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18(7) 2023  
Opinion

## Physical care short distal segment and proximal femoral endoprosthetic reconstruction

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### Statistics

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Received: 08.07.2023; Manuscript No. jotsrr-23- 110038; Editor assigned: 10.07.2023, PreQC No. jotsrr-23- 110038 (PQ); Reviewed: 15.07.2023, QC No. jotsrr-23- 110038 (Q); Revised: 18.07.2023, Manuscript No. jotsrr-23- 110038 (R); Published: 23.07.2023, DOI. 10.37532/1897-2276.2023.18(7).97

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### Abstract

After osteosarcoma excision in a 10-year-old child, a bespoke endoprosthesis allowed for the preservation of the distal femoral physis with just a little metaphyseal segment still present. This case serves as an example of a reconstructive option that permits physeal sparing with little metaphyseal bone left. The patient hasn't experienced any complications at the three-year checkup, and distal femoral growth has maintained symmetric limb length. Custom physeal sparing short segment press-fit fixation is a suitable choice when intercalary biologic repair is not an option and the sacrifice of physis demands an extendible complete femoral prosthesis.

Keywords: Osteosarcoma, metaphyseal bone, distal femoral physis

## INTRODUCTION

A major crippling limb length difference may be avoided in skeletally immature individuals with physeal sparing sarcoma excision, allowing for joint preservation. To prevent total femoral replacement or an ablative operation, distal femoral growth plate preservation should be the objective when oncologically safe. In this instance, a unique custom proximal femoral hemiarthroplasty distal femoral fixation is shown. In order to protect the physis, the press-fit stem design in this example was combined with an extramedullary phage plate and screw fixation in a little residual distal femoral bone fragment. When planning resection and reconstruction, potential limb length disparities following juvenile oncologic limb salvage surgery must be taken into account. This is especially true for the distal femur, which generally accounts for 40% of total growth and is the main driver of lower extremity growth. The easiest

way to prevent limb-length disparity during resection is to preserve the growth plate. A whole femoral prosthesis would have been the preferred repair for limb sparing if the entire femur had been removed. With the possibility for several surgeries to rectify leg length disparities, poor functional results, and postoperative problems, total femur replacements perform poorly in the skeletally immature population. Tsuda et al. reported 18 patients, 11 of whom had femoral malignancies, in the sole published series of unique physeal-sparing endoprotheses like the one described here. Overall findings indicated 3/18 implant failures and 79% five-year implant survival. The highest physical growth was 14 cm, with a mean of 3.3 cm. However, 39% needed further surgery, and 61% experienced problems. They employed a press-fit ingrowth stem and non-porous coated plates for their extramedullary phlanges, whereas we used a cemented stem with a porous coated undersurface in their three distal femoral examples.