

Submission of abstract for Scientific Program of 2015 Meeting of the International Society Of Limb Salvage (ISOLS)

Abstract Number 11286

Title: Why Rotationplasty? A qualitative study of patients who decided on rotationplasty for osteosarcoma

Author: Chung Ming Chan MBBS chancm@ortho.ufl.edu

Coauthors: Adam D. Lindsay MD lindsad@ortho.ufl.edu  
Brandi N. Nunn RN BSN nunnbn@ortho.ufl.edu  
Andre R.V. Spiguel MD spiguar@ortho.ufl.edu  
C. Parker Gibbs Jr MD gibbscp@ortho.ufl.edu  
Mark T. Scarborough MD scarbmt@ortho.ufl.edu

Organization: Division of Orthopaedic Oncology,  
Department of Orthopaedic Surgery and Rehabilitation, University of Florida

Address: 3450 Hull Road, Gainesville, FL 32607, U.S.A.

Phone: (352) 219-5194 Fax: (352) 273-3728

---

**Title:** Why Rotationplasty? A qualitative study of patients who decided on rotationplasty for osteosarcoma

**Abstract:**

**Background:**

Rotationplasty is an option for post-sarcoma resection reconstruction in patients who suffer from primary bone sarcoma in certain anatomic locations; most commonly the distal femur and proximal tibia. In these patients, limb salvage surgery with endoprosthetic reconstruction is often technically feasible while observing oncologic principles, and studies have showed equivalent functional outcomes in patients who undergo limb salvage and rotationplasty<sup>1-4</sup>.

Owing to the non-anatomic nature of and appearance following a rotationplasty there is a strong element of patient and family preference in the decision making process. The predominance of pediatric patients in this patient group also adds to the complexity of decision making in that parents are involved in making this decision together with the patient.

Qualitative studies have investigated the decision making processes of patients who choose to undergo elective amputations for functionally impaired limbs<sup>5</sup>, and in patients who suffered Grade IIIB and IIIC open tibial fractures<sup>6</sup>. There are no studies to date outlining similar issues in the field of musculoskeletal oncology in patients who have undergone rotationplasty.

**Questions/Purposes:**

The purpose of this qualitative study is to describe how patients how suffered from primary bone sarcoma and their families decided to proceed with a rotationplasty for the type of post-resection reconstruction.

**Patients and Methods:**

Patients who had undergone rotationplasty for lower extremity osteosarcoma at our institution were invited to participate in this study. To date, 4 patients were interviewed for this study, 2 were interviews were conducted within a week of surgery, 1 at 1.5 years and the last at 5.5 years post-surgery. A single interviewer performed all four interviews and conducted each semi-structured interview with the patient and either one or

both of the patient's parents. Interviews were audio-recorded and then transcribed. These transcripts were then reviewed and themes were identified and coded. Transcripts were reviewed again to assess for concordance of these codes.

### **Results:**

The interviews highlighted several themes that were brought by different interviewees. Information sources that were valued in the decision making process were the opinions of patients and their families who had also had undergone rotationplasty, over the medical opinion. Interviewees were satisfied with the amount and quality of the information they had that led to their decision. A desire not to have to observe activity restrictions with respect to sporting participation and parental concern regarding limiting their children's future options was also expressed by several interviewees. Interviewees also did express concern regarding the non-anatomic appearance of the rotationplasty and acknowledged some concern regarding whether the patient would be able to accept this when they became adults. Interviewees also emphasized their acceptance that no surgical option would return the patient to normalcy, but that they felt rotationplasty was the best option for them.

### **Conclusions:**

This study highlights factors found to be important in the decision making process by patients with osteosarcoma who opt for rotationplasty; hearing from their peer group, appreciating that the decision is between options that will result in a 'new normal' and not a return to normalcy, and prioritizing optimizing function while accepting esthetic disadvantages. Patient faced with similar decisions can benefit from understanding and relating to the process experienced by others, and by the normalization of anxieties and concerns that they may experience.

### **References:**

1. Ginsberg JP, Rai SN, Carlson CA, Meadows AT, Hinds PS, Spearing EM, Zhang L, Callaway L, Neel MD, Rao BN, Marchese VG. A comparative analysis of functional outcomes in adolescents and young adults with lower-extremity bone sarcoma. *Pediatr Blood Cancer*. 2007; 49: 964-9.
2. Hillmann A, Hoffmann C, Gosheger G, et al. Malignant tumor of the distal part of the femur or the proximal part of the tibia: endoprosthesis replacement or rotationplasty. Functional outcome and quality-of-life measurements. *J Bone Joint Surg Am*. 1999;81(4):462-468.
3. Hopyan S, Tan JW, Graham HK, Torode IP. Function and upright time following limb salvage, amputation, and rotationplasty for pediatric sarcoma of bone. *J Pediatr Orthop*. 2006;26:405-8.
4. Bekkering WP, Vliet Vlieland TP, Koopman HM, Schaap GR, Bart Schreuder HW, Beishuizen A, Jutte PC, Hoogerbrugge PM, Anninga JK, Nelissen RG, Taminiau AH. Functional ability and physical activity in children and young adults after limb-salvage or ablative surgery for lower extremity bone tumors. *J Surg Oncol*. 2011;103:276-82.
5. Quon DL, Dudek NL, Marks M, Boutet M, Varpio L. A qualitative study of factors influencing the decision to have an elective amputation. *J Bone Joint Surg Am*. 2011;93:2087-92.
6. Aravind M, Shauver MJ, Chung KC. A qualitative analysis of the decision-making process for patients with severe lower leg trauma. *Plast Reconstr Surg*. 2010;126:2019-29
7. Dickey-Bloom B, Crabtree BF. The qualitative research interview. *Med Educ*. 2006;40:314-21.