MID-TO LONG-TERM FOLLOW-UP OF THE SALTO MOBILE BEARING TOTAL ANKLE ARTHROPLASTY WITH RADIOGRAPHIC ANALYSIS

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CONFLICTS OF INTEREST

- The authors have no conflicts to disclose
INTRODUCTION

- The Salto prosthesis (Tornier SA, Saint Isnier, France) is a cementless, anatomic design with a mobile bearing polyethylene.
- It has been in use since January 1997.
- It is made of cobalt-chrome alloy, with hydroxyapatite coating (subsequently discontinued in 2013).
AIMS

- Report mid- to long-term survivorship of the Salto mobile bearing total ankle arthroplasty (TAA)
- Perform radiographic assessment for radiolucencies and cystic changes
METHODS

• The New Zealand Joint Registry was used to identify all Salto ankle replacements performed by the senior author between November 2005 and June 2012

• Retrospective review of patient notes to verify revision rate

• Post-operative radiographic analysis

  1. Alignment (tibial and talar alignment angle, tibial slope, talocalcaneal angle)
  2. Radiolucent lines (pathologic if > 2 mm or observed across entire component)
  3. Cyst formation (hypodense area > 5 mm in diameter, no inner trabeculae, peripheral sclerosis)
  4. Migration (change in position > 5 degrees on serial x-rays greater than 12 months apart)
RESULTS - DEMOGRAPHICS

- 165 Salto mobile bearing ankle replacements (150 patients)
- Mean age 65 years at primary procedure
- 63 females vs 102 males
- Mean follow-up 82 months (range 5-121 months)
- Primary indications include
  - Primary OA 140
  - Inflammatory arthropathy 15
  - Post-traumatic 10
RADIOGRAPHIC ANALYSIS – POST-OP ALIGNMENT

- 147 ankles with post-op x-rays (mean)
  - Tibial alignment 90.7 deg
  - Talar alignment 90.1 deg
  - Tibial slope 82.6 deg
  - Talocalcaneal angle 11.2 deg
RADIOLUCENCIES AND SUBSIDENCE

• Based on Bonnin et al. (CORR 2011) and Nodzo et al. (FAI 2014)

• 116 ankle x-rays available for analysis of radiolucent lines and cyst formation (mean 50 months)

• 57 ankles with radiolucent lines (49.1%) involving 176 zones with zone 2 (AP) most common

• 32 ankles with cystic changes (27.6%) involving 83 zones with zone 2 (AP) most common

• 106 x-rays available for analysis of subsidence with 12 ankles (7.2%) ankles showing signs of subsidence
SURVIVORSHIP

- 8 ankles revised (4.8%)
- Mean time to revision 69 months
- 12 patients deceased (12 ankles)
- Reasons for revision include
  - Aseptic loosening (3 ankles)
  - Fractured polyethylene spacer (2 ankles)
  - Talar collapse/AVN (2 ankles)
  - Infection (1 ankle)
SURVIVORSHIP

- As at 31\textsuperscript{st} December 2015, 145 ankle replacements still implanted in 130 patients (94.7% survivorship in those patients still living)
CONCLUSIONS

- The Tornier Salto mobile bearing total ankle prosthesis demonstrates acceptable mid- to long-term results.
- Approximately 50% demonstrate radiolucent lines and 25% demonstrate cyst formation at mid- to long-term but this does not seem to predict early failure.
- Long-term follow-up of a greater number is required to determine the true significant of these radiolucencies and cysts.
- Component migration is uncommon.
REFERENCES

