INVISION™ Total Ankle Revision System

Revision of a Failed Salto Talaris Total Ankle Replacement with an INVISION Tibial Component and an INBONE™ II Talar Component

CASE STUDY

Patient History

This 52-year-old female patient presented with debilitating pain of the right ankle. She carried a diagnosis of rheumatoid arthritis. In 2008, she underwent a right triple arthrodesis for ankle pain followed in 2009 by a Salto Talaris® total ankle replacement, both at an outside institution. She reported good pain relief for five years, and in 2014 she began to experience activity-related pain. The pain was described as mostly malleolar. Her surgeon did an open "bone spur excision" with no pain relief. At presentation, she was disabled with pain in all weightbearing activities. She reported that she felt her ankle was "collapsing."

Examination

The patient had a well-healed anterior surgical scar with significant ankle swelling and range of motion of -5 degrees dorsiflexion to 20 degrees plantarflexion. She had no subtalar motion. On standing, she had 15 degrees of valgus collapse compared to the left side. She was tender to palpation on the anterior ankle and on palpation of both malleoli.

Contributed by:

Hodges Davis, MD

OrthoCarolina

Charlotte, NC

Dr. Davis is a paid consultant for Wright Medical. Wright Medical provided financial support for this case study.

Imaging and Diagnostic Workup

Standing mortise and lateral x-rays (FIGURES 1A and B) demonstrate early valgus collapse with subsidence of the tibial component.


1A

1B

There are significant reactive osteophytes on the tibia suggesting movement and lack of sagittal coverage. A CT scan (FIGURES 2A and B) confirms aseptic loosening of both components.

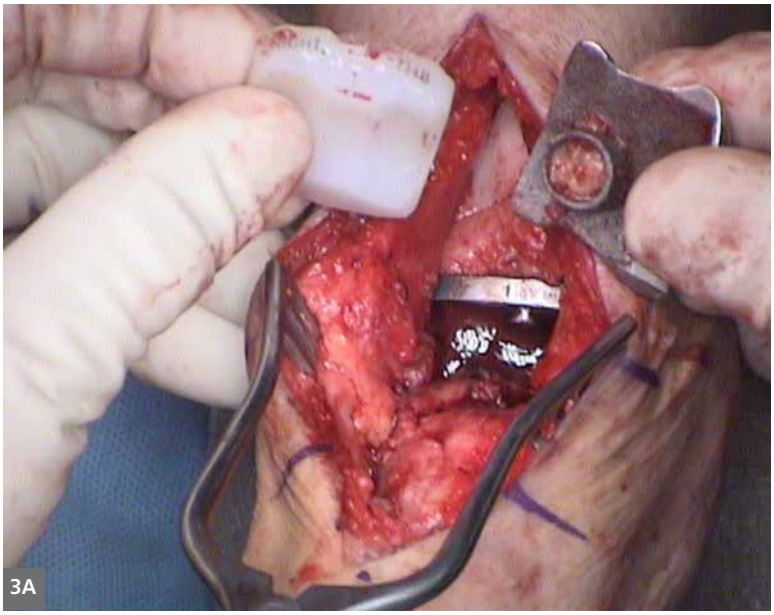

2A


2B

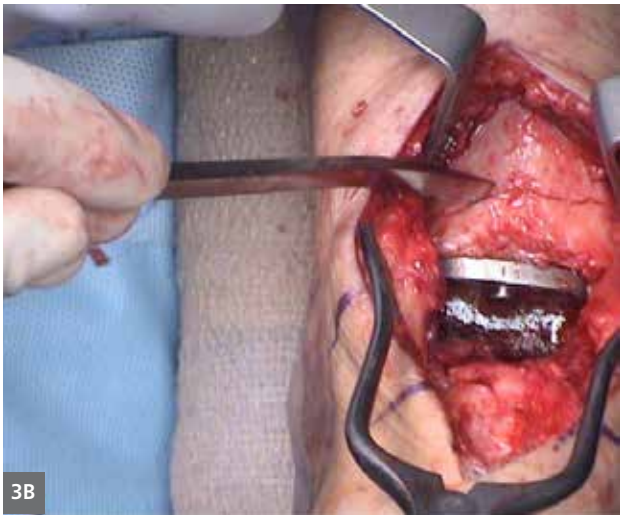
There is no evidence of osteolysis on the CT. A fluoroscopically-guided injection of .5% Marcaine gave the patient 8-10 hours of relief. With this evidence, it was assumed the components were loose, and a revision TAR was planned. The patient understood preoperatively that she might require two separate surgeries if we had difficulty removing the components.

