AN INFREQUENT LOCALIZATION OF GIANT CELL TUMOR: PROXIMAL RADIUS
(Case Report)

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SUMMARY

Introduction: Giant-cell tumor (GCT) of the bone is one of the most common primary bone tumors that usually generates from the meta-epiphysis of long tubular bones. While distal femur and proximal tibia are the most common localizations of this tumor, proximal radius is one of the rare localizations of this particular tumor.

Case report: A 21 years-old male presented to our clinic with complaint of discomfort of the left proximal forearm. X-rays revealed expansive lesion without any articular fracture at the left radial head. Cortical thinning and increased medullary radiolucency with expansion of the radial head were observed in CT scans. The patient underwent open biopsy and curettage with autogenous grafting of the lesion. There was no recurrence at the end of third year postoperatively.

Conclusion: Our aim was to present an infrequent case and to draw attention on different localizations of giant-cell tumor of bone. Although the localization was uncommon in the presented case, treatment principle of the GCT should be the same as other common localizations of the bone.

Key Words: *giant cell tumor, radius.*

ÖZET

Giriş: Kemiğin dev hücreli tümörü, uzun kamiklerin metafizeal bölgesinden köken alan, sık rastlanan primer kemik tümörlerinden biridir. Femur distali ve tibia proksimali en sık rastlanan lokalizasyon olmasına rağmen, lokalize olduğu nadir bölgelerden biri radius proksimalidir.

Olgu Sunumu: Sol kol proksimalindeki rahatsızlıkla kliniğimize başvuran 21 yaşındaki erkek hastanın, radyolojik kontrolünde, eklem içi kırığa yol açmamış radius proksimaline yerleşimli, ekspansif lezyon tespit edildi. Tomografik tetkikte radius başında ekspansiyonla birlikte, kortikal kalınlaşma, artmış radyolusensi tespit edilmiştir. Hastaya aynı seansta biopsi, küretaj ve otojen greftleme uygulandı. Üçüncü yıl sonunda hastada rekürrens gözlenmedi.

Sonuç: Nadir yerleşimli, kemiğin dev hücreli tümörünü sunduğumuz olgumuzun sonucuna göre, lokalizasyonu nadir olmasına rağmen, tedavi prensipleri yaygın yerleşimli dev hücreli tümörlerdeki tedavi yaklaşımları ile aynı olmalıdır.

Anahtar Kelimeler: *Dev hücrelitümör, radius.*

INTRODUCTION

Giant-cell tumor (GCT) of bone is one of the most common primary bone tumors which constitutes almost 10 % of primary musculo-skeletal tumors[1-5]. It usually generates from the metaphysis and then extends into the epiphysis. The two meta-epiphysis; distal femur and proximal tibia are the most common localizations of this tumor, followed by distal radius, proximal femur, distal tibia and proximal humerus. Distal humerus, proximal radius and ulna are the rare localization of this particular tumor[1-4,6]. It can show local recurrences with a high percentage, and make benign pulmonary metastases, or transform into malignancy with a low incidance[1,7]. Radiologically it is seen as expanded radiolucent lesion which is the result of extensive destruction of cancellous and cortical bone[2,8].

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In this paper, we present an infrequent localization of a giant cell tumor which was located in the proximal radius.

CASE REPORT

A 21 years-old right-handed male presented with complaint of discomfort of the left proximal forearm. There was an increase in pain by forearm rotation and a subjective feeling of left hand weakness. Analgesics afforded no relief. On physical examination, by palpation, there was local tenderness just on the left proximal radius, in the region of the radial head. There was no elbow motion restriction except tenderness in forearm rotation. The neurovascular exam was intact. Roentgenograms showed no metastatic pulmonary focus. All laboratory data were within normal limits. Roentgenograms revealed expansive lesion without any intrarticular fracture at the left radial head (Fig. 1). CAT scan examination revealed cortical thinning and increased intramedullary radiolucency with expansion of the radial head (Fig. 2). The Magnetic Resonance Images (MRI) showed homogeneous diminished signals in T1-weighted sequences and, hyperintense signals in T2-weighted sequences (Fig. 3). There was increased uptake at the left proximal radius and no abnormal uptake in another regions of the skeleton on Technecium 99m scintigraphic examination (Fig. 4). The patient underwent open biopsy and curettage with autogenous grafting of the lesion taken from the iliac crest. Histologic evaluation revealed benign giant-cell tumor of bone. At the three-year follow-up, there was no recurrence, no infection, no fracture, and no local tenderness or pain (Fig. 5a-b).

