Extraarticular Synovial Osteochondroma in the Hand

Elde Ekstraartiküler Sinoviyal Osteokondroma

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SUMMARY

Extraarticular synovial osteochondroma in the hand occurs rarely. A 52-year-old, retired office clerk presented with a slowly growing, painless mass over the flexor aspect of the third finger in the right dominant hand. A definitive diagnosis of osteochondroma was made by histopathologic examination following total excision. He had no recurrence at 6 years following the surgery.

KEYWORDS: *chondroma, osteochondroma, soft tissue tumor, hand, finger*

ÖZET

Elde ekstraartiküler osteokondroma nadiren meydana gelir. Elli iki yaşında yazıcılıktan emekli bir memur, dominant olan sağ elinde 3. parmağın fleksör yüzünde yavaşça büyüyen ağrısız kitle yakınması ile başvurdu. Total eksizyonu takiben yapılan histopatolojik muayene ile osteokondrom tanısı kondu. Ameliyat sonrası 6. yılda tekrar oluşma yoktu.

ANAHTAR KELİMELER: *kondroma, osteokondroma, yumuşak doku tümörü, el, parmak*

INTRODUCTION

Synovial chondromatosis is a cartilaginous proliferative disorder originating from the synovial membrane of the joints, bursae, tendon sheaths. When lesion is a solitaire mass, it is named as chondroma. Synonymous terms used are cartilaginous tumor of the soft tissue, synovial chondrometaplasia, extraarticular synovial chondroma, para-articular chondroma, periarticular tenosynovial chondrometaplasia, tenosynovial chondroma, chondroma of tendon sheath, and extraosseous chondroma, extraskeletal chondroma.[1-3]

The lesions may also be seen as osteocartilaginous masses. These conditions are well known as synovial osteochondromatosis by clinicians. Their extraarticular forms are rare.[4,5]

Extraarticular chondroma or osteochondroma is one of the uncommon tumors of the hand. It is a single nodular lesion mostly originating from tendon sheath but sometimes epitenon, in the hand or foot.[1-4,6]

In this report, an extraarticular synovial osteochondroma in the volar soft tissue of third finger of the right hand is described.

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Case Report

A 52-year-old man came to our clinic with six-years history of painless mass over the third finger of the right dominant hand. He was an office clerk retired for one year. During the last three years, the mass slowly increased in size and he had a minimal limitation at the range of motion. The patient's history was unremarkable except for hypertension that had been treated by various antihypertensive agents during the last ten years. He had no significant trauma on the hand. Physical examination of the right hand revealed a mobile, non-tender mass with dimension of 18x14x10 mm over the radial side of the volar aspect at the proximal part of the middle phalanx. There was no neurovascular deficit. In systemic examination, any positive findings were not found.

Radiographs revealed a radiopaque mass with one large and three small parts that had heterogeneous density on the radial and volar aspect of the middle phalanx. No attachment to bone was apparent (*Figure 1*). Magnetic resonance imaging (MRI) demonstrated a solid mass with dimension of 14x12x10 mm on the radial and volar aspect of the flexor tendon sheath. There was no involvement of the underlying bone or joint of the finger. The lesion had round and defined margins. The signal intensity of mass was heterogeneously low on Tl- and T2-weighted images which was consistent with calcification or ossification. Post Gd-DTPA injection intravenously, the center of the mass showed a distinct enhancement (*Figure 2*). There was a bright lesion next to the solid mass on T2-weighted sagittal images. This is consistent with a water content and suggestive of a cyst (*Figure 3*).

The routine laboratory findings and chest roentgenogram were normal.

Lesion had features of benign tumor and excisional biopsy was planned. The mass was loosely adherent to the flexor tendon sheath. There was a soft tissue mass with liquid like synovial fluid next to the tumor and this cyst was also excised. On gross examination the mass was firm and outer surface of the tumor was white and smooth

