Long Term Results of the Salto Total Ankle Replacement

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Summary:
This study reports the results of the Salto Total Ankle Arthroplasty with a 6 to 11 years Follow-up.

Introduction:
The first implantation of the Salto (Tornier) Total Ankle Arthroplasty (TAA) was done in 1997. It is a non-cemented TAA with mobile bearing. The preliminary results of the 98 first cases were published in 2004 with a mean FU of 35 months. The purpose of this study was to analyze the long-term results of this continuous multicenter series, which includes the learning curve of the operators.

Material and method:
Between January 1997 and December 2000, 98 Salto TAA were implanted in 3 centers (19 in 1997, 18 in 1998, 27 in 1999 and 34 in 2000): 62 women, 36 men, age 56 y (26-81), 53 right and 45 left ankles, mean BMI 24.3kg/m2 (17.7-27.8).
Indication was OA in 65 cases (43 post traumatic, 8 after chronic instability, 14 primary OA), RA in 29 cases. In 4 cases it was an OA after an old infection.
At last FU 9 patients were deceased for unrelated reason. None of them had been reoperated on the prosthesis. One patient was amputated 9 year after the implantation for unrelated reason (vascular disease). The remaining patients (88 TAA) were re-evaluated (visit with clinical exam, weight-bearing and dynamic XR) with a mean FU of 102 months (65 to 134). None was lost at FU.

Results:
7 Prosthesis have been removed for fusion (6 OA and 1 RA): Three for bone cysts (tibia and talus) at 44, 72 and 101 months post-implantation; two for « unexplained » pain after 32 and 57 months; one for loosening of tibial component after 62 months and one for infection after 6 months.
1 tibial component was revised for loosening after 100 months (revision component with longer stem).
2 PE (3mm thickness) were changed for fracture after 72 and 122 months.
5 were revised for stiffness: removal of bone fragments or ossifications.
4 bone cysts (2 on the talus, 2 on the tibia) were grafted.
1 malleolar component was removed for loosening after 88 months
2 infections were treated successfully with arthrotomy, synovectomy and IV antibiotics.
Survival rate was 90.9% for end point “removal of prosthesis” (Last event: 100 months). It was 89.7% for end point "removal or revision of a component" (Last event: 100 months) and 82.3% for end point “removal or revision of a component including PE exchange” (Last event 120 months). Survival rate was better for RA (97%). (Figure)
Mean AOFAS score at last FU was 81.5±12 (80.5±10.3 in OA and 76.4±14.8 in RA). Mean ROM was 26.7°±10.9. 3 radiological loosening were observed, 1 on the tibia and 2 on the talus, but no revision was planned: (AOFAS score 85, 85 and 76).
Conclusion: These results emphasize (1) the importance of a rigorous technique and proper selection of indications (5 revisions for technical mistakes), (2) the high risk of infection (3 cases) and (3) the importance of the thickness of the PE (2 fracture all with 3mm PE). 7 bone cysts were grafted with 4 success but 3 failures requiring secondary fusion.