

A Case of Osteosarcoma Presenting Primarily as Breast Mass

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Osteosarcoma presenting as a breast mass is a rare disease. We present a case of a 22year old female who was admitted to our hospital with a complaint of left sided breast mass of 6months duration. On physical examination she had a huge mass on the left breast with no skin lesion and no lymph nodes. Pathology from biopsy showed osteosarcoma. Here we report the findings in detail along with current review of literature.

Key word: Osteosarcoma, Breast

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Introduction

Primary osteosarcomas are one of the most common malignant bone tumors principally affecting the long bones in children and adolescents (1). The most common site of involvement is the intramedullary cavity of metaphysis or diaphysis of the long bones. Rare cases have been reported from ribs, occipital bone, mandible, and intracranial sphenoid bone (2). We report this entity arising in atypical location and presenting as a breast mass.

Case report

A 22yr year old female patient from the rural region of Ethiopia, Dese, was admitted to our hospital with a left sided breast mass of 6 months duration. The mass grew fast in size over the three months prior to her admission. She also complained of back pain starting from 8 months back for which reason she was taking analgesics. The pain was in the upper mid back region and was dull aching in type with no radiation. She is married and is educated up to 10th grade is Muslim by religion and a teacher in primary school. Her age at menarche was 14 and had taken oral contraceptive pills for one year. She has given birth 1yr back and was breast feeding her child for 6months before the mass appeared.

On physical examination she was emaciated and had a 24cm x 21cm mass on her left breast which was fixed to the chest wall with visible distended veins; there was no skin lesion and no palpable lymph nodes in the axilla (Figure 1 and Figure 2).

On her laboratory investigations the pertinent positive finding was an elevated alkaline phosphatase which was 3478. FNAC result from another center showed malignant cells and was reported as Breast carcinoma. And she was initially admitted for mastectomy prior to further work up.

CT scan of the chest was done on her 5th day of admission and it showed a left side chest wall mass which is growing towards the breast. In the Radiological picture the mass could be differentiated from the breast tissue on most part of the mass and the breast was pushed anteriorly and thinned out. On a few slides of the CT the demarcation between the mass and the breast was difficult to appreciate. There was also involvement of the ribs along the length and vertebral metastasis on T2 up to T9 vertebrae (Figure 3).

Since the lesion was unresectable an incisional biopsy was done. The pathologic result showed solid sheets of moderately pleomorphic cells with high N:C and vesicular nuclei forming osteoid

material with characteristic neoplastic cells and dense fibrous stroma with oval spindle cells with hyperchromatic nuclei at areas having myxoid change. There is also large area of necrosis.



Figure 1



Fig 2

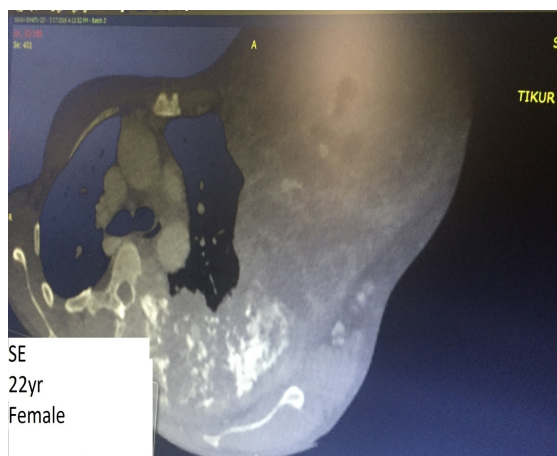


Figure 3

Discussion

Osteosarcomas (OS) are the most common primary malignant bone tumors exclusive of multiple myeloma. They principally arise in the metaphyses of the long bones. The peak incidence of osteosarcoma is in the second decade of life with another peak occurring in older individuals after radiation or Paget's disease. Short bones, spine, and flat bones, such as, the ribs are less frequently involved. Secondary osteosarcomas may develop in unusual bones, such as, vertebra and flat bones in patients treated with chemotherapy¹.

When it comes to the chest wall the majority of chest wall Osteosarcomas were related to previous irradiation to the chest in older patients. But a few cases of osteosarcoma of the rib have been reported in older children ranging from 7 to 13 years of age. The youngest patient with osteosarcoma of the rib reported in the literature to date was a 7-year-old girl. It appears that the more malignant type of osteosarcoma occurs in younger children. The commonest presentation of osteosarcoma of the rib is pain and a palpable chest wall mass. The condition poses a significant diagnostic challenge⁴.

The diagnosis is based on history, imaginings and histopathology. Although a CT scan and magnetic resonance imaging (MRI) can evaluate the exact location and extent of involvement of the bone and adjacent structures, they may not be useful in defining the exact nature of the tumor. Histopathological diagnosis is imperative in instituting a definite therapy. The classic feature of a ramifying osteoid matrix laid down by the neoplastic cells clinches the diagnosis and enables one to exclude all the other possible differentials². The diagnosis becomes even more difficult with extra-skeletal form of osteosarcoma. Extra-skeletal osteosarcoma (ESOS) is a very rare form of OS (~5%) located in the soft tissues without connection to the skeleton. Its usual aspect is that of a large and deep high-grade bone-forming sarcoma, developed in the limbs of patients older than 40 years³. In cases of osteosarcoma arising from the chest in a study done on 38 cases it was shown that of the 38, 13 cases (34%) including the post-radiation osteosarcoma arose in the rib and 12 cases (32%) arose in the scapula⁵. So although this tumors are relatively rare they should be part of the differential diagnosis.

In addition in cases like our patient where the mass is arising from the breast region additional differentials include but are not limited to malignant phyllodes tumors with malignant heterologous differentiation, osteosarcomatous differentiation in carcinoma of the breast (metaplastic carcinoma), metastatic osteosarcoma and primary osteosarcoma of the breast. Primary osteosarcoma of the breast is a rare tumor, which is indistinguishable from conventional osteosarcoma of the bone and other extra-skeletal sites using histological examination. The presentation of breast osteosarcoma usually occurs at an advanced age, in contrast with skeletal osteosarcomas where the patients are younger⁸. Approximately, 150 cases of this pathology have been reported in the literature since 1957. The mean age of breast osteosarcoma is 64.5 years in contrast to skeletal osteosarcoma which occurs in younger patients. Due to the rarity of the disease, its clinical features and optimal treatment remain unclear⁷. Given the array of possible differentials a combined effort with radiological and clinical correlation is trustworthy and may serve to avoid pitfalls in the diagnosis.

In our patient although the diagnosis had been delayed significantly the young age of the patient, the imaging result as well as the pathological picture pointed towards osteosarcoma of the chest wall. With regards to prognosis most Osteosarcomas from flat bones are not associated with metastasis and the outcome depends on the extent of surgical resection¹. Unfortunately our patient already had metastasis which has significant implication with regards to prognosis because of the delay in the diagnosis and is taking radiation and chemotherapy.

Conclusion

We report a case of osteosarcoma of the ribs presenting as a breast mass. This case is important and shows physicians must keep this diagnosis in mind whenever breast mass is present. Final diagnosis of this rare entity can be made only on biopsy. Since an early diagnosis improves survival patients with suspicious lesions should be extensively investigated early.

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