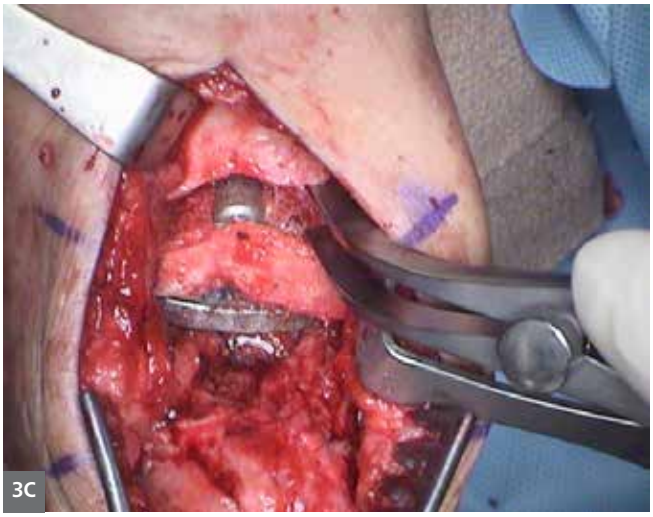
Surgical Treatment: Stage 1

The previous anterior incision was used to expose the ankle joint. Cultures were taken as a precaution (results were negative), and the polyethylene was removed. The talus was removed with an osteotome with minimal bone loss (FIGURE 3A).


3A

While removing the tibial component, a fracture occured just above the tibial stem, and the anterior aspect of the tibia came out with the component. (FIGURES 3B and C).


3B

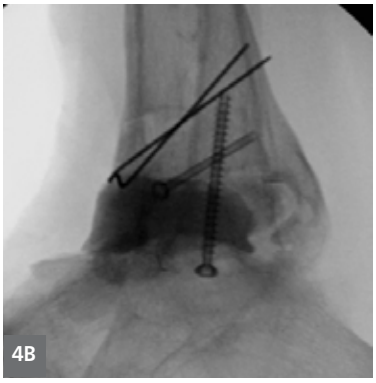

3C

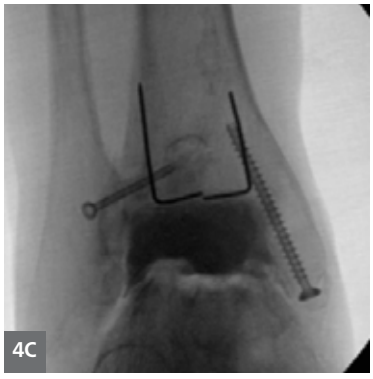
The tibial component showed ingrowth on the stem but no ingrowth on the tray suggesting stress shielding (FIGURE 3D).


3D

The decision was made to address the tibia fracture at this stage and to revise the implant at a second stage. The fracture was reduced and fixed with screws and K-wires (FIGURES 4A, B, and C).


4A


4B


4C

Bone graft was used in the tibial and talar defect. A cement spacer was placed to retain the space (FIGURE 4D).


4D

The wound was closed in layers. Postoperative x-rays and CT confirmed consolidation of the fracture and bone defects (FIGURES 5A, B, and C).

