

# The Osteochondrosis of Superior Pole Of Patella: A Case Report

Patellanın Üst Kutup Osteonekrozu: Olgu Sunumu

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The osteochondroses are a heterogeneous group of injuries to the epiphyses and apophyses of children or adolescents. The breakdown of endochondral ossification and bone fragmentation are seen radiologically. The aetiology of osteochondroses remains uncertain. Catch-up growth or strenuous sports activities have been thought to be the cause of this benign disease. In condition of patellar osteochondrosis, rarely the primary ossification centre is affected known as Köhler's disease. More frequently, the secondary ossification centre, usually at the distal pole known as Sinding- Larsen-Johansson. Superior pole osteochondrosis of patella has been reported in the literature on only a handful of occasions. We presented the clinic and radiologic findings of an eleven year-old boy with superior pole osteochondrosis patella.

**Key Words:** *Patella, Osteochondrosis, Fragmentation, Superior*

Osteokondrozlar çocuk ve adolesan çağda çeşitli bölgelerdeki apofizleri, epifizleri ve epifizoid kemikleri etkileyen bir hastalık grubudur. Endokondral ossifikasyon bölgelerinde çökme ve kemik fragmantasyonları görülür. Osteokondrozlarda etiyoloji kesin olarak bilinmemektedir. Hızlı büyümenin ve ağır spor aktivitelerinin bu iyi huylu hastalığa sebep olduğu düşünülmektedir. Patellanın primer ossifikasyon merkezi nadir etkilenir ve Köhler hastalığı olarak bilinir. Daha sık olarak patellanın sekonder ossifikasyon merkezleri özellikle alt kutbu etkilenir ve Sinding- Larsen-Johansson hastalığı olarak bilinir. Literatürde patella üst kutup osteonekrozu nadir bildirilmiştir. Bu çalışmada patella üst kutup osteonekrozu görülen 11 yaşındaki hastanın klinik ve radyolojik bulgularını sunduk.

**Anahtar Sözcükler:** *Patella, Osteokondroz, Fragmantasyon, Üst kutup*

Osteochondroses are self-limiting with superior pole osteochondrosis breakdown of endochondral patella. ossification characterised radiologically by bone fragmentation (1). The aetiology of osteochondroses remains uncertain and rather speculative. Catch-up growth or strenuous sports activities have been thought to be the cause of this benign disease in children between 5 and 9 years of age (1-5). Because of traction exerted through the ligament, the osteochondritic changes may occur at either the upper or the lower attachments of the ligamentum patellae as known Sinding Larsen-Johanson(SLJ) and Osgood-Schlatter's(OS) disease (6).

Superior pole osteochondrosis of patella has been reported in the literature on only a handful of occasions (7-9). We presented the clinic and radiologic findings of an eleven year-old boy

## CASE

The patient is an eleven year-old boy who initially presented with a right knee effusion, right knee pain which were continued for two weeks. He reported no prior history of trauma to his knee. Their parents reported no history of upper respiratory tract infection and no fever for last 2 months which was asked for to exclude acute rheumatoid fever disease and other infectious and systemic diseases. Physical examination revealed a mild right knee effusion and minimal pain at the superior border of patella but there were no other remarkable findings such as erythema and local heat increases. There was no limitation of range of motion of affected knee.

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There was no complaints at left knee of patient. At the conventional radiography there was fragmentation at superior pole of patella (Figure 1) At the laboratory findings; sedimentation was 15 mm/h (normal range 12-24 mm/h) , C-reactive protein (CRP) was 3 mg/L (normal range 0-6 mg/L).

We prescribed non-steroidal anti-inflammatory drug (NSAID) to patient with activity restriction. The symptoms was regressed with NSAID. At 6 month of follow-up clinical symptoms was improved but radiological findings was continued.

## DISCUSSION

Osteochondroses represent a heterogeneous group of self-limiting disturbances of endochondral ossification of the epiphyses and apophyses of children or adolescents (1,5,6). In condition of patellar osteochondrosis, rarely the primary ossification centre is affected and seen more often between the ages of 5 and 9 known as Köhler's disease (1-4). More frequently, the secondary ossification centre, usually at the distal pole, is involved between the ages of 9 and 11 known as SLJ (1,2). Superior pole osteochondrosis of patella has been reported in the literature on only a handful of occasions was no name (6-8).

Why osteochondrosis so rarely develops at the superior pole of the patella remains unknown. The broader insertion of the quadriceps in this area probably distributes traction forces more evenly (7). Superior pole osteochondrosis of patella can be distinguished from bipartite changes by both radiographically and clinical symptomatology. The condition is found more often in young males when reviewing the case reports published (6-8).

The largest case series, by Batten and Menelaus, presented the condition in six boys (6). The young men ranged in ages from 10 to 11 years, and all



**Figure 1:** Fragmentation at superior pole of patella.

were active. Radiographic findings of the proximal pole of the patella in that series were similar to that seen in SLJ disease. Besides that four of the patients had radiographic evidence of SLJ or OS disease either in the same knee or the opposite knee. Based on these findings, the authors suggested that similar processes take place in all three conditions.

Grogan and colleagues (9) reported on seven cases of proximal pole fragmentation which they believed was an avulsion of direct trauma. However in our case there was no history of direct trauma. In the series of grogan, despite the direct trauma, the proximal pole was still the least common form of patellar avulsion.

The only cases with histological documentation was reported by Tyler W and McCarthy EF (7) in 2002. They found that the histological

appearance like other side osteochondrosis. The histological findings according to study of Tyler and McCarthy support that the osteochondrosis of superior pole is also a chronic traction apophysitis.

Although the catch-up growth or strenuous sports activities are thought as causes of osteochondrosis, according to keats almost asymptomatic cases can be seen and concluded that the irregular ossification, fragmentation and sclerosis of the patella could be a normal developmental variation(10). Therefore the question remains whether sports activities really are the cause of the disease rather than the key factor for the osteochondrosis to become symptomatic. As a result, the authors acknowledge that further research about this finding is warranted.

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