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Rare presentation of giant cell tumor of bone in the lateral end of the clavicle

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Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
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Patient: Male, 30
Final Diagnosis: Giant cell bone tumor
Symptoms: Bone swelling • pain
Medication: —
Clinical Procedure: —
Specialty: Oncology

Objective: Unusual clinical course

Background: Cooper first reported giant cell tumors (GCT) in the 18th century. The clavicle is a rare site for tumors. Metastatic tumors are more common than benign. This is the first case of GCT lateral end of clavicle to be reported in the literature.

Case Reports: A 30-year-man was admitted with a 1-year history of progressively increasing swelling and pain over the left lateral end of the clavicle.

The plain radiograph and PET scan revealed an expansile radiolucent lesion in the lateral end of the clavicle. Swelling was epiphsio-metaphyseal in location. It demonstrated geographical type of destruction with a narrow zone of transition. There was no periosteal reaction or soft-tissue component. The mitotic activity was found to be 0-1/10 HPF. Diagnosis was confirmed histopathologically. A wide excision of the mass, including 3 cm of healthy tissue of the clavicle, was performed.

Conclusions: The presence of an expansile lytic lesion of the lateral end of the clavicle should be taken seriously and complete radiological and histopathological investigation should be done and giant cell tumor of the bone should be kept in mind despite its rarity.

Key words: giant cell tumour • expansile lytic lesion • clavicle • swelling

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Background

The clavicle is a rare site for bone tumors [1]; its incidence has been reported to be from 0.45–1.01% of all bone tumors [2]. The peculiarities of the clavicle have clinical significance for the orthopedic oncologist. The overall incidence and relative occurrence of tumors and tumorous lesions of the clavicle resemble those of flat bones and not other long bones [3]. Metastatic tumors are more common than primary tumors in this region. Among primary lesions, malignant tumors are more common than benign [4].

Case Report

A 30-year-old man was admitted with a 1-year history of progressively increasing swelling and pain over the left lateral end of the clavicle. There was no history of trauma to that area. Pain was insidious in onset, dull aching in character, non-radiating and localized to the lateral end of the clavicle without diurnal variations. Pain aggravated on movement of the shoulder. The patient was in good health and had otherwise normal findings. He had swelling of a 5×6 cm bony mass arising from the lateral end of the clavicle, which was lobulated and tender. Signs of "egg shell" crackling were present. The overlying skin was mobile and free. Superficial veins were engorged and local temperature was elevated. The arm abduction was painful. There was no sensory or power loss in the left upper limb. There was no regional lymphadenopathy.

We obtained a plain radiograph and a PET scan to characterize the swelling. The plain radiograph (Figures 1 and 2) and PET scan (Figure 3) revealed an expansile radiolucent lesion in the lateral end of the clavicle. The swelling was epiphysiometaphyseal in location. It demonstrated a geographical type of destruction with a narrow zone of transition. There was no periosteal reaction or soft-tissue component. The tumor matrix did not demonstrate any calcification. To confirm diagnosis, fine needle aspiration was done and sent for biopsy, which showed a cellular lesion composed predominantly of sheets of plump, oval, mononuclear cells with mild pleomorphism. The cells had moderate amounts of cytoplasm, and had oval to elongated nucleus with moderate anisokaryosis with irregular nuclear membrane, vesicular nucleus, and 0-1 hpf nucleolus. Admixed amongst these, many multinucleated giant cells were seen distributed in a regular and uniform fashion. No storiform pattern was seen. No new bone formation or necrosis was seen. The mitotic activity was found to be 0-1/10 hpf. Differential diagnosis considered aneurysmal bone, non-ossifying fibroma, eosinophilic granuloma, giant cell tumour, and tuberculous osteomyelitis.

Diagnosis was made on basis histopathological features.

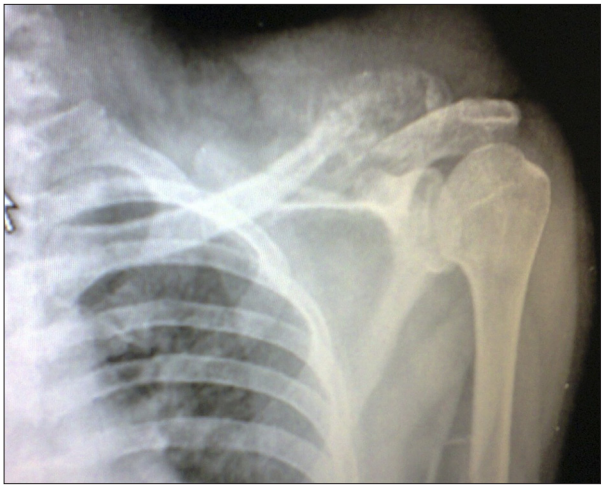

Figure 1. Radiograph showing expansile lytic lesion left clavicle.

