

Chondroblastoma of the patella treated with curettage and bone graft: a case report

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Abstract

Patella is a relative uncommon site for chondroblastoma. Most of cases of chondroblastoma in patella reported in literature are treated with patellectomy. We treated a large chondroblastic lesion in patella of an 18-year-old male with curettage, burring & bone graft and the result was satisfactory after 3 years post operation.

Keywords: patella, bone neoplasm, chondroblastoma.

Introduction

Ewing first described the “calcifying giant cell tumor” in 1928 [1,2]. Subsequently in 1931 Codman described it as “epiphyseal chondromatous giant cell tumor” [1,2]. Jaffe and Lichtenstein investigated the histogenesis of this tumor which is derived from cartilage germ cells, called it as “benign chondroblastoma” [1,2].

Chondroblastoma is a rare tumor, representing only 1- 3 % of all primary bone tumors [1-4], with Local pain and swelling lasting for several months as the most important symptoms [1,3].

It is usually seen as a lytic lesion involving the epiphysis with a thin border of sclerosis and central punctuate calcification in half of the cases in radiographs [1,3]. It usually causes expansion or enlargement in the affected site [4].

Primary patella lesions are categorized in-

to benign and malignant tumors and metabolic disorders. Giant cell tumor is the most likely differential diagnoses with tumors of the patella [2,4]. Patella is an uncommon site for Chondroblastoma [1,2,4].

Differential diagnosis of this lesion would include metastasis, simple bone cyst, giant cell tumor, nonmineralized osteoblastoma, hemangioma, and subchondral "cyst" [4]. The authors have obtained the patient's informed written consent for print and electronic publication of the case report.

Case Report

An 18-year-old male was examined in our clinic for chief complaint of right knee pain and swelling lasting for a year, which occasionally was treated with analgesic for that period by him. Moreover, he had no history of trauma, medical condition or infection. Moreover he had no familial history of a lesion of this kind.

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Fig. 1. Plain lateral radiograph of the patella showing an osteolytic lesion with sclerotic margins and no expansion.

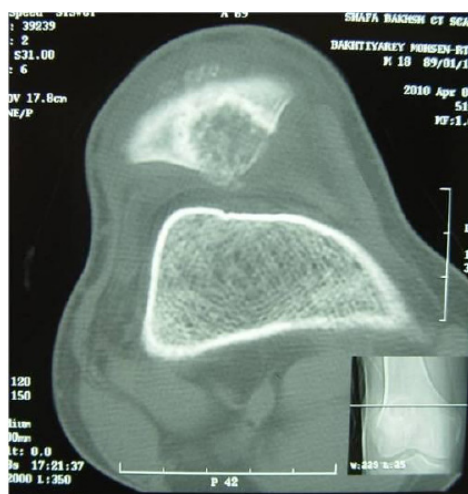


Fig. 2. Axial CT showing a lytic lesion of the patella with a sclerotic rim. Calcification is seen in the matrix of tumor.

On examination he had mild tenderness on right patella and some swelling with no erythema or warmth, and his range of motion was full with mild pain in extreme flexion. His Knee was stable without any crepitation of the patella.

LAB tests were normal for CBC, ESR, CRP, Ca, Ph, ALKP, CPK, LDH, AST and

Alt.

The X-rays showed a radiolucent lesion of the right patella with a well-defined margin, with a sclerotic rim and without expansion (Fig. 1). The CT scan revealed an osteolytic lesion of the patella with sclerotic margins of the lesion and calcifications in the matrix (Fig. 2).

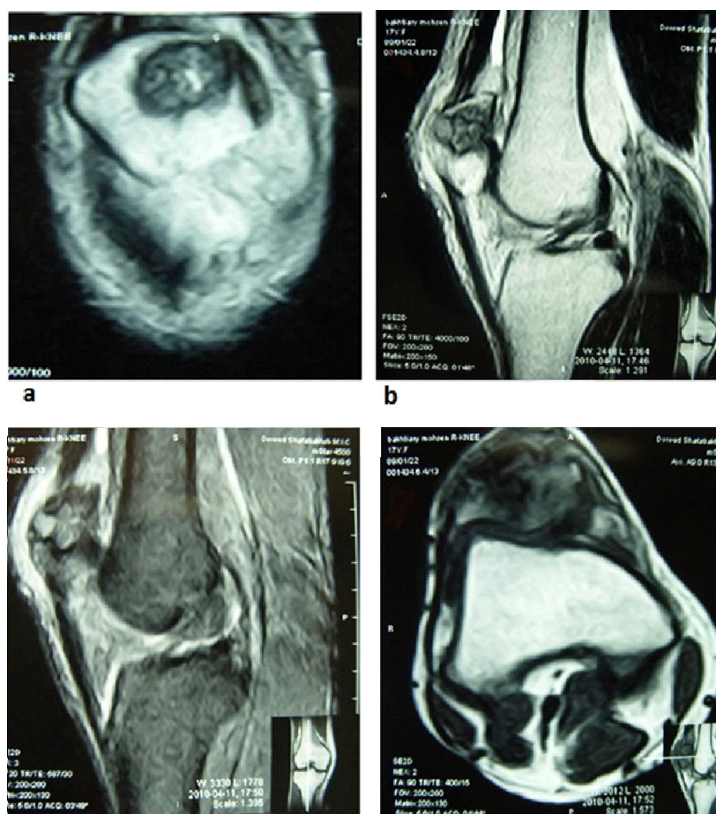


Fig. 3.
 a: Coronal cut of MRI of the knee T1.
 b: Sagittal cut of MRI of the knee T1.
 c: Sagittal cut of MRI of the knee T2.
 d: Axial cut of MRI of the knee T1.
 The mixed echo of the lesion in patella with slightly hyperechogenicity in T2.