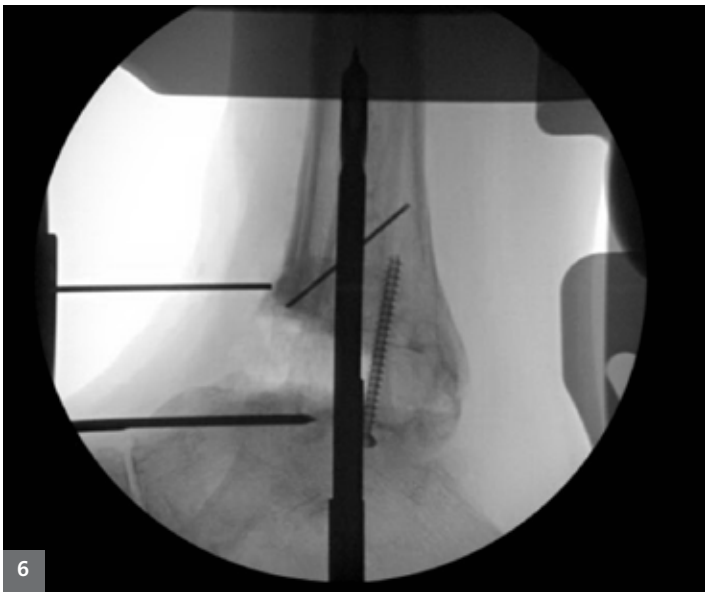

5A


5B


5C

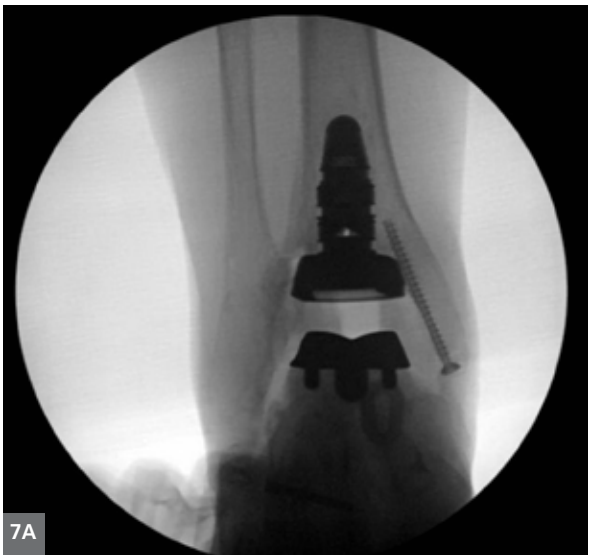
Surgical Treatment: Stage 2

Four months following stage one, the same incision was used to expose the ankle. The cement spacer was removed by breaking the block of cement into pieces with an osteotome. The K-wires and the lateral screw were removed, and the medial screw was retained. The leg was placed in the INBONE foot holder, and the INVISION tibial cut block was used to determine the least amount of bone on the tibia that could be resected to place the component on solid bone. The medial tibia was not violated. The talar resection height was determined in the same fashion (FIGURE 6).



6

Once the cuts were made, the INVISION tibial trial showed the lost tibia bone could be replaced with a +4 mm INVISION tibial component. The tibial stems were implanted per the standard INBONE technique. With a relatively minimal talar resection, the INBONE talar dome fit well and was used (FIGURES 7A and B).



7A

7B

The polyethylene trial showed the need for a 12mm thick insert with excellent stability. An intraoperative axial view showed the valgus deformity was corrected (FIGURE 7C).

7C

There was instability in the medial column that was addressed with a cotton osteotomy.

At her two month postoperative visit, the incision was healed, and she began protected weight bearing and physiotherapy (FIGURES 8A and B).

8A

8B

1023 Cherry Road
Memphis, TN 38117
800 238 7117
901 867 9971
www.wright.com

56 Kingston Road
Staines-upon-Thames
Surrey TW18 4NL
United Kingdom
+44 (0)845 833 4435

161 Rue Lavoisier
38330 Montbonnot Saint Martin
France
+33 (0)4 76 61 35 00

015798A_06-Jul-2017