

Bipartite Patella and Bilateral Quadriceps Tendon Rupture

Gurpreet Sarwan, DO; Diane Moya, DO; Sukhdeep Bains, DO; Neal Bryan Rosario, MD; Hameer Thatte, DO; Daniel Scura, DO

Adam Isaacson, MD

Department of Physical Medicine and Rehabilitation
Nassau University Medical Center, East Meadow, New York

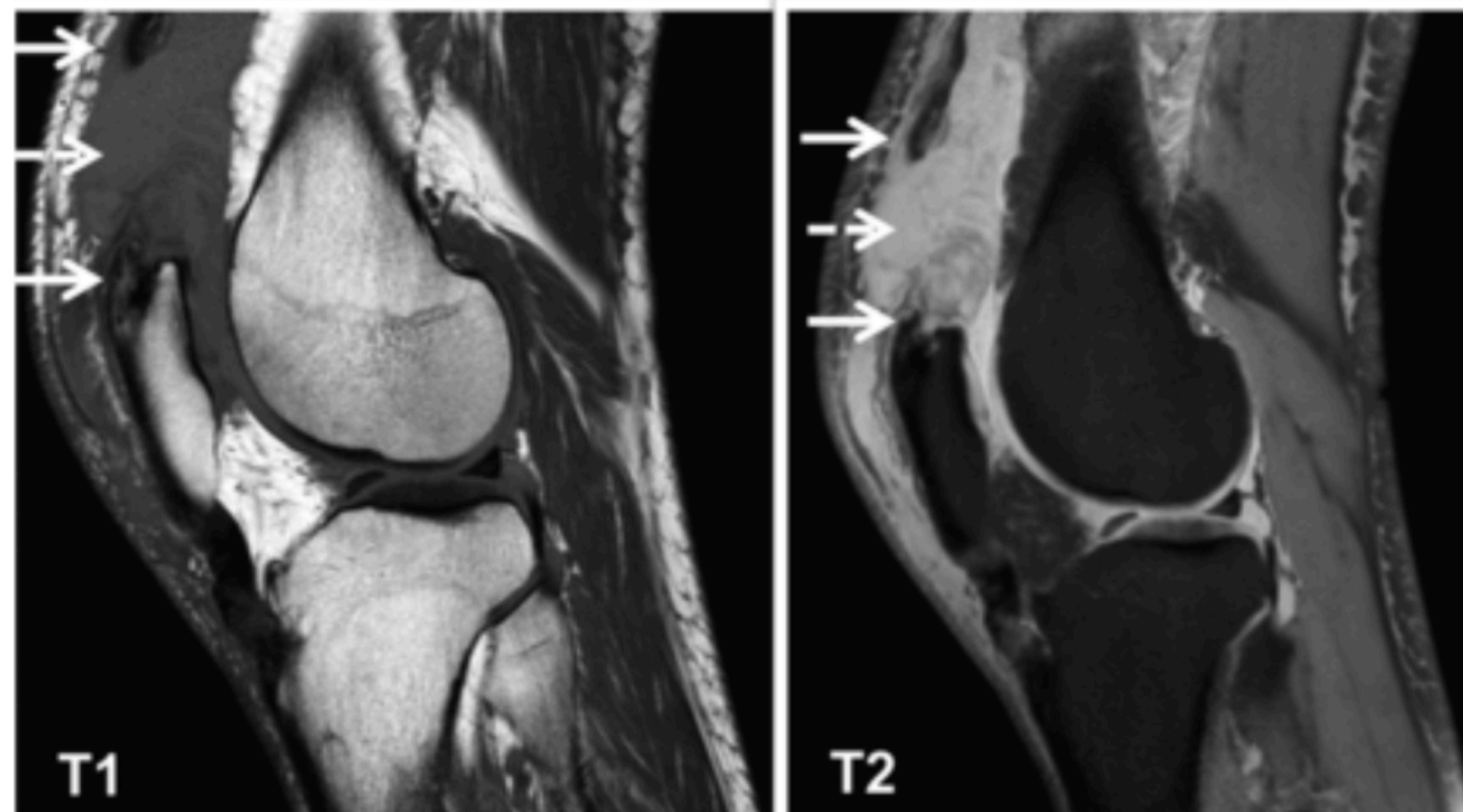


Case Description

A 55-year-old African American male with a past medical history of type 2 diabetes, hypertension, obesity, and hyperlipidemia came in for bilateral leg pain after a fall.

He states he was working on a construction project in his backyard, digging a ditch several feet deep. He then attempted to climb out, jumped, and heard a pop in both of his knees. The patient immediately fell, had severe pain, and was unable to ambulate.

On hospital admission, the patient was found to have large effusions on bilateral knees with prominent bulges, similar to the “Popeye” deformity seen in biceps tendon rupture.



Sagittal images of T1-weighted and T2-weighted of the knee - ruptured quadriceps tendon (**solid arrows**) and a large hematoma (**dashed arrow**).

Celik EC, Ozbaydar M, Ofluoglu D, Demircay E. Simultaneous and spontaneous bilateral quadriceps tendons rupture. *Am J Phys Med Rehabil.* 2012 Jul;91(7):631-4. doi: 10.1097/PHM.0b013e3182555dbb. PMID: 22561379.

Discussion

MRI results revealed full-thickness complete insertional tears of the quadriceps tendon bilaterally. In addition, the left knee showed an avulsed bipartite fragment along the superolateral aspect of the patella. Bipartite patella occurs when the secondary ossification center of the patella fails to fuse with the primary center. Bipartite patella with quadriceps tendon rupture is uncommon and often misdiagnosed. Risk factors for quadriceps tendon rupture include chronic kidney disease, diabetes mellitus, obesity, and gout. Pharmaceutical risk factors include anabolic steroid use, fluoroquinolones, and statin use.

Conclusion

This patient underwent bilateral quadriceps tendon surgical repair one-day later after diagnosis. He was placed in bilateral knee immobilizers, instructed to keep his knees locked in extension, with no weight-bearing bilaterally for the first six weeks post-operatively. After this time, the patient transitioned to start passive range of motion and slowly advance his therapy.

The combination of this mechanism of injury, presence of bipartite patella, along with risk factors of diabetes, obesity, and statin use, all make this a rare and compelling case.

References:

- Pope JD, El Bitar Y, Plexousakis MP. Quadriceps Tendon Rupture. 2020 Sep 14. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. PMID: 29494011.
- Secko M, Diaz M, Paladino L. Ultrasound diagnosis of quadriceps tendon tear in an uncooperative patient. *J Emerg Trauma Shock.* 2011;4(4):521-522. doi:10.4103/0974-2700.86652
- Celik EC, Ozbaydar M, Ofluoglu D, Demircay E. Simultaneous and spontaneous bilateral quadriceps tendons rupture. *Am J Phys Med Rehabil.* 2012 Jul;91(7):631-4. doi: 10.1097/PHM.0b013e3182555dbb. PMID: 22561379.
- Gorva AD, Siddique I, Mohan R. An Unusual Case of Bipartite Patella Fracture with Quadriceps Rupture. *European Journal of Trauma* 2006;32:411-3
- Mohammad HR, Bitar S, Laughlin-Symon IM, Henry A, Batra G. Bipartite patella separation with quadriceps tendon avulsion: A rare surgical case. *International Journal of Case Reports and Images* 2014;5(2):155-159.
- Abate M. How obesity modifies tendons (implications for athletic activities). *Muscles Ligaments Tendons J.* 2014;4(3):298-302. Published 2014 Nov 17.