

# Steroid induced osteonecrosis of the patella

## A case report

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Osteonecrosis is caused by fracture (Scapinelli 1967), total knee replacement (Cameron and Huffer 1985, Ritter and Campbell 1987), or steroid therapy (Yamaguchi et al. 1988). We report a third case of the latter rare category.

### Case report

A 54-year-old woman with bronchial asthma has been treated with 5-10 mg of prednisolone daily since 1980. In 1987, she suffered a myocardial infarction. There was no congenital disease or trauma of the knees. In May 1988, she was admitted to our department because of complaints of mild pain in the left knee of 2 months' duration. Radiography indicated fragmentation of the patella. A

slight increase in  $^{99m}\text{Tc}$ -hydroxymethylene diphosphate uptake was noted in the left knee. One year later, the patient experienced repeated effusion and pain in the left knee, and she was admitted to our department for arthroscopic joint debridement. Radiographically, there were several fragments of the upper two thirds of the patella (Figure 1). Tomography of the patella in the frontal plane and arthrography showed these fragments more clearly. In T1-weighted MRI (TR450 msec, TE30 msec; Figure 1), the intensity in the upper two thirds was less than that of the contralateral knee. T2-weighted MRI (TR2000 msec, TE90 msec) showed an effusion that extended from the suprapatellar recesses to the posterior compartment of the knee. Arthroscopy revealed mild synovitis, degeneration of the articular cartilage, and several loose bodies, which were



Lateral view.



Tangential view.



Magnetic resonance image.

Figure 1. A 54-year-old woman with left knee pain.

removed together with fragments from the patella; finally, synovectomy was performed with an intra-articular shaver. Histologic examination showed empty lacunae in the trabeculae of the fragments. The cartilage was still alive. Since the operation, the patient has experienced no effusion or pain in the knee for a year.

## Discussion

Osteonecrosis of the patella should be differentiated from osteochondritis dissecans (Edwards and Bentley 1977), bipartite or multipartite patella (Holsbeeck et al. 1987), and fracture (Scapinelli 1967). In osteochondritis dissecans, the patients are younger and the site of the lesion is the lower part of the patella. In bipartite patella, the lesion site is the upper part, and the fragments are alive histologically (van Holsbeeck et al. 1987). This live bone can be detected by MRI.

Scapinelli (1967) reported 41 cases of necrosis of the patella in 160 transverse patellar fractures. The proximal fragment of the patella was the site of necrosis. There was no case of necrosis in the distal fragment.

Cameron (1985) reported 8 cases of necrosis of the patella in 160 knee replacements with medial parapatellar incision and lateral retinacular release. Radiography showed complete fragmentation of the patella in 3 cases and partial fragmentation in the rest of the upper half of the patella only.

Magnetic resonance imaging shows the extent of the lesion, and the involvement of the patella was

assessed in our case on the basis of the low intensity signal of the T1- and T2-weighted images (Lotke and Ecker 1988, Mitchell et al. 1989, Pollack et al. 1987).

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