Primary Open vs. Arthroscopic Ankle Arthrodesis: Comparison of Fusion and Complication Rates

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Disclosure

- No conflict to disclose
Ankle arthrodesis is the standard treatment option in patients with end-stage ankle osteoarthritis\textsuperscript{1-3}.

Different approaches for ankle arthrodesis have been described including open and arthroscopic approaches\textsuperscript{1}.

Arthroscopic approach may have:
- better pain control during postoperative period\textsuperscript{6}
- less morbidity and a faster return to a normal life\textsuperscript{7}
- reduced costs\textsuperscript{8}

Only few studies have evaluated clinical outcome in patients with arthroscopic vs. open ankle arthrodesis.
Objectives

- The objectives of this retrospective study were to compare patients with primary open vs. arthroscopic tibiotalar arthrodesis:
  - demographics
  - surgical technique
  - postoperative fusion rates
  - postoperative complication rates
Patients

- Study design
  - patient identification by searching the University of Utah Department of Orthopaedics’ medical database between March 2002 and November 2014

- Patients:
  - 385 primary ankle arthrodeses
  - 212 male and 173 female with a mean age of 56±15 years (range, 18-89 years)
  - both patient groups were compared with regard to demographics and comorbidities
    - different distribution regarding ASA and OA etiology
    - smoking was significantly more often in patients with open arthrodesis with 16.8% vs. 7.9%
    - most comorbidities were comparable
Surgical Technique

- 322 ankles with primary open arthrodesis:
  - screw fixation \( n = 196 \)
  - plate fixation \( n = 66 \)
  - blade plate fixation \( n = 20 \)
  - IM nail fixation \( n = 17 \)
  - external fixator \( n = 23 \)

- 63 ankles with primary arthroscopic arthrodesis:
  - in all patients screw fixation was used

- Autograft was more used in patients with open approach with 84.2% vs. 6.3%

- Allograft was more used in patients with arthroscopic approach with 66.7% vs. 20.2%
The mean time to final follow-up was 38±27 months (range, 12-150 months)

The rate of osseous union was comparable in both groups with 92.2% and 90.5% in patients with open and arthroscopic arthrodeses

However, the time to complete osseous union was significantly shorter in patients with arthroscopic ankle arthrodesis:
- 4.3 (1.3-12.0) vs. 5.1 (1.6-18.2) months
Complications

- The complication rate was significantly higher in patients with open ankle arthrodesis:
  - wound complications 31.7% vs. 6.3%
  - thromboembolic complications 3.7% vs. 0%

- The rate of secondary surgeries was comparable in both groups:
  - removal of hardware was the most common secondary procedure in both groups
The rate of osseous union was comparable in both groups with 92.2% and 90.5% in patients with open and arthroscopic arthrodeses.

The rate of osseous union in our study was comparable to those reported in the current literature.

In our study, patients with open ankle arthrodesis had a higher rate of postoperative complications including wound issues and thromboembolic events.
References

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