

## Case Report

# “Silent” Transverse Patellar Fracture Following Anterior Cruciate Ligament Reconstruction

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**Abstract:** Patellar fracture is a rare but specific complication of anterior cruciate ligament reconstruction using bone–patellar tendon–bone autograft. When this complication occurs, early internal fixation is recommended and need not compromise the outcome. We report 2 cases of displaced transverse patellar fracture occurring after reconstruction but which were not diagnosed and presented with late sequelae. **Key Words:** Patellar fracture—Anterior cruciate ligament.

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A 52-year-old man slipped on some steps 3 months after anterior cruciate ligament (ACL) bone–patellar tendon–bone reconstruction. His knee gave way and he felt a tearing sensation. The original surgeon reviewed him, blood was aspirated, and physiotherapy advised. No radiographs were taken. The patient continued to complain of anterior knee pain and swelling and, therefore, underwent arthroscopy, which was reported as normal. One year following his post-operative fall, he presented for a second opinion complaining of retropatellar pain and grating, weakness, and the feeling of instability. Examination at this stage revealed reduced quadriceps tone and bulk, and abnormal patellar shape, size, and contours. Radiographs confirmed a displaced, nonunited transverse fracture of the patella (Fig 1). The patient un-

derwent a patellar osteotomy with rigid internal fixation (Fig 2) and achieved bony union without further problem. At 6-month review, he had regained quadriceps tone and reported a vast improvement in symptoms.

A 25-year-old woman presented 5 years after ACL reconstruction with a locked right knee due to a bucket-handle tear. Examination of the knee revealed reduced quadriceps tone, an effusion, and a prominent superior portion of the patella with irregularity and tenderness over the bone–patellar tendon–bone graft site. Radiographs showed an old displaced, nonunited transverse fracture of the patella. Further questioning revealed that, 6 weeks after her ACL reconstruction, she had slipped, which resulted in acute pain and swelling of the right knee. The patient was reassured by the original surgeon and treated symptomatically. No radiographs were taken. The patient underwent arthroscopic assessment and excision of the medial meniscal tear. The retropatellar surface had excessive fibrous tissue in the fracture line, which was debrided along with a trochlea chondroplasty. At 6-month review, her symptoms were much improved and her quadriceps tone had increased. The patient did not wish to consider a patellar osteotomy unless her symptoms deteriorated.

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### DISCUSSION

Patellar fracture is a recognized complication of ACL reconstruction using a bone–patellar tendon–bone autograft.<sup>1-4</sup> The reported incidence of this complication is approximately 2%.<sup>2,3</sup> This may occur at the time of harvest or postoperatively. Recognition of this complication and immediate or early internal fixation should not compromise rehabilitation or outcome from ACL reconstruction.<sup>1-3,5</sup>

Transverse patellar fractures usually occur postoperatively as a result of low-energy trauma. It has been suggested that transverse patellar fracture may be due to decreased vascularization of the patella after surgery.<sup>5</sup> Others have argued that transverse fractures result from tension from quadriceps muscle contraction acting on an osteopenic patella following surgery



FIGURE 1. Displaced nonunited transverse patellar fracture.

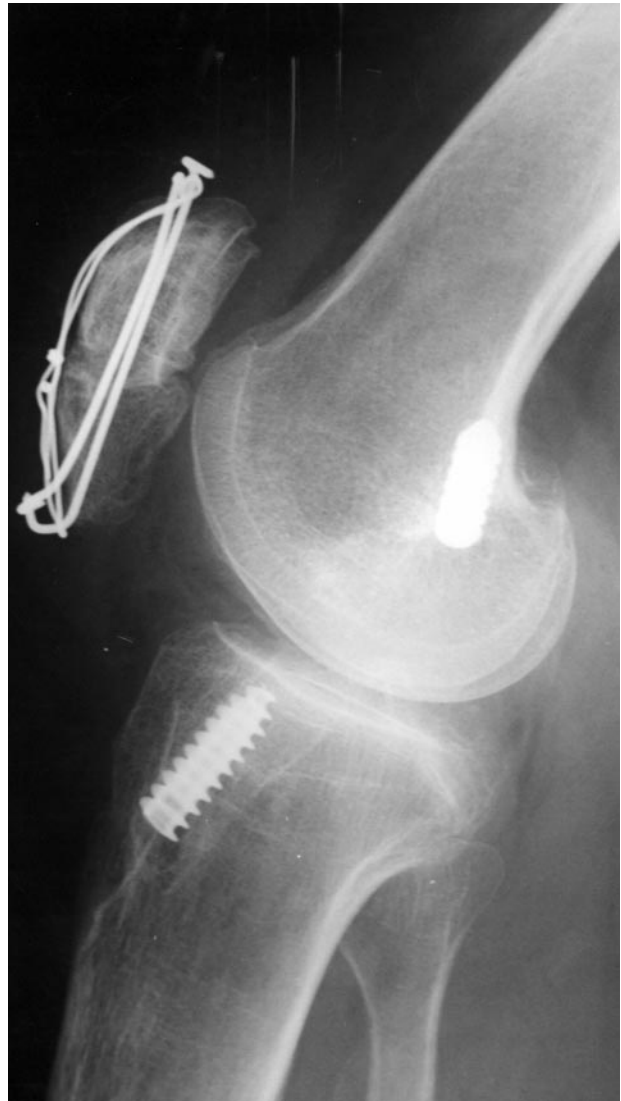


FIGURE 2. Patellar osteotomy, reduction, and internal fixation allowed bony union.

and a period of immobilization.<sup>6</sup> It is likely that displaced transverse patellar fractures result from the donor site acting as a stress riser.<sup>2</sup>

Treatment of patellar malunion is difficult. Historically, patellectomy was the procedure of choice.<sup>7</sup> However, this may well be a less satisfactory option than arthroscopic debridement or corrective osteotomy. There is little debate that acute displaced patellar fractures should be reduced and internally fixed. In the 2 cases we report, the opportunity to intervene and prevent a chronic problem was lost. When a patient's postoperative history and symptoms indicate a problem, appropriate radiographs should always be obtained.

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