Patella distal pole avulsion secondary to osteomyelitis in a healthy adult

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ABSTRACT

Primary haematogenous patella osteomyelitis in an adult is a rare condition. Cases published in the literature relate predominantly to the paediatric population or are associated with risk factors such as intravenous drug abuse, human immunodeficiency virus and penetrating trauma. The rarity of this condition and its atypical presentation should be borne in mind while treating a patient with anterior knee pain. It is crucial to evaluate radiography of diagnostic quality carefully.

KEYWORDS

Patella – Osteomyelitis – Avulsion

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A fit and healthy 66-year-old man attended the accident unit following a forced flexion injury to the right knee. A distal pole patella avulsion with disrupted extensor mechanism was diagnosed and a fracture clinic appointment made. The following day the patient was admitted from the fracture clinic for surgery to repair his extensor mechanism. It was noted that he had had anterior knee pain for three months following a fall and had been reviewed privately for this with a diagnosis of bursitis. He did not receive any specific treatment and no aspiration or injection was carried out. There was no history of penetrating injury. Routine preoperative blood tests were unremarkable but inflammatory markers were not examined. Presentation radiography of the right knee (Fig 1) was reported only as showing an inferior pole avulsion fracture of the patella.

Radiography was reviewed the following morning in the trauma meeting, where the images were presented on a large LED screen. The history was again presented and the radiography findings of the inferior pole avulsion were noted.

Intraoperatively, the surgeon noted a disrupted extensor mechanism with a haematoma that, surprisingly, appeared infected. Microbiology specimens were sent. The patient had received a single dose of cefuroxime at induction of anaesthesia but no antibiotics were continued postoperatively. Surgery to repair the extensor mechanism was routine with transosseous suturing through the patella using Ethibond® sutures (Ethicon, Somerville, NJ, US).

The patient was discharged home in a hinged knee brace to allow a restricted range of movement. There was

Figure 1 Radiography prior to first procedure: anteroposterior (left) and lateral (right)

Figure 2 Radiography prior to second procedure: anteroposterior (left) and lateral (right)

Figure 3 Radiography one year following second procedure: anteroposterior (left) and lateral (right)

no bacterial growth on initial cultures at 72 hours. Delayed cultures at one week, however, grew sensitive *Staphylococcus aureus*. His general practitioner reviewed the results and prescribed oral flucloxacillin. He was reviewed in our clinic two weeks after his operation.

The patient failed to progress after the initial operation, with marked stiffness and pain as well as persistently raised inflammatory markers. His initial presentation and radiography were therefore reviewed. The abnormal bone texture of the patella was noted, raising the possibility of a patella osteomyelitis that led to the inferior pole avulsion and a subsequent septic arthritis of the knee. The radiologists re-reported the x-ray to reflect this. He underwent a second operation three months after the initial surgery. This consisted of open surgery to perform adhesiolysis and debridement. Dense adhesions were noted throughout the knee with patchy chondral loss from the femoral condyles and trochlea. No free fluid was present in the knee and no collections of pus or macroscopic infection were identified.

Postoperatively, the patient was placed on continuous passive motion and a long line was placed for intravenous antibiotic administration. Intravenous antibiotics were given for two weeks until the inflammatory markers normalised and oral antibiotics were continued for six weeks. He was reviewed regularly in clinic. At 10 months after the second operation, he had achieved 0–90° of flexion with an intact extensor mechanism and normal inflammatory markers. His radiography had improved markedly.

Discussion

Acute pyogenic haematogenous osteomyelitis of the patella is exceedingly rare in adults.¹ It has been reported in the

paediatric population between 5 and 15 years of age, presumably related to the increased vascularity of the patella in this age group

We believe that this is the first reported case of an inferior pole avulsion fracture of the patella secondary to acute haematogenous osteomyelitis leading to septic arthritis of the knee. We could not find any literature on acute patella fractures secondary to pyogenic osteomyelitis of the patella in adults. There is a single case report of a patella fracture related to Goltz syndrome, a rare dermal hypoplasia.² There are multiple published case reports of pyogenic osteomyelitis of the patella in adults but all with an associated risk factor such as systemic tuberculosis, pseudomonas, human immunodeficiency virus or myeloma.^{3–5}

The correct diagnosis was never suspected in this case but, given the rarity, this is not surprising. Reviewing radiography in trauma meetings on large non-diagnostic quality screens does not help and can lead to subtle findings being missed although in this case the radiography was also reported as only showing the pole avulsion by our radiologists. On reviewing the initial imaging retrospectively, we could clearly identify abnormal bone texture of the patella on the lateral radiograph. This emphasises the fact that radiographs should be comprehensively evaluated in every patient. Delays in treatment also occurred due to the delayed culture results of the intraoperative specimens not being acted on or followed up given the intraoperative findings, emphasising the importance of follow-up of investigations.

The patient's outcome following his subsequent treatment has been surprisingly good, helped by the patient's motivation to do well. Nevertheless, it is likely that he will go on to develop arthrosis secondary to chondrolysis although his radiographs do demonstrate the capacity for improvement in the appearance of the knee with aggressive treatment.

One should remember that a high index of suspicion for the rarer diagnoses will serve us well.

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