

Submission Number: 11130

Authors:

Alexander P. Decilveo, Hackensack University Medical Center

Bartłomiej W. Szczech, St. Joseph's Regional Medical Center

James C. Wittig, M.D., Hackensack University Medical Center

Background: Expandable endoprostheses have become an acceptable modality to address the issue of limb length inequality with limb-sparing procedures in skeletally immature patients afflicted with lower extremity bone sarcomas.

Questions/Purpose: In this study we report our results with two types of expandable endoprostheses – the minimally invasive and non-invasive.

Patients and Methods: We retrospectively analyzed 7 patients' (8 limbs') post-operative outcomes and complications who underwent minimally invasive or non-invasive reconstruction over 12 years. MSTS scores, post treatment limb length discrepancies, number of lengthening procedures and complication rates were reported.

Results: Functional outcomes (MSTS scores) at final follow-up were 92%. Functional outcomes for the non-invasive and minimally invasive expandable prosthesis were 97% and 85%, respectively. Complications entailed temporary peroneal nerve palsy (2/8 limbs), infection (2/8), prosthesis revision (3/8), stiffness (3/8), chronic pain (1/8), and wound healing problems (3/8). No patients required an amputation.

Conclusions: Minimally and non-invasive expandable endoprostheses appear to offer safe and reliable methods of reconstruction for managing limb length discrepancies after limb-sparing procedures in selected skeletally immature patients with lower extremity bone sarcomas. Both types of expandable prostheses avoid amputation with low complication profiles and good functional results. The non-invasive prosthesis may prove to be a more attractive option by potentially negating additional surgeries and reducing infection rates, however, our short-term experience with this prosthesis warrants further investigations with more patients and longer follow-up.