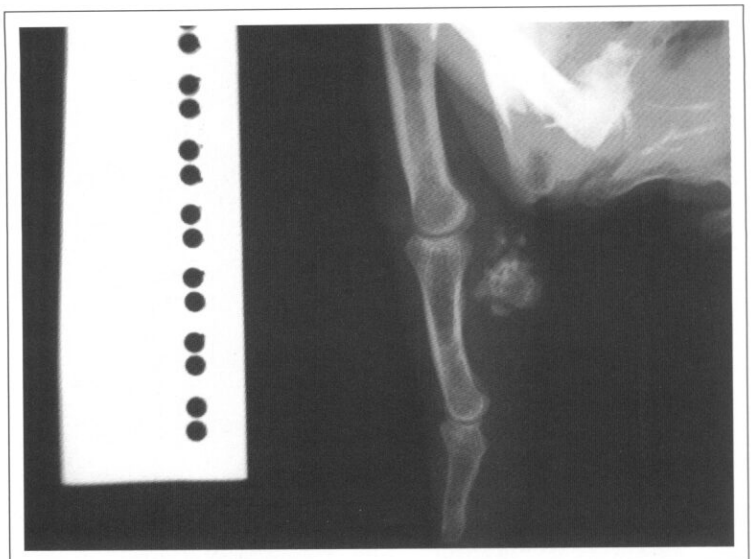

Figure 1. Plain radiograph demonstrating a mass with multiple radiopaque areas in the soft-tissue over the volar aspect of the finger.

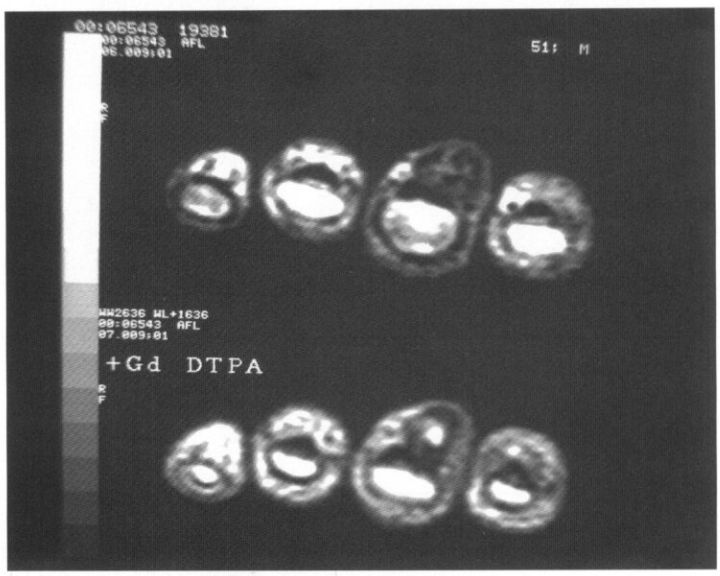

Figure 2. Magnetic resonance image of the lesion demonstrating heterogeneously low signal intensity on T1-weighted axial images. Post Gd-DTPA injection, the enhancement in its center is consistent with a rich vascular supply.

(*Figure 4*). Its internal structure had formation of cavity. Histopathologic examination showed mature bone with hyaline cartilage over it and adipose medullar tissue inside it (*Figure 5*). There was no calcification. The mass was surrounded with a thick fibrous tissue. The tissue was interpreted to be predominantly of osseous differentiation with chondromatous content. A definitive diagnosis of osteochondroma was made. Histopathologic examination of mass of soft tissue next to osteochondroma revealed a synovial tissue. The diagnosis was a synovial cyst.

