

## **Similar Outcomes with Modular and Non-Modular Stems for Revision Total Hip Arthroplasty Performed for Periprosthetic Fractures**

Jaewon Yang<sup>1</sup>, Sam Scott Nelson<sup>2</sup>, Christian Shigley MD<sup>1</sup>, Paul A Manner<sup>3</sup>, Navin Fernando, Nicholas Hernandez<sup>1</sup>  
<sup>1</sup>University of Washington, <sup>2</sup>Orthopaedic Surgery, <sup>3</sup>Univ of WA

### **INTRODUCTION:**

Modular and non-modular fluted tapered stems are used in revision total hip arthroplasty (rTHA). However, no studies have compared the two in rTHAs performed for periprosthetic fractures. The purpose of this study was to compare modular and non-modular stems in rTHAs for periprosthetic femur fractures.

### **METHODS:**

Patients who underwent rTHA for Vancouver B2 or B3 femur fractures from 2005-2022 at an academic institution with minimum 90-day follow up were identified. A total of 109 patients were included with mean follow up of 5.7 years (range: 90 days-11.1 years). Non-modular stems were utilized in 65 (59.6%) patients and modular stems in 44 (40.3%). All stems were fluted tapered. Mean age was 74.6 years, BMI was 26.1 kg/m<sup>2</sup>, length of stay was 6.7 days (range: 1-54), and 56% were female. There were no differences in age, BMI, length of stay, or gender between cohorts.

### **RESULTS:**

At 90-days, there were 11 (10.0%) readmissions, 11 (10.0%) reoperations, and 22 (20.2%) medical complications. At last follow up, there were 25 reoperations (22.9%), of which 13 were revisions and 12 were non-revision procedures. When comparing the non-modular and modular cohorts, rates of reoperation (24.6% vs. 20.5%), rerevision THA (12.3% vs. 11.4%), and non-revision procedures (12.3% vs. 9.1%) did not significantly differ ( $p>0.05$ ). Indications for the 13 rerevisions were: periprosthetic joint infection ( $n=7$ ), dislocation ( $n=4$ ), and one each for fracture at the junction of a modular stem ( $n=1$ ), and acetabular component failure ( $n=1$ ). Indications for the 12 non-revision reoperations were: periprosthetic fracture distal to stem ( $n=5$ ), prominent hardware ( $n=4$ ), and one each an abscess, hematoma, and wound dehiscence.

### **DISCUSSION AND CONCLUSION:**

This study, which is the first to compare modular and non-modular femoral stems in rTHA performed for periprosthetic fractures, found no difference in revision or reoperation rates. Both constructs provide durable implant fixation, with no revisions performed for aseptic loosening.