Distal Tibial Bone Grafting for Talar Osteochondral Lesions: Novel Technique and Clinical Results

Todd Kim, MD
Andrew Haskell, MD

Peninsula Orthopaedic Ankle Center
Palo Alto Medical Foundation
Disclosure

NO CONFLICT TO DISCLOSE

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Our disclosures are listed in the AOFAS Mobile App. We have no potential conflicts with this presentation.
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What We Know

- Talar OCLs are very common

- Arthroscopic Bone-Marrow Stimulation (Microfracture) provides reliable results in small to medium sized lesions, but is less effective in large, cystic lesions >15mm

- Osteochondral transplantation, with autograft or allograft, is the most common procedure for larger, cystic lesions
What about bone grafting rather than osteochondral transplantation?

- BG procedures have been described with comparable results
  
  *Saxena/Eakin AJSM 2007*
  *Leumann et al. KSSTA 2013*

- Do clinical outcomes correlate to cartilage morphology and histology?
  
  *Lee et al., AJSM 2009*

- What causes the pain?
  - Unstable cartilage or osteonecrotic bone?
### Potential Limitations of Osteochondral Transplantation

- Donor site morbidity with autograft harvest
- Viability, availability, and cost of allograft tissue
- Complications and articular cartilage injury with peri-articular osteotomies
- Difficult to reconstruct corner lesions

### Potential Advantages of Distal Tibial Bone Grafting

- Osteotomy is generally not necessary
- Performed through same medial arthrotomy incision
- Reaming removes all cystic/osteonecrotic bone
- Stability of structural bone plug
- Better coverage/fit for corner lesions because it is placed at an oblique angle
- Minimal cost
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Oblique Placement of Bone Graft

- Minimizes need for osteotomy
- Advantageous for corner lesions
Surgical Technique - Talar Preparation
Surgical Technique- Harvest from Distal Tibia and Grafting to Talar Lesion
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Clinical Series

- 11 patients with minimum 6 months follow-up (average 23 months)
- Age 47 (15-70)
- All large medial talar dome OCLs with cystic component
  - 122mm² (80-160)
  - depth 8mm (6-9)
- All had failed nonoperative treatment
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Results

- No complications or reoperations
- Patient Satisfaction 8.5 ±1.8/10
- Ten of 11 patients would have operation again
- Eight of 9 patients employed returned to full duty
- PROMIS at final follow-up
  - physical function 53±6
  - pain intensity 40±10
  - pain interference 45±6

Significant Improvement $p<0.05$

- AOFAS Hindfoot Score 67±16 to 88±12
- Foot Function Index 55±20 to 22±17
- VAS Pain Score 6.3±2.4 to 1.4±1.5
- SF-12 PCS 31±9 to 50±10
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Conclusions

- DTBG procedure is a safe and effective treatment for large talar dome OCLs
- Can be performed without osteotomy and with minimal cost relative to alternative procedures
- Outcomes are comparable to outcomes of microfracture, autograft-OAT, allograft OAT, and previously described bone grafting procedures
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References