3D-Printed Custom-Made Pelvic Prosthesis and Silver-Coated Proximal Femur Megaprosthesis in the Treatment of a Complex Case of Hip Pseudotumor After Multiple Surgeries

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Custom pelvic prostheses, originally proposed for oncologic reconstruction, also have increasingly been used in complex revision surgery. This video discusses the case presentation of a 48-year-old man who underwent multiple surgeries and presented with aseptic loosening of a revision total hip arthroplasty implant with a stemmed acetabular cup and a voluminous pseudotumor with metallosis. Because of severe bone loss involving the acetabulum and femur in combination with the extensive surgical exposure, two-stage surgery was planned. The patient was initially treated via removal of the migrated implant and pseudotumor, after which a handmade articulated cement spacer was placed. A CT-based three-dimensionally printed custom pelvic prosthesis was planned to reconstruct the pelvis in combination with a megaprosthesis for the proximal femur. The custom prosthesis was successfully placed as planned, using printed models of the pelvis and implant, as well as reaming guides that allowed the bone surface to be molded and regularized to perfectly fit the implant design. A silver-coated megaprosthesis was used to replace the femoral bone loss. Silver coating has been shown to be helpful in managing periprosthetic joint infections of megaprostheses and preventing infections in revision surgeries. Postoperatively, an articulated hip brace was prescribed for 2 months. Partial–weight bearing was allowed after 1 month, with full–weight bearing allowed after 6 months. At 12- and 24-month follow-up, no complications had occurred, with good functional recovery noted. This video shows that custom pelvic filling prostheses and megaprostheses can be successfully combined, representing a valuable therapeutic option in patients with concomitant severe bone loss of the pelvis and the proximal femur.