

Tactoset[®] Case Report

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History of Present Illness

A 55-year-old active male complaining of significant left sided medial knee pain without swelling for 1 week. The patient recently returned from vacation during which he hiked 5 hours daily for three consecutive days. He denies pain in the knee prior to prolonged hiking. Symptoms are worse with walking, standing and stairs. Symptoms are not improved by rest, knee sleeve and ice. He is currently using crutches for comfort. Slightly improved with anti-inflammatory. He currently rates his pain 9/10 and worse pain is 10/10. He denies any prior injury to the left knee. He denies any prior treatment for either knee. He is employed as a massage therapist and initially thought he 'pulled a muscle' but admits he is having 'deep burning knee pain'.

Height: 6 feet 2 inches

Weight: 225 lbs

Body Mass Index: 28.9

Allergies: No known drug or medical allergy

Past Medical History: Hypertension

Medication: Anti-hypertensive medication, OTC anti-inflammatory

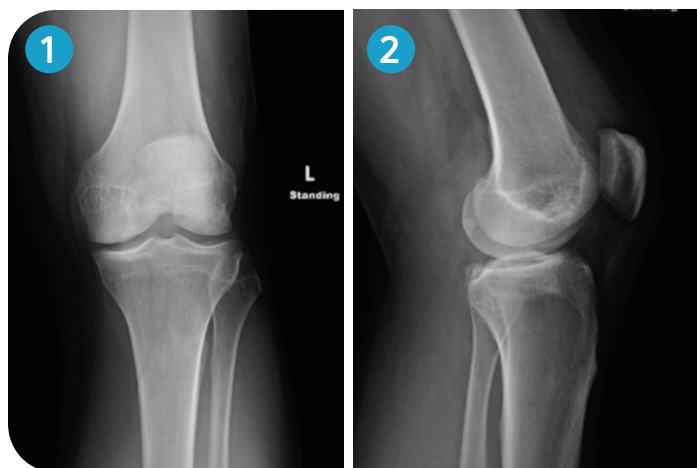
Past Surgical History: Left shoulder labrum repair

Social History: Employed - Massage Therapist

Pertinent Review of System: (+) Left knee pain

Focused Physical Exam

Left knee: Mechanical Alignment maintained. 1+ Effusion. Skin intact. (+) Severe Tender to palpation medial joint line along medial femoral condyle. No tenderness lateral femoral condyle. Neg. McMurry, Lachman. Range of motion 0-140 with mild pain with deep flexion.

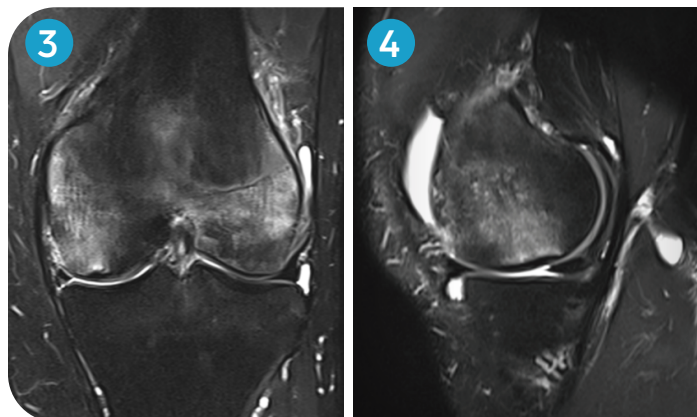


Imaging

X-ray: Weight bearing views of the Left knee (**Figures 1 & 2**): Skeletally mature knee without radiographic evidence of osteoarthritis. (-) osteophyte / subchondral sclerosis / decreased joint space / subchondral cyst.

