

Utilization of a Next Generation Decellularized Dermal Allograft in Complex Fascial Repair of Former Lateral Release and Revision of Left Total Knee Arthroplasty (TKA)

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Surgical Summary

Clinical Presentation:

- 53 year-old male with history of pain 4/10 and edema involving the left lateral peri-patellar area and lateral quadriceps tendon region without radiation of pain. Symptoms developed gradually with onset of climbing stairs, standing, and squatting. Utilizes cane for ambulation. Prior Left TKA 12/2014.
- Exam revealed a large effusion, painful, palpable soft tissue mass over former lateral release site.
- Range of Motion:
 - o Knee Extension 10 degrees (10 degrees flexion contracture)
 - o Knee Flexion 100 degrees
- Knee Stability: Lateral midrange instability present, primarily on the lateral side.
- Strength: No weakness present in quadriceps or hamstrings.
- Standard radiograph showed a cemented TKA and minor radiolucent lines under the tibial baseplate medially.

Intraoperative Findings:

- Cruciate retaining knee implant with noted hypertrophy / fibrosis of the infrapatellar fat pad with significant synovitis in and around the lateral gutter, as well as generalized synovitis within interior knee.
- Anterior tibial translation with significant hinging along the posterior condylar axis.
- Osteophytes along the posterior condylar margin of the femur, both medial and lateral.
- Persistent and tight posterior cruciate ligament (PCL); contracted and tight posterior capsule.

Surgeon Perspective:

"I found DermaPure® to have exceptional handling characteristics and found it to be quite durable as well. These are two great qualities when repairing soft tissue defects around the knee. It held suture well and I was able to get a "water tight" seal on the former lateral release site."

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Surgical Procedure:

- Medial arthrotomy with dissection to the mid coronal line of the tibia.
- Debridement of the retro-extensor mechanism surface and the hypertrophied infrapatellar fat pad.
- Resection of the PCL performed, followed by posterior capsular debridement and release.
- Removal of osteophytes around the margin of the condylar utilizing a $\frac{3}{4}$ curved osteotome.
- 15 mm Size 4 Sigma® Rotating Platform insert was placed. It was notably stable through range of motion with excellent balance both medially and laterally. This was exchanged for a permanent implant.
- Lateral defect was closed superior and inferior; however unable to close centrally secondary to tension; 4 x 6 cm piece of DermaPure® decellularized dermal allograft was cut in half, in a rectangular shape, then laid over from inferior to superior, securing with figure-of-eight 2-0 Vicryl® sutures (Figure 1).
- Closed the medial capsule with Stratafix™ in a running fashion, reinforced at the superior medial margin of the patella with additional figure-of-eight sutures of polydioxanone (PDS).

Post-Operative Note:

- At 7 weeks post-op, the patient completed physical therapy without further hospital admissions or ER visits; surgical incision noted to be well approximated/healed with no soft tissue mass or localized edema.
- Improvement in Range of Motion
 - o Knee Extension: 0 degrees; Knee Flexion: 115 degrees
 - o Knee stability: no valgus or varus instability; anterior or posterior drawer test: negative
 - o Quadriceps and hamstring muscle strength: 5/5



Figure 1

DermaPure® Implantation:

- 4 cm x 6 cm
- Basement membrane outer-most

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