



Patellar tendon rupture after total knee arthroplasty: Was there contribution from adductor canal nerve catheter?

Danuka Ubayasena, MD; Michael Kissen, MD; Gabriel Pollock, MD
Department of Anesthesiology, Cedars Sinai Medical Center, Los Angeles, CA



Background

- Extensor apparatus rupture is a rare, but catastrophic complication following total knee arthroplasty.
- We present a case report of a patient who underwent a revision total knee arthroplasty with the placement of an adductor canal peripheral nerve catheter.
- The patient then sustained a patellar tendon rupture that required urgent surgical repair.
- Discussion focuses on risk factors including potential contribution from the adductor canal catheter.

Case Presentation

- 89 year-old female, with history of severe osteoarthritis, HTN, DM2 who presented for revision right total knee arthroplasty.
- Spinal anesthetic with an adductor canal peripheral nerve catheter for postoperative pain control.
- Patient successfully ambulated with physical therapy immediately following surgery without evidence of quadriceps weakness.
- Catheter was set to deliver 5 ml/hr of 0.2% ropivacaine, with an additional 2 ml demand dose every 30 min.
- Fifteen minutes after arriving home, the patient attempted to get into bed and sustained a patellar tendon rupture.

Postoperative Course and Complications

- She was readmitted and underwent a right knee extensor mechanism reconstruction and MCL repair under general anesthesia.
- Her adductor canal catheter was upgraded to a femoral nerve catheter.
- Her postoperative course was complicated by wound necrosis necessitating a right knee I&D and medial gastrocnemius muscle flap.
- She was subsequently discharged with a long leg cast after a prolonged hospital course.



Figure 1: Right Knee X RAY on POD1

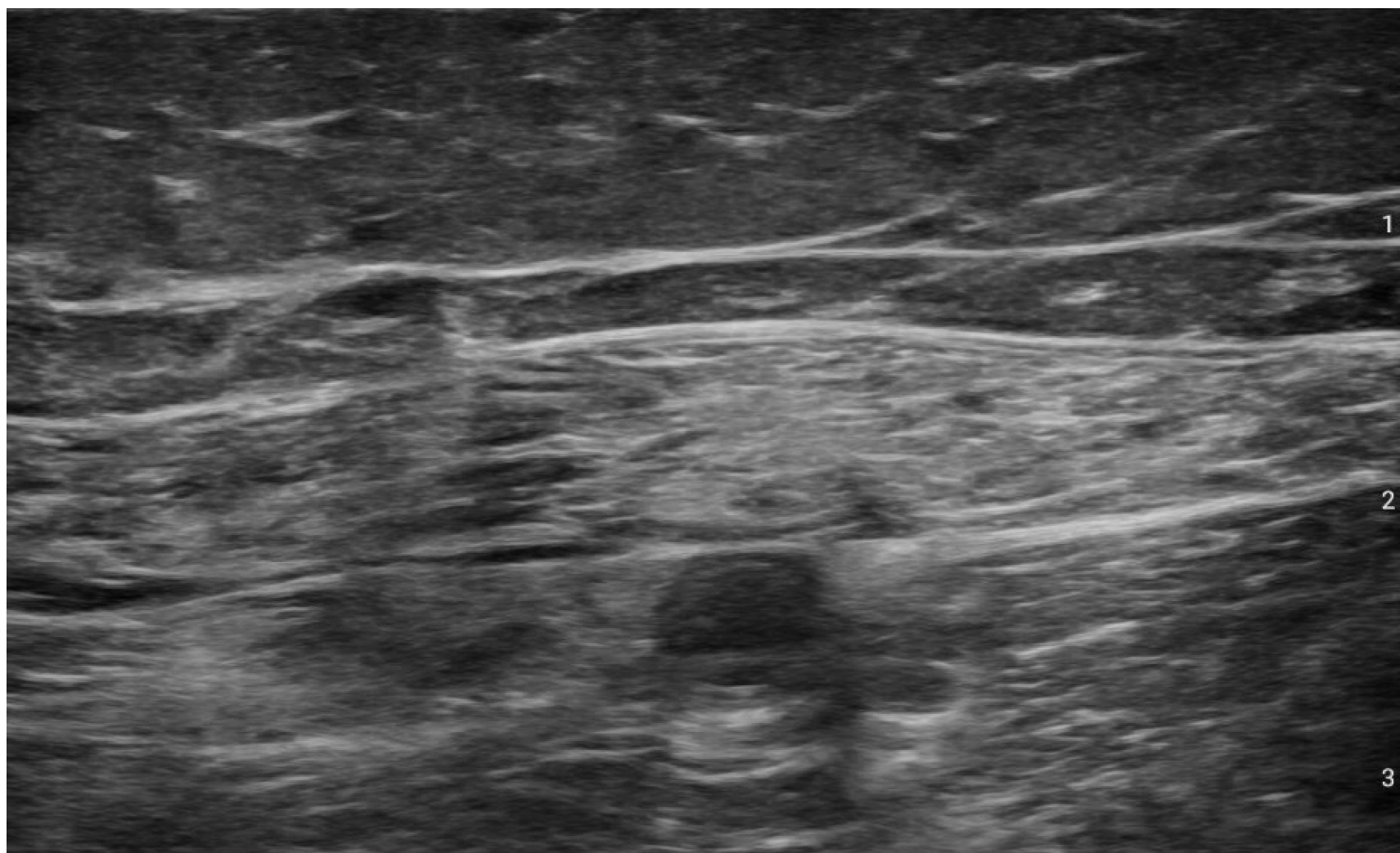


Figure 2: AC Catheter Placement

Discussion

- Non-traumatic risk factors for extensor apparatus rupture include old age, DM2, steroid joint injections and intermittent NSAIDs for osteoarthritis pain.
- Traumatic risk factors may include blunt force trauma, or excessive flexion of the knee.
- While adductor canal blocks minimize the risk of quadriceps weakness, there is a risk of retrograde spread of local anesthetic with blockade of the common femoral nerve.
- Goal is to decrease the likelihood of retrograde flow of local anesthetic and waxing/waning quadriceps weakness.
- We now use low volumes (10-15ml) of 0.25% bupivacaine with the initial bolus and wait several hours before starting the continuous infusion.
- We no longer allow patient controlled demand dosing and restrict infusions to basal rate of 4-5cc/hr. This avoids use of demand boluses for pain in distributions outside of the saphenous nerve.

References

Li TJ, Sun JY, Du YQ, Shen JM, Zhang BH, Zhou YG. Early patellar tendon rupture after total knee arthroplasty: A direct repair method. World J Clin Cases. 2022 Nov 6;10(31):11349-11357. doi: 10.12998/wjcc.v10.i31.11349. PMID: 36387798; PMCID: PMC9649570.

Rhee SJ, Pham TH, Suh JT. Acute Patellar Tendon Rupture after Total Knee Arthroplasty Revision. Knee Surg Relat Res. 2015 Jun;27(2):123-8. doi: 10.5792/ksrr.2015.27.2.123. Epub 2015 Jun 1. PMID: 26060612; PMCID: PMC4458483.

Swartz G, Bonanni S, Hameed D, Dubin JA, Bains SS, Patel DV, Mont MA, Delanois RE, Scuderi GR. Patellar Tendon Ruptures after Total Knee Arthroplasty. J Knee Surg. 2024 Oct 11. doi: 10.1055/a-2413-3962. Epub ahead of print. PMID: 39260423.