

Strategies to Reconstitute the Proximal Femur after Failed Total Hip Replacement

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Background and Introduction:

The frequency of surgical reconstruction of a failed total hip replacement (THR) is increasing and is currently estimated to represent close to 10% of all THRs performed. This revision procedure remains a surgical challenge, as there often exists substantial associated bone loss. Impaction allografting (IA) is a revision technique where bone graft particles are used in an attempt to reconstitute a deficient proximal femur or acetabulum. Clinical results with IA have been

variable, with some authors reporting massive subsidence of the femoral stem. This may be due to the fact that the graft does not appear to remodel completely into new live bone. Over the past several years, our group has developed a research program to characterize the IA procedure from anatomical, mechanical, and biological perspectives. Furthermore, we have begun research that aims to optimize the current surgical procedure and develop more innovative solutions through the use of novel biomaterials. This presentation will outline our previous work on this topic and our current status.