MRI left knee: (Figures 3 & 4)

- Moderate to severe subchondral edema seen medial femoral condyle and lateral femoral condyle
- Focal chondral loss weight bearing portion of the medial femoral condyle
- Posterior horn medial meniscus tear
- Baker's cyst



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Diagnosis

1. Acute subchondral insufficiency fracture of the medial femoral condyle
2. Medial meniscus tear
3. Focal chondral defect medial femoral condyle

Plan

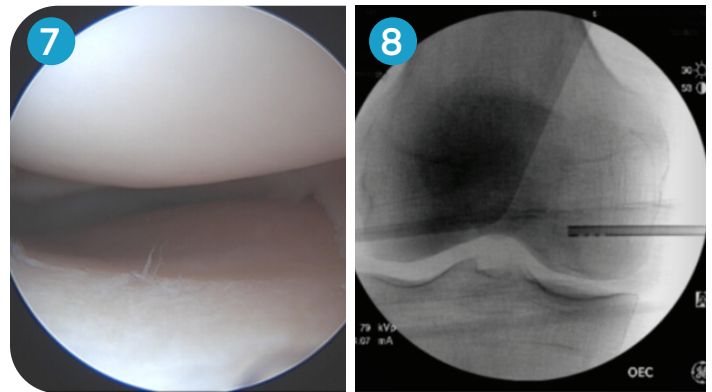
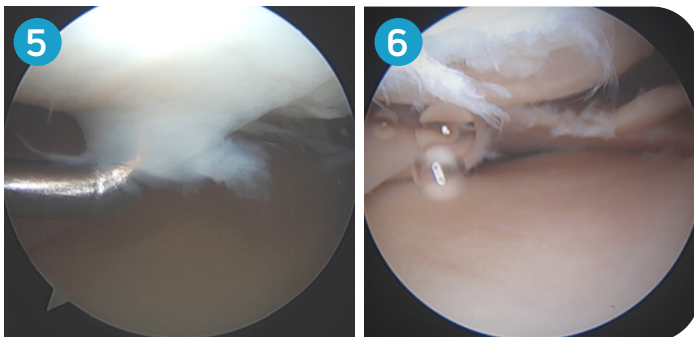
The pain generator in this case is the medial sided acute subchondral insufficiency fracture of the medial femoral condyle due to overuse. An intra-articular cortisone injection has not been shown to help with symptoms from a subchondral fracture. Patient failed conservative anti-inflammatory, ice and rest. Due to his significant debilitating symptoms and supporting MRI findings, the decision was made to proceed with surgical intervention.

Although the MRI demonstrated edema along the entirety of the medial femoral condyle, his symptoms were focused on the medial aspect. The lateral femoral condyle edema was deemed to be an extension from the medial subchondral edema from the insufficiency fracture.

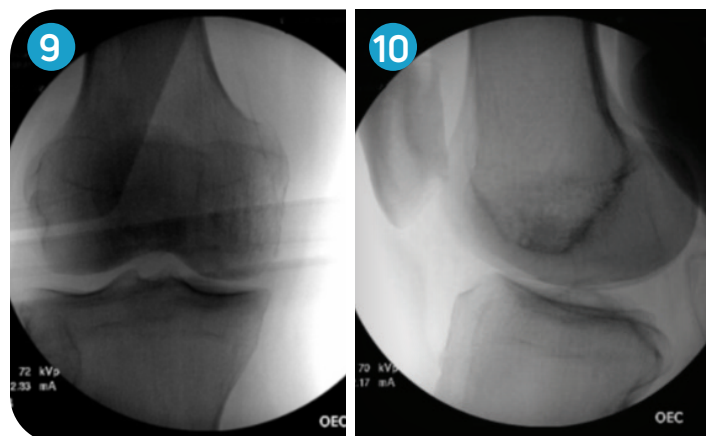
- Plan for left knee arthroscopically assisted fracture fixation of medial femoral condyle subchondral insufficiency fracture
- Left knee arthroscopic partial medial meniscectomy

Operation

1. **Knee Arthroscopy Setup:** A standard arthroscopic evaluation of the knee was completed and demonstrated a posterior horn medial meniscus tear and a focal 1.5cm chondral defect (**Figures 5 & 6**) at the weight bearing portion of the medial femoral condyle with a cartilage flap. Using a probe, the extent of the chondral defect was outlined and a motorized shaver was then used to debride the chondral flap. Lateral joint with intact meniscus and chondral surface. (**Figure 7**)



