Case Report

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Osteoblastoma with secondary aneurysmal bone cyst in the proximal femur of a 6-year-old boy: a rare case report

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ABSTRACT

Osteoblastoma is a rare bone forming neoplasm. It is extremely rare for osteoblastoma to present with secondary aneurysmal bone cyst. Authors present a case of a 6-year-old boy with osteoblastoma of the femur with secondary aneurysmal bone cyst. To the best of the knowledge, this is the first such case report of the lesion presenting in proximal femur.

Keywords: Aneurysmal bone cyst, Osteoblastoma, Proximal femur

INTRODUCTION

Osteoblastoma is a rare benign bone forming neoplasm. It accounts for about 1% of all the bone tumors. Spine is the commonest site of presentation (35-40%), whereas femur can be involved in about 10% of all osteoblastomas. Most cases present as intra osseous, well circumscribed, round to oval defect in the bone. The mean age of presentation is 20.4 years, with case reports from 5 to 72 years. It is extremely rare for the lesion to present with large aneurysmal bone cyst like areas. These lesions can cause considerable diagnostic challenge.

CASE REPORT

Six-year-old boy presented with complaints of pain in right hip for 2 months. He complained of progressive increase in the pain. Parents had noticed limping. There was no history of fall, trauma or fever. On clinical examination there was tenderness over the proximal femur and greater trochanter. X-ray revealed expansile, lytic lesion with multiple cystic areas involving the proximal femur (Figure 1). Surgery was done. Blood

clots were removed from cystic spaces. Curettage was done, and cavity was filled with bone cement. Authors received multiple bits of irregular bony tissue aggregate measuring $5 \times 3.5 \times 0.8$ cm.



Figure 1: X ray of right proximal femur showing an expansile, multiloculated, lytic lesion.

Microscopy revealed haphazardly arranged bony trabeculae which were lined by a single layer of

osteoblasts in a fibrous stroma. No atypia, invasive

growth pattern or mitotic activity noted (Figure 2).

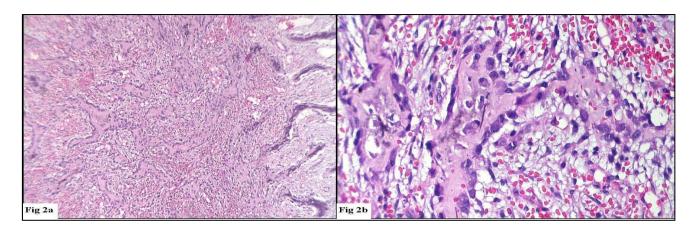


Figure 2: 2a: low power view showing haphazardly arranged osteoid (H and E 200x); 2b: higher power of osteoid lined by single layer of osteoblasts without any atypia (H and E 400x).

There were also aneurysmal bone cyst like cystic areas showing hemorrhage, with no definite lining epithelium and surrounded by fibroblasts (Figure 3). Osteoclastic giant cells were seen adjacent to the cystic areas.

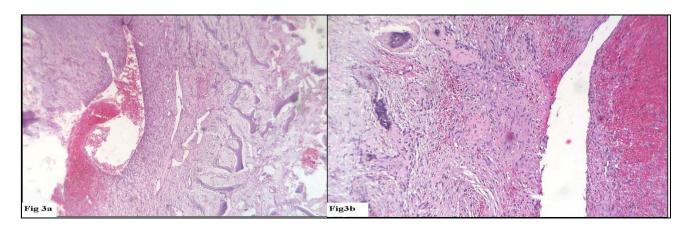


Figure 3: Low power view showing the aneurysmal bone cyst like areas (H and E 200x); 3a: low power view showing aneurysmal bone cyst like areas (H and E 200x); 3b: high power view of the same area showing hemorrhage and cystic area without lining.

With these microscopic findings, a diagnosis of osteoblastoma with secondary aneurysmal bone cyst was made.

DISCUSSION

Osteoblastoma is a rare bone tumor. It was identified as a separate neoplastic entity by Jaffe and Lichtenstein independently in 1956. It is a tumor of the younger population, with nearly 90% of patients diagnosed before the age of 30 years. Osteoblastoma has been reported in a variety of skeletal locations, but has a distinct predilection for the axial skeleton, particularly the

posterior elements of the vertebral column.² The most common presenting symptom of osteoblastoma is insidious onset of pain. The character of pain has been described as dull, aching, often progressive in intensity, and usually localized to the site of the tumor.²

Histologically, osteoblastomas are well-circumscribed lesions composed of immature anastomosing bony trabeculae situated within the abundant fibrovascular stroma. The trabeculae are lined by single layer of osteoblasts, which are responsible for osteoid or bone formation.³ In present case authors had extensive aneurysmal bone cyst like areas in the histology. The

secondary aneurysmal bone cysts can be associated with osteoblastoma, giant cell tumor, osteosarcoma, and fibrous dysplasia.⁴ Osteoblastoma presenting with large aneurysmal bone cyst like areas can cause diagnostic dilemma. The lesion can be mistaken as aneurysmal bone cyst, fibrous dysplasia or osteo-fibrous dysplasia. Observing the haphazardly arranged osteoid lined by osteoblasts with no cellular atypia, can help in the diagnosis.

A few of such cases have been described in the published literature. Most of these lesions are described in the spine or bones of the head and neck region. This includes cervical spine, odontoid process, ethmoid, mandible, sacrum, frontal and parietal bones.⁴⁻¹² Authors could not identify in the published literature, any similar case report of the lesion occurring in proximal femur. The patient is currently doing well.

CONCLUSION

Authors report a rare entity of osteoblastoma with secondary aneurysmal bone cyst like areas in a 6-year-old child in the proximal femur. To the best of the knowledge this is the first case report of this kind in the femur that too in a 6-year-old boy.

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