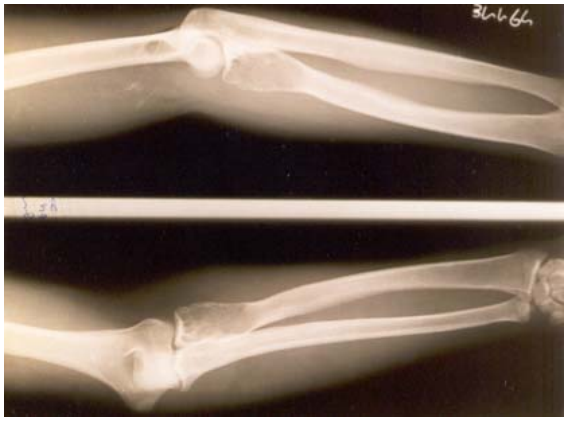

Figure 1: The roentgenogram of the left forearm, appearance of giant-cell tumor extending to the subchondral bone in proximal radius.

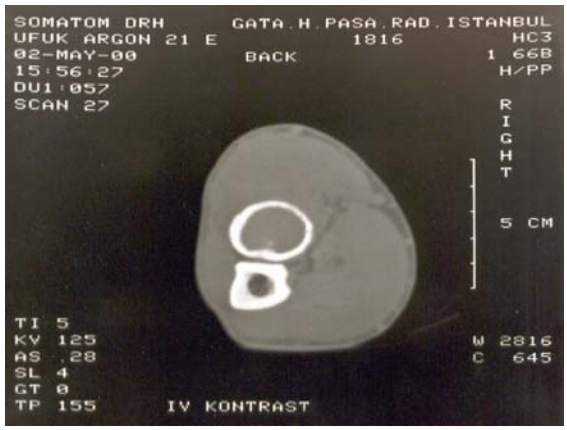

Figure 2: CT scan, left proximal radius, revealing cortical thinning and increased intramedullary radiolucency.

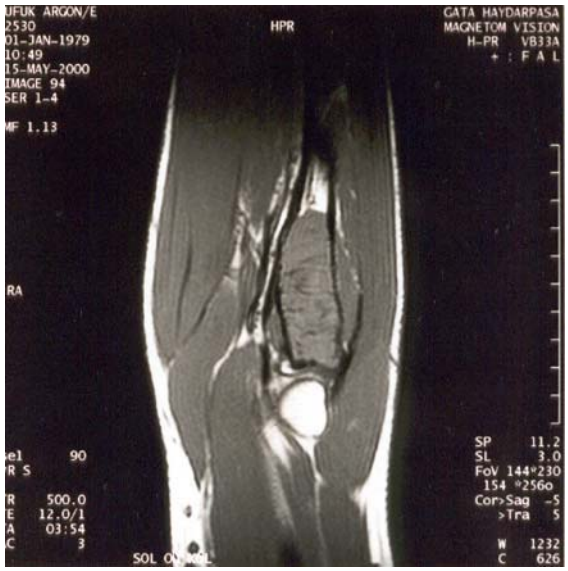

Figure 3: Coronal T1 MRI revealing hypointense tumor and intact subchondral cortex.

DISCUSSION

The six most common localizations of GCT were stated as; distal end of the femur, proximal end of the tibia, distal end of the radius, proximal end of the femur, sacrum, and proximal end of the fibula in Goldenberg's series[2]. Giant-cell tumor of bone is relatively rare in proximal radius. We have been able to find documentation of only six other reported cases in which tumor was located in proximal radius at 1523 patients reviewed in the literature[2-3,7-13]. This literature review indicates that the occurrence of a giant-cell tumor in this region has an incidence of less than 0.5%. There were only 3 cases who had a tumor located in the