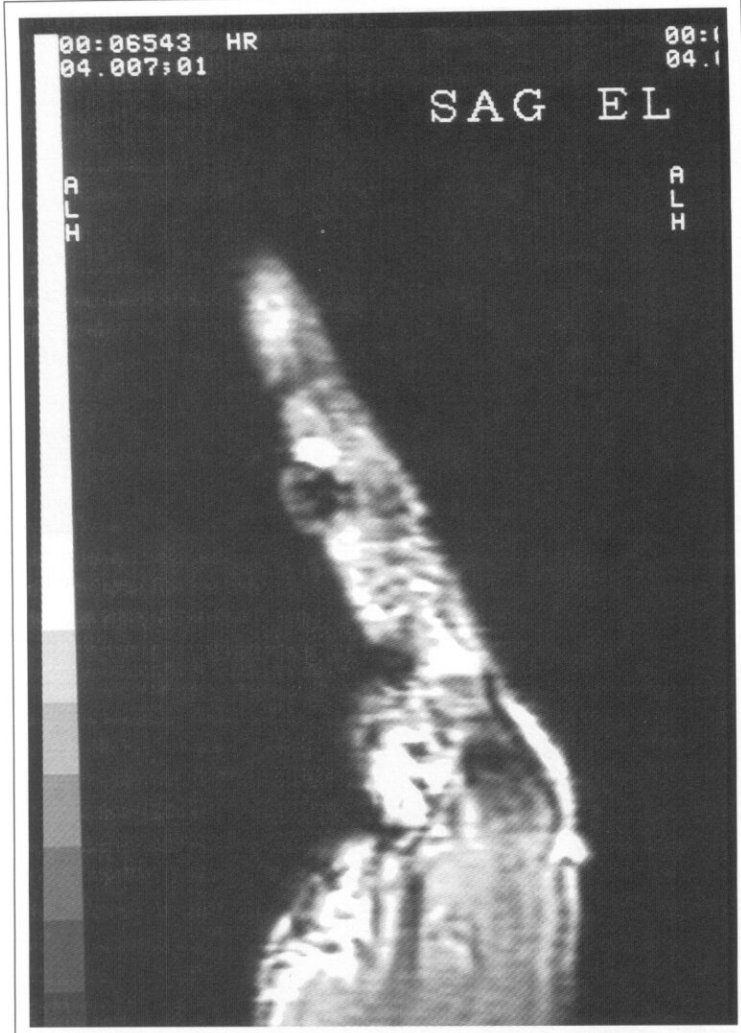

Figure 3. Magnetic resonance image of the finger demonstrating a bright lesion next to the solid mass on T2-weighted sagittal images. This is suggestive of a cyst.

The wound healed without any problems. The patient had no recurrence and full range of motion in the finger at 68th month after the surgery.

Discussion

The term "extraarticular synovial chondroma" is used to describe a benign tumor consisting of small, well-defined, solitary nodules of hyaline cartilage unattached to bone.[7,3]

It is generally believed that extraarticular synovial chondroma develops by the metaplasia from the mesenchymal cells in the synovium.[4-6] The role of trauma in its pathogenesis is controversial. It is the general opinion that trauma is a coincidental event.[5]

In the physical examination, a single, lobulated, very hard mass with round shape typically is seen in middle-aged patients. It is a painless and slowly enlarging mass. Synovial chondromatosis prefers the male sex and the adult age between 20 and 50 years. The location may be unusual. It usually occurs in distal parts of the extremities. Extraarticular synovial chondromas mainly involve hands and feet, wrist and ankle, with remarkable preference for the thumb and digits.[1,8] The predominant single site is the fingers, where more than 80% of extraskeletal chondromas are found. It commonly occurs on their flexor aspect.[1,3-5,7,8] Extraskeletal chondromas in the hand can be locally aggressive and perform a destruction on the bone.[8]

Radiographs show a soft tissue mass with areas of calcific stippling or opacities, depending on the extent of chondrification and ossification.[5] Bone nuclide scan confirms active bone turnover. CT scan is most helpful in demonstrating the extraarticular origin of the lesion. MRI is less significant than CT in demonstrating mineralization, but more significant in defining uncalcified cartilage.[3,1] Internal structure of the lesion, its connection with soft tissue could be seen clearly in the scans of magnetic resonance imaging.

Extraarticular synovial chondromas consist primarily of hyaline cartilage but up to two thirds of them may have calcification. Ossification may also occur.[3] In histopathologic examination, typically, the cartilage cells are arranged in clusters. Its features are identical to the cell atypia of a grade 1 or 2 chondrosarcoma of bone, but do not indicate any malignancy when seen in synovial chondromatosis. Calcification associates with necrosis of the cartilage cells. Ossification implies some blood supply and is seen when the cartilage had intimately connection with synovium or the bone surface.[1]

One of the most important series in the literature was published by Chung and Enzinger in 1978.[8] The hand and foot were involved in 96% of 104 cases of extraskeletal chondroma. The involvement of the fingers was seen in 51 cases and they formed 50% of lesions of hand and foot. Demirtaş and Mergen made diagnosis and treated 918 bone and soft tissue tumors between 1986-1992.[9] They had 16 (1.7%) synovial chondromatosis cases. Only one of them was in the metacarpophalangeal joint. In another study, Demirtaş et al. reported the treatment of 121 bone and

