

## **Transcutaneous Osseointegration For Adults Whose Amputations Were Performed During Childhood**

Jason Shih Hoellwarth, Zachary Glassband, Taylor Reif, S Robert Rozbruch

### **INTRODUCTION:**

Osseointegration limb replacement has consistently demonstrated improved mobility, balance, and proprioception for amputees, eliminating common socket prosthesis problems including skin irritation, poor fit, and pain. Patients whose amputations were performed as children can have additional considerations versus adulthood amputations, but have never been specifically evaluated vis-a-vis osseointegration. This research describes the outcomes and considerations of osseointegration for patients whose index amputation was during childhood.

### **METHODS:**

Retrospective review was performed of all our osseointegration patients who had index amputation as children. The primary outcome was postoperative adverse events. Additionally, specific childhood amputation considerations were identified (such as management of overgrowth bone).

### **RESULTS:**

Thirteen osseointegration procedures in 12 patients were included. All patients had revision of a prior amputation performed during childhood. Indications for osseointegration were: socket fit (10), skin problems (11), pain (9), and mobility (7). Three patients had adverse events. One patient had surgical debridement with implant retention. One patient fractured his implant due to a horse-related accident, prompting implant removal with subsequent revision osseointegration. One patient had a periprosthetic femur fracture managed with non-weight bearing and has regained full mobility. Two patients had spike overgrowths, two patients had amputations through a joint, one had an Ertl, and one had heterotopic ossification. While these anatomic considerations required attentive preoperative planning, none led to intraoperative difficulty or apparent postoperative issues.

### **DISCUSSION AND CONCLUSION:**

Osseointegration can be performed safely and successfully for adults whose amputations were performed during childhood. Patients with anatomic considerations such as spike overgrowth require specific preoperative planning but seem unlikely to have notable intraoperative or postoperative difficulties. The adverse events that do occur are typical of osseointegration patients in general and are managed with established strategies.