

Musculoskeletal Injury — Olympic Weightlifting

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HISTORY: 65yo male lifetime weight lifter, lifting for the USA in the 94+kg category at the World Masters Championships in Copenhagen, Denmark, increases his final lift of the session, the clean and jerk, to 127kg, a large (12kg) increase from his previous lift. He has already won the gold medal and is now attempting a world record. He is able to clean the weight, then falls to the ground, grabbing his knee. He is unable to get up. After assistance with removing the lifter from the platform, a more complete history is obtained. He takes thyroid medication, has sleep apnea, and has been using dimethyl sulfoxide (DMSO) for the past 10 days topically to his knees. The competition takes place in Denmark and the patient has a “trip of a lifetime” planned for the following week after the tournament.

PHYSICAL EXAM: The patient is well-developed, well-nourished, well-muscled male in no apparent pain. He is unable to ambulate without assistance. Skin is intact, patient is neurovascularly intact. The left knee exam was negative for tenderness to palpation, negative for ligamentous laxity. Patient was not able to bear weight on bent left leg. The patient had a noticeable indentation in the skin/musculature just proximal to the patella. He has notable patella baja. He is unable to perform a straight leg raise against gravity. Negative Thompson’s test. The injury was captured on video.

DIFFERENTIAL DIAGNOSES:

1. Quadriceps tendon rupture
2. Sciatic nerve injury
3. Patellar tendon rupture
4. Fracture of femur
5. Fracture patella
6. Dislocation knee
7. Spinal cord injury
8. ACL tear
9. Achilles tendon injury.

TEST AND RESULTS:

Pathology report revealed: “Traumatic quadriceps rupture probably on degenerative basis. Several bony avulsions at the proximal patella pole. Tearing quite distal at bone-tendon junction.”

FINAL DIAGNOSIS: Complete tear quadriceps tendon, left knee.

TREATMENT AND OUTCOMES:

1. Patient wrapped proximally to distally mid-thigh to knee with an ACE wrap. Patient then placed in splint in full extension; splint was crafted from a cardboard box and tape.
2. Patient transported via car to orthopedic hospital in Copenhagen; patient was triaged as urgent non-emergent. He stayed overnight in the hospital and was taken for surgery the next day. Intraoperatively, the patient was found to have a fractured patella, thought to be from a previous injury.
3. Patient postoperatively was put in a hinged knee brace weight bearing as tolerated, and continued forearm crutches for comfort with instructions; two days postoperatively he was dancing with his wife at the event banquet.

Operative note was provided in English by the orthopedic hospital in Copenhagen: "In spinal anesthesia and sterile technique: Sharp through the skin over the patella. Blunt dissection to the rupture. Pathology as described above. Proximal patella pole is roughened with rovine. A larger bone fragment in the distal tendon end is cleaned up, the residue and minor fragments are removed. Rinsed thoroughly with NaCl and hematoma removed. Three parallel drill holes in the patella. Krachow sutures in the quadriceps tendon with Fiber wire x 2 which is bound tightly to the patella through drill holes. The capsule is repaired with Ethibond 2 madrass sutures. Patella retinaculum is also repaired. Further adaptive sutures in the tear with Ethibond 2. Stable repair when the knee is mobilized. Layer by layer closure with Vikryl in the fascia in subcutaneous tissue. Staples in the skin. Sterile dressing. DonJoy, locked in extension.

Plan:

Locked DonJoy for 2 weeks

After 2 weeks 0-30 degrees. Passive load within DonJoy restrictions is permitted.

Staple removal by the GP in 3 weeks.

After 4 weeks, 0-60 degrees.

After 6 weeks, 0-90 degrees.

Removal of knee brace after 8 weeks.

Active extension is allowed only after 8 weeks. Then gradually increasing load. Full support on stretched leg is allowed immediately."