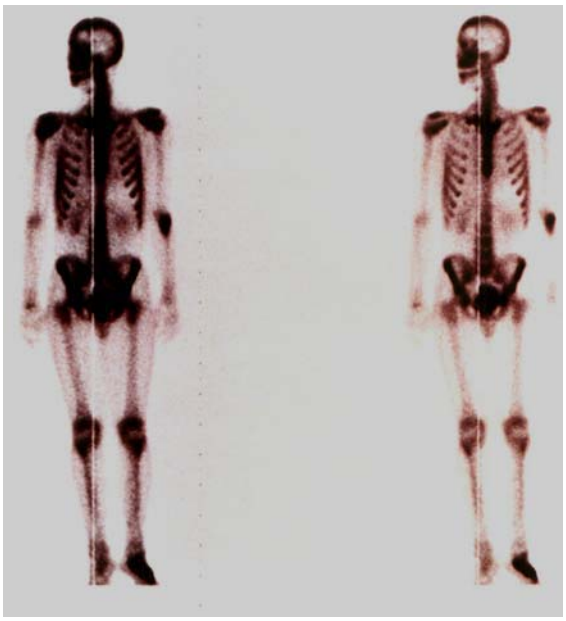

Figure 4: The Technetium-99m methylenediphosphonate bone scan showing increased uptake in proximal radius.

proximal end of a radius at Goldenberg's report in 1970[2]. Sung reported only 1 case at analysis of 208 cases in Chinese patients[12]. Lewis et al. reported a case report of giant-cell tumor, which was located in the proximal end of the radius[3]. The last case located in this region found at Campanacci's report[11].

Benign giant cell tumors must be distinguished from metaphyseal fibrous defect (nonosteogenic fibroma), aneurysmal bone cyst, chondroblastoma, chondromyxoid fibroma and osteosarcoma[13]. The definitive treatment is intralesional resection with curettes and a high speed burr and reconstruction with polymethylmethacrylate (PMMA) or bone grafting for salvageable, nonexpendable bones. Secondary or adjuvant procedures such as hydrogen peroxide, electrocautery, phenol irrigation and cryotherapy can be used for all intralesional procedures and when wide resection with a close margin is obtained, although they have not been approved by FDA[3,6-9].

The aim of the treatment of giant-cell tumor of bone is to reduce local recurrence by functional recovery. In Goldenberg's series, three cases were treated by resection, but we treated our case by curettage and autogenous graft application[2]. Many patients with giant-cell tumor of the bone can be treated with intralesional resection techniques accompanied by adjuvant treatment methods, although there is a high recurrence rate in all definitive treatment procedures except amputated cases in the literature[1-3,6-9]. We did not observe any recurrence in our patient for three years.

CONCLUSION

Giant cell tumors of uncommon localization, as our case, can be treated with one of the methods

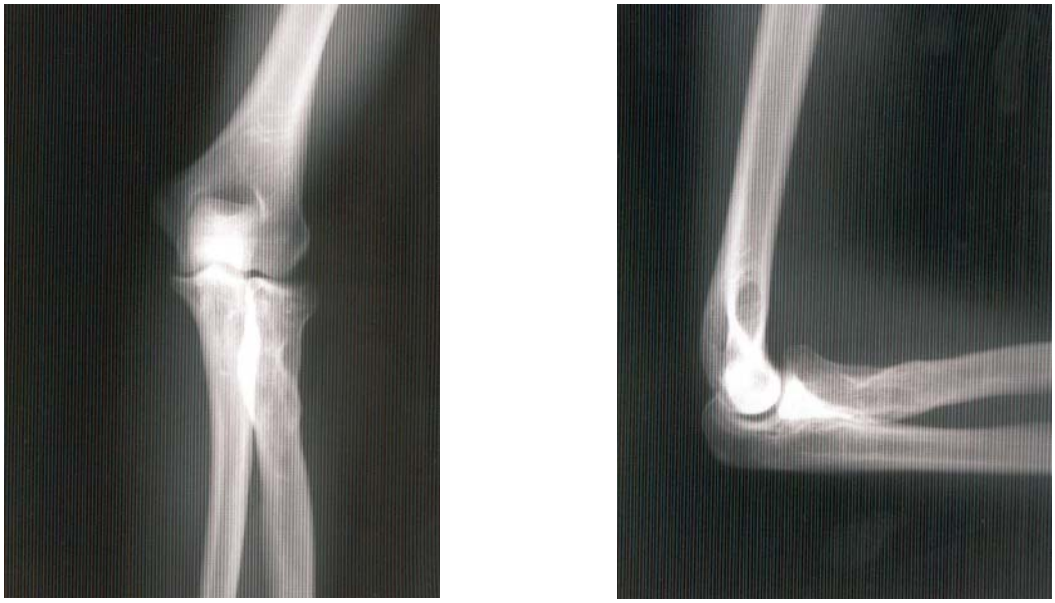

Figure 5: Antero-posterior and lateral roentgenograms of the left forearm after postoperative third year.

that are applied for the common localizations of this tumor.

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