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Successful reconstruction of total tibia and ankle joint with endoprosthesis. Experience for children and adults in East-European Sarcoma Group

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Goal: To this day, amputation is most widespread operation at distal tibia tumors. The purpose of our research is standardization of surgical treatment at such tumors for children and adults.

Materials: We report the clinical and functional outcome of limb preserving surgery and endoprosthetic reconstruction of the total tibia and ankle joint in twelve treated between 2008 and 2012 two of whom are children 12 and 15 years, respectively. Two patients underwent total replacement of the tibia: one for primary tumor, another for revision surgery. A mean age of 23 years, the most young patient was 12 years old.

We have used custom-made endoprosthesis of MUTARS® (Implantcast) and ProSpon. All stems of endoprosthesis have been fixed by bone cement with Gentamicin-3. All patients carried ankle joint orthosis from 2 till 6 months.

Results: Three patients developed a local recurrence and no patients – metastasis. We have not received any significant complications, such wound dehiscence or infection. MSTS score after 3 months was above 70%. MSTS score after 6 months was 78-82%. All were pain free and able to perform most daily activities. One patient with total tibia endoprosthesis still alive.

Conclusion: A custom-made endoprosthetic replacement of the total tibia and ankle joint is good treatment for patients with a primary bone tumour in quality to alternative of amputation. Now requires the development of new design prosthesis to restore the good function of the foot.

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