MRI features of a quadriceps tendon rupture

Cliodhna Ni Fhoghlu, Prasad Ellanti, Andrew Moriarity, Tom McCarthy

Department of Trauma and Orthopaedics, St James's Hospital, Dublin, Ireland

Correspondence to
Dr Prasad Ellanti,
prasad.ellanti@gmail.com

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DESCRIPTION

Quadriceps tendon (QT) ruptures are uncommon injuries that predominantly affect middle-aged men.¹ Ruptures occur as a result of direct or indirect trauma to the knee with a powerful eccentric contraction of the QT being the most frequent cause of the rupture. Degenerative changes associated with ageing have been shown to be a factor with QT ruptures. Spontaneous QT ruptures have been shown to be associated with predisposing conditions such as diabetes, chronic renal failure, gout and quinolone antibiotic use among others. The diagnosis of QT ruptures are frequently missed or delayed. Clinical features of QT ruptures include the triad of pain, loss of extension and a supra patellar gap. However, clinical examination may be

limited by both pain and swelling leading to a high rate of missed diagnosis.² Radiographic features include obliteration of the quadriceps shadow, a supra patellar soft tissue mass due the retracted tendon and an osseous avulsion fragment from the proximal pole of the patella. A low-riding patella or patella baja is another feature suggestive of a QT rupture (figure 1). The Insall-Salvati index which is a ratio of the patella tendon length to the patella length on the lateral radiograph is useful in detecting a low-riding patella or patella baja when the index is <0.8 . Ultrasonography has been shown to be a better modality than radiographs for diagnosis of QT ruptures. It is inexpensive and dynamic, but is operator dependant. MRI is better but is limited by its availability and high cost (figure 2).³

Figure 1 (A) Lateral radiograph of a normal knee. (B) Lateral radiograph of a knee with a quadriceps tendon rupture demonstrating a low lying patella (patella baja), suprapatellar calcific density (solid arrow) and obliteration of the quadriceps tendon shadow and haematoma (dashed arrow).

Figure 2 T1-weighted and T2-weighted sagittal images of the knee demonstrating the ruptured quadriceps tendon (solid arrows) and a large haematoma (dashed arrow).

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Learning points

- ▶ Quadriceps tendon (QT) ruptures are uncommon injuries that predominantly affect middle-aged men.
- ▶ The diagnosis of QT ruptures are frequently missed or delayed. Clinical features of QT ruptures include the triad of pain, loss of extension and a supra patellar gap.
- ▶ Ultrasonography is better than plain film radiographs in aiding the diagnosis of QT ruptures. MRI is better but is limited by its high cost and availability.

Contributors NF: image and data gathering; PE and AM: writing the manuscript; TM: treated the patient and clinical supervisor.

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