Chronic Patellar Tendon Rupture
A Case Report With Associated Imaging

Patrick Graham

Introduction
Rupture of the patellar tendon is a disabling diagnosis most commonly associated with a forceful eccentric loading of the extensor mechanism during strenuous activity (Boublik et al., 2011; Matava, 1996). A neglected, chronic rupture of the patellar tendon is quite rare. The actual incidence and prevalence of this are unknown (Tsitskaris, Subramanian, & Crone, 2013). A delay in presentation, as is discussed here, is a poor prognostic indicator (Frois-Temponi, de Carvalho, da Silva-Bernardes, & Presses-Teixeira, 2016; Matava, 1996; Ramseier, Werner, & Heinzelmann, 2006). Predisposing factors include repetitive microtrauma of the tendon, medical conditions known to weaken tendons and ligaments (i.e., rheumatological, autoimmune, scleroderma), adverse drug effects (i.e., use of fluoroquinolones), or long-term use of corticosteroids either systemic or locally (Enad, 1999; Matava, 1996).

Case Presentation
A 48-year-old man presented for evaluation about 10 months after sustaining a right knee injury playing basketball. He reported social and insurance issues that resulted in his delayed presentation.

He was jumping for a rebound when felt a sudden “pop” of the anterior knee. Immediate onset of pain inhibited his ability to continue playing that day. He reported progressive swelling over the next couple hours. There was faint discoloration in the days that followed. He was diligent about rest and icing, took ibuprofen for the pain, and wore a knee brace for several weeks. He noted gradual improvement of the pain and swelling, eventually resolving over a couple months’ time. Unfortunately, he noted continued issues with knee mechanics, functional deficits (i.e., unable to ascend/descend stairs in a reciprocal fashion), weakness, and instability.

He presented as an alert, oriented, affect-appropriate man in no apparent distress. He ambulated with a quadriceps gait, without use of an assistive device. Inspection revealed a high-riding patella (see Figure 1). The patella was hypermobile with unrestricted patellar glide. He noted this to be “uncomfortable but not painful.” Passive range of motion of the knee was smooth, painless, and grossly equal bilaterally. His active range of motion was impaired by the obviously lacking extensor mechanism, unable to perform active extension, although appropriate quad firing was noted. He displayed a positive extensor lag. His knee was otherwise stable with ligamentous testing. He had no pain with the McMurray or Apley test and was distally neurovascularly intact.

Radiographs of the knee were obtained and evident for a high-riding patella (patella alta) without evident fracture (see Figure 2). The Insall–Salvati ratio was far outside the normal range, consistent with a rupture of the patellar tendon (Tsitskaris et al., 2013). With this finding, it was recommended that the patient undergo magnetic resonance imaging (MRI) to evaluate tendon gap as well as any concurrent internal derangement of the knee (Boublik et al., 2011; Johnson & Kulig, 2009; Matava, 1996). The MRI findings were consistent with
chronic patellar tendon rupture with retraction of the torn tendon (see Figure 3). There was no other internal derangement identified.

Management
Definitive management of a patellar tendon rupture, be it acute or chronic, requires the expertise of an orthopaedic surgeon (Boublik et al., 2011; Frois-Temponi et al., 2016; Ibraheem & Massoud, 2010). This patient was referred to a sports medicine surgeon for definitive management and is likely to undergo reconstruction of extensor mechanism with a cadaver patellar tendon allograft.

There are various methods for repair, surgeon- and patient-specific, and include the use of autograft, allograft, or synthetic materials (Tsitskaris et al., 2013). A delayed presentation, as is noted here, makes for a more complicated surgery with less favorable outcomes even if satisfactory repair is achieved (Enad, 1999; Frois-Temponi et al., 2016; Matava, 1996). After a time of protected weight bearing and immobilization, an aggressive rehabilitation program that includes range-of-motion exercise, quadriceps strengthening, and knee stabilization exercises is best for optimal outcomes (Matava, 1996).

Discussion
Although rare, the advanced practice nurse should be aware of clinical and radiographic findings concerning for patellar tendon rupture. With appropriate clinical suspicion, the advanced practice nurse should obtain appropriate advanced imaging studies and facilitate a transition of care to an orthopaedic surgeon. Doing so, in a timely fashion, provides the best chance for optimal patient outcomes and a return to previous level of function.

REFERENCES

FIGURE 2. Anteroposterior/lateral radiographs of the right knee. Note the high-riding patella. The Insall–Salvati ratio, patellar tendon length/patella length, for this patient is 2.58 (normal = 0.8–1.2), which is diagnostic for patella alta and consistent with patellar tendon rupture.

FIGURE 3. Magnetic resonance image: sagittal T2. Note tendon gap (circled) and retraction of tendon with a serpent-like appearance (dark, inferior to patella).

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