2. **Insertion of Cannula:** (**Figure 8**) Under fluoroscopic guidance, the location of the subchondral fracture was confirmed. The cannula was drilled into the correct location under fluoroscopic guidance. Then the inner cannula was removed leaving the outer cannula in place. The decision was made to use the side delivery system.
3. **Tactoset® Injectable Bone Substitute:** Tactoset was readied by a surgical tech once the patient arrived in the operative suite. The nurse in the room recorded the time once mixing began. The wait time prior to injecting 3cc of Tactoset was 10 minutes. Tactoset was injected circumferentially into the subchondral fracture under image guidance as well as arthroscopic inspection of the joint to confirm no extravasation.
4. **Final Imaging:** Tactoset was set to cure for 10 minutes, after which final fluoroscopic images were obtained to demonstrate radiopaque Tactoset correctly placed into the area of subchondral insufficiency fracture. (**Figures 9 & 10**)



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Discussion

Activity-related acute subchondral insufficiency fractures can cause significant pain and disability in patients. Timely arthroscopic fixation of these fractures can lead to significant improvement in patients symptoms and ability to return to their activities.

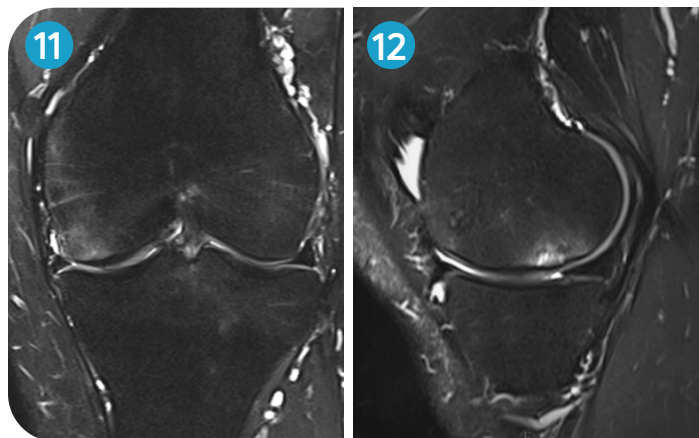
Arriving to a correct diagnosis is sometimes challenging due to the patient's acute presentation of severe knee pain without a mechanism of injury (ie. trauma). It is important to critically obtain an accurate history and do further imaging such as an MRI. This will further demonstrate the acuity and location of the subchondral fracture, which is usually in line with the location of pain during the physical exam, in this case, the medial aspect of the femoral condyle. Once the correct diagnosis of subchondral insufficiency fracture has been established, the corrective surgical intervention of arthroscopic-aided fixation via Tactoset offers patients an important minimally invasive treatment option. The patient was weight bearing as tolerated post-operatively and was walking without crutches by post-op day 3. He did 2 weeks of formal physical therapy and was able to resume all his normal activities 3 weeks after surgery.

As a surgeon who has used other commercially available systems for treatment of subchondral insufficiency fractures, Tactoset offers several distinct advantages. The mixing of the Tactoset is significantly easier and reproducible which allows for consistent volume to be injected into the treatment area. The cannula design allows a surgeon to inject with the side and/or end delivery without removing the outer cannula. This allows for increased intraoperative flexibility and decreased operative time. With the addition of the hyaluronic acid, the Tactoset has greater flow and is easier to inject, providing more efficiency during the surgical procedure.

18-Month Post-Op Visit

This patient returned 18 months post-op from his left knee arthroscopy complaining of mild medial-sided knee pain. On exam, his tenderness was over the medial meniscus. He maintained full range of motion but did have a mild effusion. X-ray at that time demonstrated no change from before. To rule out a re-tear of the medial meniscus and recurrence of the subchondral insufficiency fracture, an MRI of the left knee was ordered.

In reviewing the MRI, it was shown that all of his subchondral edema from the lateral femoral condyle and over 95% of the edema from the medial femoral subchondral fracture were healed. (Figures 11 & 12)



There were no signs of a medial meniscus tear. However, he did have a focal chondral defect of the articulating surface on the weight bearing portion of the medial femoral condyle. His left knee was then treated with intraarticular viscosupplementation for the cartilage defect.

For complete product information including instructions for use, please visit: www.anikaifu.com

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