1) Revision Total Ankle Replacement: How to Salvage a Failed Total Ankle Replacement with Bone Loss
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The first question that the surgeon should ask: Is the prosthesis salvageable? How much bone loss is present and where is it located? Is the loss both tibial and talar, or just tibial or talar? The easiest way to answer this question is with a CT scan. Once the CT scan is done, the critical question is how much talus is left? If there’s enough talar body to make a revision flat-top talar cut and still have room for fixation, then most of the time revision prosthesis is possible. If the bone loss is too extensive and the talus is fractured into the subtalar joint, then most of the time this will necessitate arthrodesis. Tibial bone loss is almost always possible to be revised and maintain an ankle prosthesis.

At the time of revision surgery, it’s critically important to preserve as much bone as possible. Cortical rim support is required on both the tibia and the talus for revision arthroplasty. Usually, we use a small reciprocal saw to cut across the tibial base plates for the STAR prosthesis. For the Salto and the INBONE, not only do we cut across the tibial base plate but a tibial slot anteriorly is necessary to extract the stem. It’s not usually necessary to cut a slot the entire length of the tibial fixation stem to be able to extract the tibial component. The talar component for the Salto and for the INBONE requires the use of the reciprocal saw underneath the flat portion, and then care must be taken as you remove the cylinder portion of both so as not to remove too much bone from the talus.

After the components are out, one must also critically assess whether there’s adequate bone stock for peripheral rim support of the prosthesis. This is the critical area. Generally, an oscillating saw is needed to create a fresh surface on both the tibia and the talus. This can be done either free hand, if one is experienced, or with the use of a jig. Bone defects in the cavity of the tibia and talus may be filled now with bone graft, bone substitute, or in some cases methyl methacrylate.

For most revision cases, a flat-top talar component will be necessary. This either means using the INBONE prosthesis or the Salto XT. In Europe, the Integra system has a flat-top talar component as well. For the tibia, one can use a stemmed INBONE prosthesis or a thickened base plate for the Salto prosthesis.