs, primary osteosarcoma of the ribs is extremely rare, its prognosis is worse than osteosarcoma from long bones and there is a limited number of cases in the literature. Back and chest pain is the most important factors for clinical presentation. En bloc resection of the mass and the negative surgical margins are the main factors determining the prognosis of the disease. Survival is aimed to be increased with neoadjuvant and adjuvant chemotherapy. Radiotherapy may be considered in patients with positive surgical margins after resection of large masses. There are various studies showing the efficacy of cytotoxic therapy with regorafenib in recurrent cases.^{2,3} In patients presented with back and chest pain, there may be delays during the diagnosis of osteosarcoma of the rib because there are other reasons to be considered first. In the patient discussed in this report, the tumor has already reached large

dimensions at the time of diagnosis because the clinical finding was only pain. Upon surgery, postoperative surgical margins were positive, and she experienced progression despite cytotoxic chemotherapy and radiotherapy. With regorafenib which is started later, the disease was controlled with partial response.

In conclusion, osteosarcoma of the rib is rare, and recurrence is common. Survival can be prolonged with a multidisciplinary approach including surgery, systemic chemotherapy, targeted agents, and radiotherapy.

Conflict of Interests

Authors declare that there are none.

Acknowledgment

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