Just Another Reason to Dislike LAX…

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Case History

A 76 y.o. male with PMHX of HTN and DM2 presented to clinic 9/13/16 with ongoing "left knee pain". Per the patient he had "fallen down an escalator" on 8/23/16 in the LA airport. The patient denied hearing or feeling a pop and was unsure in what position he had landed. He noted immediate pain and swelling. He was able to bear some weight but unable to flex or extend his knee.

He completed his trip in a wheelchair and on arrival home used crutches. He went to his PCP one day after the fall where X-rays were completed without signs of fracture and the patient was sent home with an anti-inflammatory.

The patient continued to have pain and inability to move his left LE so he went to the ED (9/4/16) approximately 1 week after his PCP visit. Here he was found to have XR findings suspicious for a quadriceps tendon injury. He was placed in a hinged knee braced and instructed to continue use of crutches.

At the time of our visit, the patient had been taking meloxicam daily for inflammation without much relief of pain. A curbside consult with our orthopedic surgeon was completed for concern for a partial vs complete quadriceps tendon rupture.

Initial Physical Exam

General: No acute distress. Well appearing.
Circulation: Distal pulses intact. Cap refill < 3 sec.
Skin: Warm and dry. No rash.
Neurologic: Distal sensation intact.
Musculoskeletal:
<u>Left knee</u>
--Inspection: diffuse large effusion of L knee and atrophy of quad noted
--Palpation: tenderness over site of quad tendon insertion superior to patella, no joint line tenderness appreciated, no patellar tendon tenderness
--ROM: unable to actively move L LE; passively can flex to 30 degrees but with pain
--Strength: cannot assess b/c patient cannot actively flex or extend knee, cannot complete straight leg raise

Differential Diagnosis

Meniscal tear

ACL partial vs complete tear

PCL tear

Patellar dislocation

Tibial plateau fracture

Tests and Results

XR L knee initial- 8/24/16
Impression:
1. No acute fracture or dislocation of the left knee. If pain persists, repeat
radiographs in 7 to 10 days are recommended.
2. Mild soft tissue edema within the suprapatellar region and a ossific density
projecting superior to the proximal pole of the patella.
Recommend clinical correlation for quadriceps tendon injury.

XR L knee (repeat)- 9/4/16
Impression:
Findings consistent with left distal quadriceps tendon avulsion.

Final Diagnosis

Left Quadriceps tendon rupture.

Patient was subsequently scheduled for a L quadriceps tendon repair 9/15/16.

In the OR a COMPLETE rupture of the quadriceps tendon from the superior pole of the patella was found and repaired.

Discussion

Quadriceps tendon ruptures are more common in athletes over the age of 40 and usually occur from a sudden, forceful contraction of the muscle during deceleration or direct trauma. This patient's injury occurred in conjunction with his fall. Likely, our patient's knee was flexed beyond 45 degrees causing his quadriceps tendon to be at a mechanical disadvantage and therefore more susceptible to injury. Though the patient's physical exam was classic for quadriceps injury and confirmed with XR findings, there was concern regarding the amount of time which had lapsed between his initial DOI and diagnosis and the patient's prolonged period of immobilization. Per the orthopedic surgeon, the earlier you can repair a quadriceps tendon injury the better, and one resource pointed out that for partial quadriceps tendon repairs, a higher likelihood of success is anticipated when repair is conducted within the first 14 days of injury, thus prompting an orthopedic evaluation within 72 hours in an ideal situation. For complete quadriceps tendon injuries immediate surgical consult is warranted.

Outcome/Follow up

No complications during surgery were noted. The patient completed four post op visits with the surgeon, with one at two weeks, six weeks, three months, and 6 month and was progressed per protocol with physical therapy.

Two weeks: weight bearing in hinged knee brace, locked in full extension. ROM 0-30. Weak quadriceps contraction. Cannot complete straight leg raise.

Six weeks: ROM 0-100 degrees with active SLR. Patient permitted to stop use of knee brace at night.

Three months: ROM 0-120 with strong quadriceps strength. Gradual return to full activity permitted.

Six months: ROM 0-120 with strong quadriceps strength and good muscle tone. No issues with ambulation. Released to full activity as tolerated with return to clinic as needed.