

Case background

49-year-old tall (6'+), obese male fell down a flight of stairs while taking out garbage

Initially seen in ER, XRay negative & no ultrasound obtained; sent home with a splint

Presented one week later to orthopedics. Repeat evaluation with inability to extend his right leg & difficulty extending his left

Noted to live in a 5th floor walk-up prior to admission

Case description

Exam demonstrated:

- Palpable gap at superior pole of right patella & lack of active knee extension
- Extensor lag of left knee

MRI confirmed bilateral quad tendon rupture

Underwent bilateral surgical repair & discharged to acute rehab with Bledsoe braces locked in full extension

Able to ambulate but restricted from stairs until cleared for 50 degrees of knee flexion (4 weeks post-op)

Strength rapidly increased after flexion clearance with ability to climb stairs prior to DC

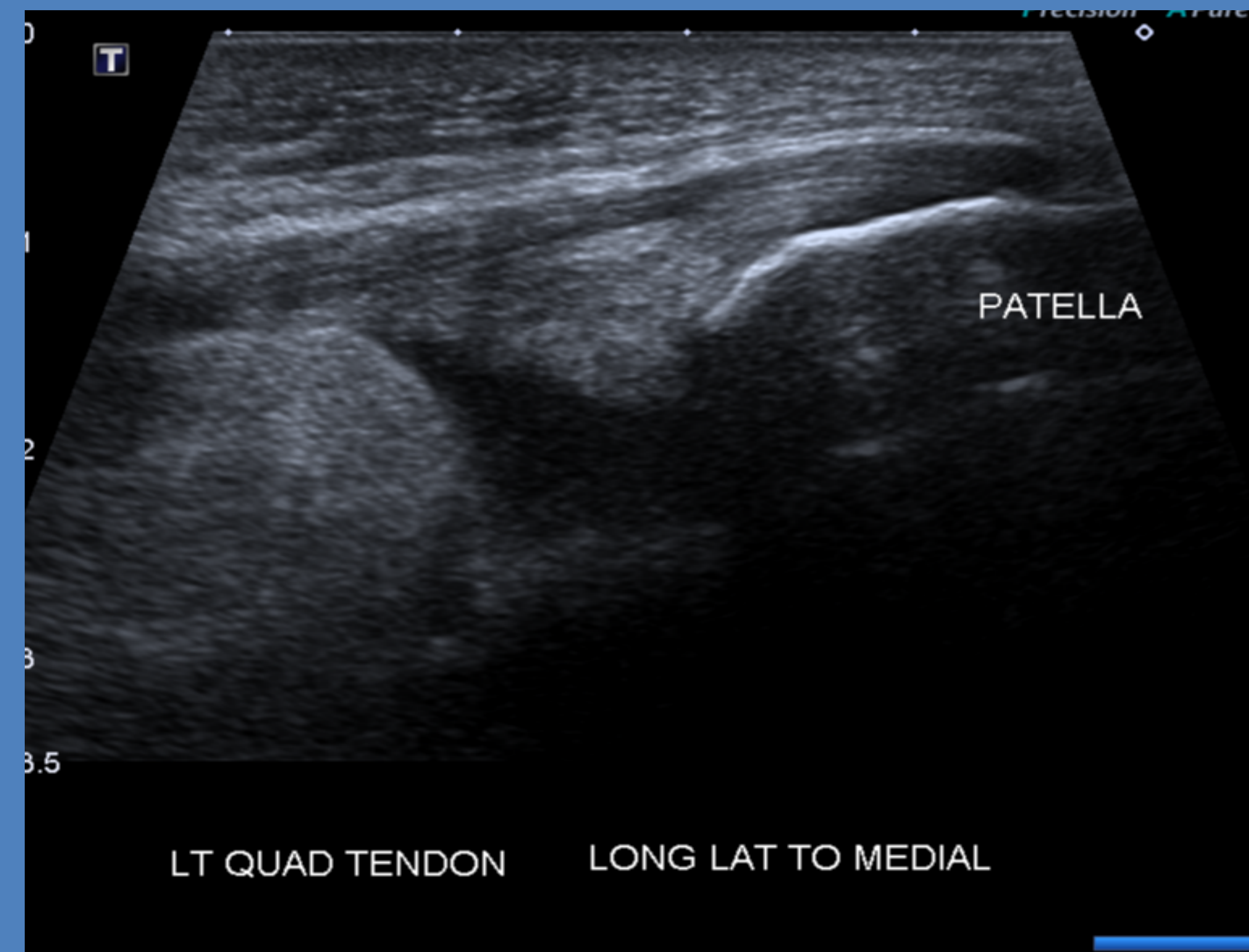
Discussion

- Simultaneous rupture of bilateral quadriceps tendons is rare: just over 100 case reports in the literature
- A significant number of these cases result from falling down stairs, a position in which the knee is flexed and quads are contracted (likely in an attempt to prevent falling)
- Risk factors for rupture include advanced age, obesity, CKD, steroid use, gout & endocrine disorders.
- Many cases are diagnosed via MRI although ultrasound is available & may allow for more rapid diagnosis & treatment
- In addition, there is currently no standardized protocol for rehabilitation although previous cases report use of locked extension braces for the first 6 weeks followed by progressive quad strengthening.

Conclusion

- In addition to a thorough physical exam, point-of-care ultrasound should be used in patients with even low suspicion of quadriceps tendon injury to rule out rupture
- Flexion clearance may be required earlier to help quadriceps strengthening and allow for improved negotiation of stairs

Images



Left: Case courtesy of Dr Bruno Di Muzio, Radiopaedia.org, rID: 48031
 Right: MRI of complete right quadriceps tendon rupture from our patient

References

Govindu R, Ammar H, George V. Bilateral Quadriceps Tendon Rupture. *J Clin Rheumatol*. 2019;25(5):e63-e66.

Hansen L, Larsen S, Laulund T. Traumatic bilateral quadriceps tendon rupture. *Journal of Orthopaedic Science*. 2001;6(2):187-188. doi:10.1007/s007760100069

LaRocco BG, Zlupko G, Sierzenski P. Ultrasound diagnosis of quadriceps tendon rupture. *J Emerg Med*. 2008;35(3):293-295.

Meester S, Lee S. Spontaneous bilateral quadriceps tendon rupture. *Am J Emerg Med*. 2018;36(6):1123.e5-e1123.e7.

Norris MG, Levack B. Bilateral simultaneous rupture of the quadriceps tendon: a case report. *Injury*. 1977;8(4):315-316. doi:10.1016/0020-1383(77)90109-7

Portugal DM, Capelo JA, Martins BD, Ribeiro IM, Ataíde SR, Vera-Cruz CV. Rehabilitation Approach After Surgical Repair of Spontaneous Bilateral Quadriceps Tendon Rupture in a Healthy Mason. *Am J Phys Med Rehabil*. 2019;98(5):e43-e46.

Shah M, Jooma N. Simultaneous bilateral quadriceps tendon rupture while playing basketball. *Br J Sports Med*. 2002;36(2):152-153; discussion 153.

Shah MK. Simultaneous bilateral rupture of quadriceps tendons: analysis of risk factors and associations. *South Med J*. 2002;95(8):860-866.