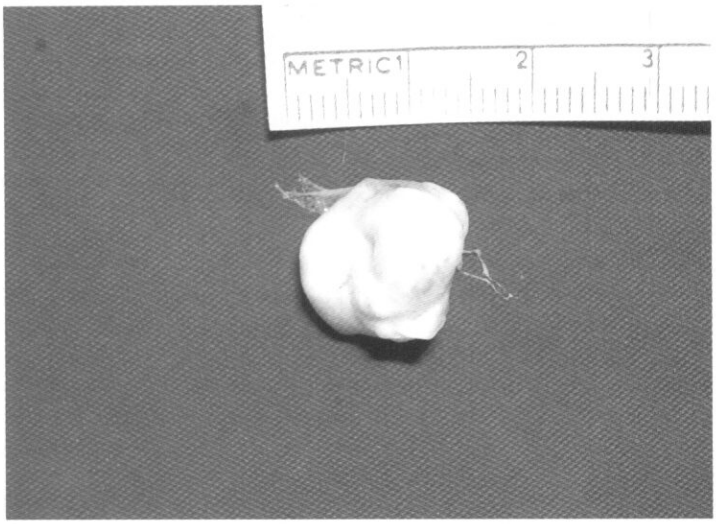

Figure 4. Appearance of solitary, hard, round mass with smooth, white outer surface.

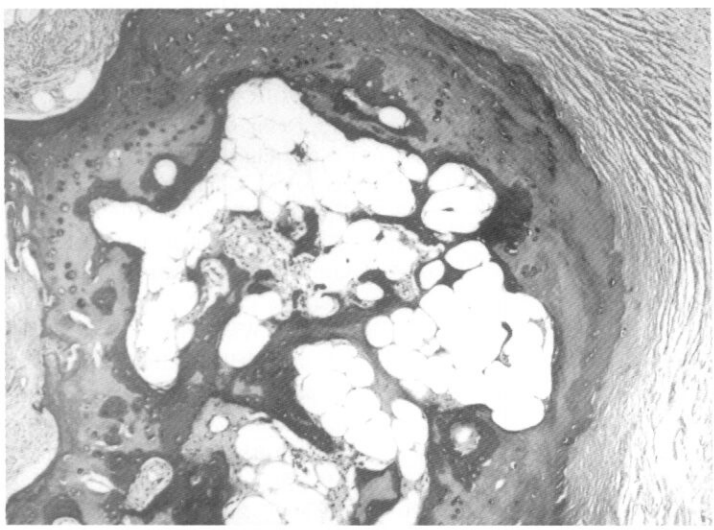

Figure 5. Histopathologic appearance showing mature bone with hyaline cartilage over it and adipose medullar tissue inside it. The mass was surrounded with a thick fibrous tissue (Hematoxylin-eosin stain, x200).

soft tissue tumors in the hand between 1986-1993.[10] They had no extraarticular synovial osteochondroma in the hand. In the study by Başbozkurt, Erler and Gür on hand tumors, there was also no extraarticular synovial osteochondroma amongst the 16 hand tumors that were treated between 1993-1997.[11] Aydın et al. also presented two cases of soft tissue chondroma in the first and second fingers of the hands. There were no calcification and ossification in the tomour tissues.[12] They had no recurrence following excision.

The differential diagnosis for extraosseous calcified lesions in the hand or wrist includes myositis ossificans, synovial chondromatosis, periosteal or juxtacortical chondroma, tumoral calcinosis, giant cell tumors, calcifying aponeurotic fibroma, subungual osteochondroma, nonmineralized loose bodies and extraskeletal chondrosarcoma, periosteal chondrosarcoma, myxoid chondrosarcoma, extraskeletal osteosarcoma.[2,3,7]

Smaller cartilaginous nodules may even spontaneously regress.[1]

Treatment for extraskeletal chondromas is marginal excision. Recurrences are not uncommon. Chung et al. reported recurrence was seen in 18% of the cases. When a recurrence of the tumor occurs, a reexcision of the mass is sufficient for adequate treatment.[3,4,8]

We presented an extraarticular synovial osteochondroma on the flexor tendon sheath of the third finger in the right dominant hand of a middle-aged man. Repetitive microtrauma due to the job may be an important point in view of the etiology in our case. A close connection of osteocartilaginous mass and synovium was seen. He had no complaint and no recurrence at the 68th month following excision.

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