Clinical and Radiographic Outcomes of Simultaneous Unilateral Basal Joint Arthroplasty and Scaphoidectomy with Four-Corner Fusion

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Introduction
• Basal joint arthritis of the thumb and wrist arthritis are frequently treated with surgical intervention upon failure of conservative management.
• For patients with coexisting, symptomatic basal joint and wrist arthritis requiring surgical intervention, there is no current standard of care.
• It has become our practice to offer these patients basal joint arthroplasty in the form of ligament reconstruction and tendon interposition (LRTI) along with scaphoidectomy and four-corner fusion (FCF) at a single surgical intervention.
• A benefit of simultaneous procedures is less total immobilization time than a staged approach.

Methods
• Retrospective review of 7 cases
• Reviewed:
  • Visual analog scale (VAS) pain scores
  • Time to mid-carpal fusion
  • 1st metacarpal subsidence (Fig. 1)
  • Wrist range of motion
  • Complications
  • Presence of 1,2 metacarpal pin

Results
• 7 wrists, 6 patients
  (4 female, 2 male)
• Follow-up: 12 ± 9 months
• Age at Surgery: 67 ± 12 yrs (51-81)
• Time to wrist fusion: 16 ± 8 wks
• VAS scores (Figure 2)
  • Pre-op: 8.3 ± 2.3
  • Post-op: 3.3 ± 2.6
• Wrist ROM
  • Extension: 35 ± 13 degrees
  • Flexion: 38 ± 15 degrees
• 1st metacarpal subsidence:
  • 6.3 ± 2.5 mm
• 1,2 metacarpal pin placed in 4 of 7 patients
• Complications
  • Hardware removal for loose screw (n=2)
  • Extensor tenosynovitis requiring plate removal (n=1)

Conclusions
• Simultaneous LRTI and FCF results in decreased hand and wrist pain and preserves functional range of motion.
• First ray length is relatively preserved despite the absence of the scaphoid (Figure 3)
• Simultaneous unilateral basal joint arthroplasty and scaphoidectomy, four-corner fusion offers patients with wrist and basilar thumb arthritis an option for significant pain relief in a single surgical setting.

Figure 1
• 59 year old male, 6 months status post trapeziectomy, LRTI and scaphoidectomy, four-corner fusion.

Figure 2
• VAS Pain Scores

Figure 3