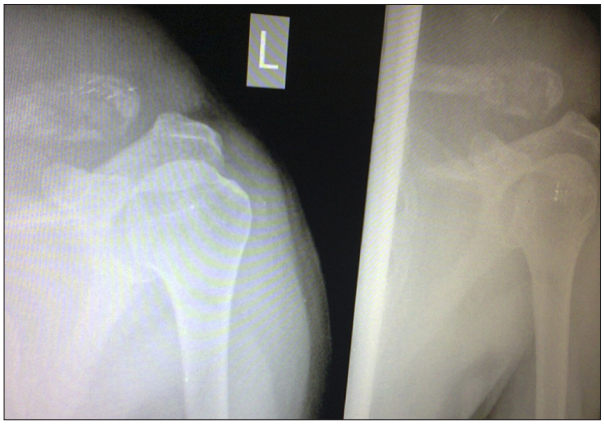

Figure 2. Radiograph showing lytic lesion lateral end left clavicle.

During the operation, the left acromioclavicular joint and its cartilages were found to be free from any involvement. The tumor was not adhering to the underlying structures. A wide excision of the mass, including 3 cm of healthy tissue of the clavicle, was performed. The postoperative period was uneventful. At the follow-up 1 year later, the patient was doing well and did not have any local recurrence or distant metastasis.

Discussion

Cooper first reported giant cell tumors (GCT) in the 18th century; in 1940, Jaffe and Lichtenstein defined GCT more rigorously to distinguish it from other tumors [4]. GCT of bone is an uncommon lesion, representing between 4% and 9.5% of primary bone neoplasms and is thought to originate from undifferentiated cells of the supporting tissues of bone marrow. It is most commonly seen in early adulthood, with a peak incidence in the third decade and with a slight female preponderance; it is usually seen in the skeletally mature patient. The tumor is most commonly located around the knee, with

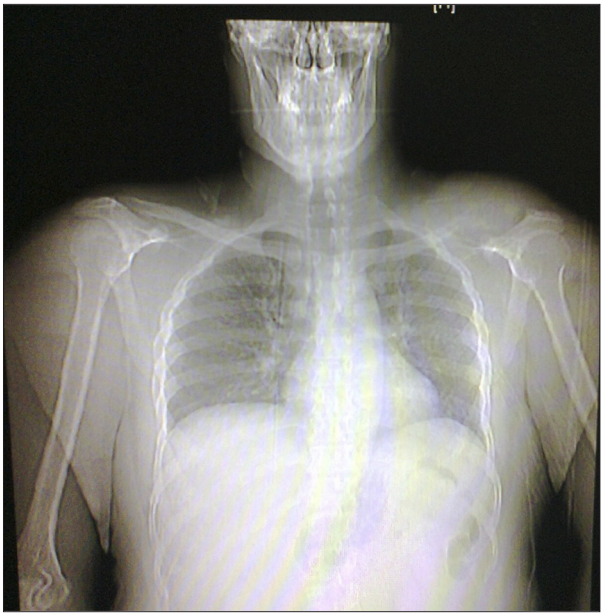

Figure 3. PET scan showing involvement of left clavicle.

the distal radius being the next most common site. Flat bone involvement is rare [5]. GCT usually occurs after completion of maturation of the skeleton. More than 80% of the patients with GCT are between 20–40 years of age [6]. About 75–90% of GCTs occurs in long tubular bones. More than 50% of GCTs arise in the distal femur and the proximal tibia. Other common sites of involvement include the distal radius and the sacrum. Less common sites include flat bones like ribs, skull, patella, sternum, and clavicle [7]. Giant cell tumor of bone (GCTB) is generally considered a true neoplastic condition with well-defined clinical, radiological, and histopathological features [8]. Radiologically, it is usually lytic and expansile without prominent peripheral sclerosis and periosteal reaction [9]. The histopathological findings are often a mixture of all components, and the differential diagnosis of GCTB, not surprisingly, would include central giant cell granuloma, aneurismal bone cyst (ABC), and osteitis fibrosa cystica (brown tumor) [10]. Fine needle aspiration cytology (FNAC) brings out a large number of giant cells as well as stromal cells. The malignant cells from osseous lesions are easily and readily picked up by FNAC. FNAC thus may play an important role in conservative management of this lesion [11].

Conclusions

We have reported this case to emphasize that GCT of flat bones, especially of the clavicle, is very rare and the diagnosis may be missed, both clinically and radiologically, unless there is a high index of suspicion. The presence of an expansile lytic lesion of the lateral end of the clavicle should be taken seriously and complete radiological and histopathological investigation should be done. Giant cell tumor of bone should be kept in mind, despite its rarity, for any expansile lytic lesion.

Statements

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