Fig. 4. The anterior view of Patella. Opened window in the anterior cortex of patella in circular shape. The lesion was curetted and burred.

In addition the MRI demonstrated a lobulated focal lesion in the patella with T1 mixed and T2 slightly hyper intense signals. The margins of the lesion were well defined (Fig. 3).

At surgery we used a straight anterior longitudinal approach just above the patella. An anterior window was made in the patella, and the lesion curetted thoroughly and Tissue biopsy was sent for histologic examination (Fig. 4). Later with a Schorz High Speed Burr the lesion burred with 40000 RPM, and the cavity was packed with cancellous allograft and then the graft impacted.

Tissue fluid drained after 1 day and pa-

tient was discharged from hospital 2 days after surgery. 3 years after follow up (every 3 month for 2 years and after that every 6 month), the patient was pain free, walks without any aid or discomfort and had a full range of motion of knee and x-rays illustrated neither pathologic fracture ,nor recurrence or loose body in joint (Fig. 5).

Pathologic Results

The histologic sections revealed a neoplasm composed of sheets of chondroblast with chondroid matrix showing condensed zone of cellularity and some multinucleated giant cells. Areas of coarse calcification



Fig. 5. a: lateral radiograph of the patella after 3 month post op. b: lateral radiograph of the patella after 3 years post op.

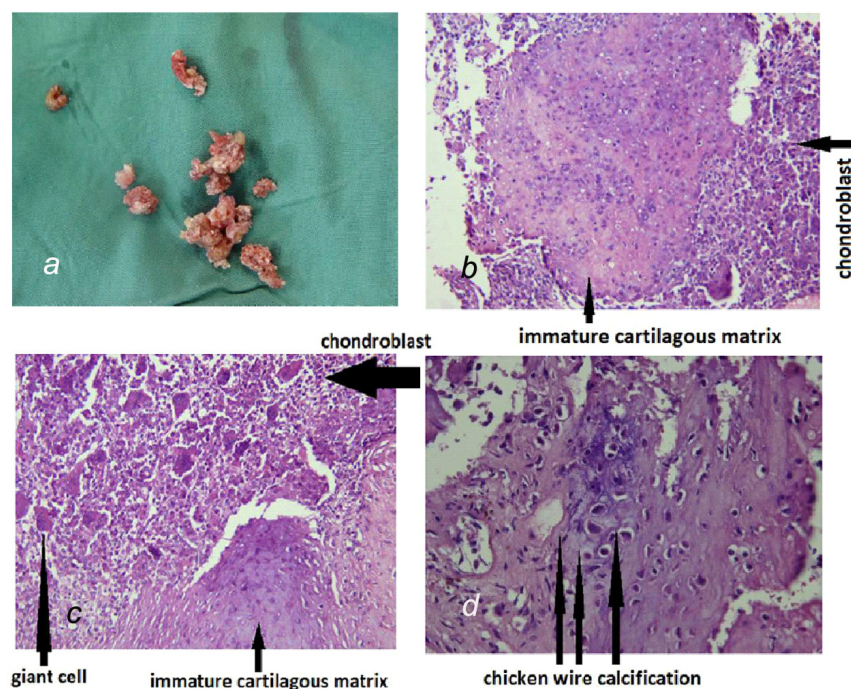


Fig. 6. **a:** Gross view of specimens used for pathologic examination. **b:** 4X microscopic view. Immature cartilaginous matrix. **c:** 20X microscopic view. Neoplastic tissue consisted of round to oval cells with central nucleus (chondroblast) which are packed and giant cells similar to osteoclast scattered in the field. **d:** 40X microscopic view. Chicken wire calcification.

were also seen. Final diagnosis was Chondroblastoma (Fig. 6).

Discussion

The location of a chondroblastoma in the patella was formerly considered highly unusual, but since Ogden has emphasized the similarity between the patella and the epiphysis, it is not strange to find chondroblastoma that can also arise in the patella formed from a cartilage focus [1,2,4].

Standard treatment for chondroblastoma of patella is to take a biopsy and after pathologic confirmation to perform curettage and bone grafting. But when tumor is usually large and with minute amount of intact patella left, then in most of cases it is treated with patellectomy [1,2,5].

We did not use biopsy as a separate procedure before index surgery; because differential diagnosis were: 1. metastasis usually with a known case of carcinoma with multiple lesions; 2. Giant Cell Tumor (GCT) which does not have calcification, and 3- Unicameral Bone Cyst (UBC), subchordal

cyst and hemangioma with identical treatment is same for them [4].

Although in our case the tumor had consumed most of the patella, we used the remaining border of intact cortex for holding the bone graft and after impacting the graft there was not any protrusion of graft into the joint and remained so for the follow up.

Local recurrences after curettage and bone grafting occur in 11% to 25% of cases [1]. We used high speed burr and assumed burring would cause the relapsing rate to decline, since patient had no symptoms of recurrence even after 3 years.

Allograft was used due to available large quantity and absence of morbidity for the patient. Treating a patient suffering from chondroblastoma of patella with maintaining the patella helps the patient to regain full strength of extensor mechanism and without derangement in knee joint. The down side with this technique is the higher probability of recurrence [1].

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