

Long-Term Hip Survivorship and Patient-Reported Outcomes of Periacetabular Osteotomy: The Washington University Experience

Matthew Wyatt Booth¹, Jeffrey J Nepple², Perry L Schoenecker³, Gail Pashos⁴, Susan Thapa, Caroline Drain, John C Clohisy⁵

¹Orthopedics, Washington University, ²Washington University, ³Shriners Hospital For Children, ⁴Washington University School of Medicine, ⁵Washington University Orthopedics

INTRODUCTION: The Bernese periacetabular osteotomy (PAO) has become the gold standard acetabular reorientation procedure in the treatment of symptomatic acetabular dysplasia since first performed 39 years ago. There is a paucity of data on the long-term outcomes of this procedure. In this study we assessed the long-term hip survival and patient-reported outcomes of PAO used to treat symptomatic acetabular dysplasia.

METHODS: A total of 238 hips (206 patients) were treated with a PAO from July 1994 to August 2008 excluding patients with prior surgeries or diagnosis beyond classic acetabular dysplasia. In total, 175 hips were evaluated at an average of 15.7 years postoperatively with a minimum follow up of 13 years. Some 128 hips completed the follow up. The Kaplan-Meier analysis assessed survivorship with an endpoint of total hip arthroplasty (THA). Hips were evaluated using a modified Harris hip score (mHHS), and Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale score. A WOMAC pain subscale score of ≥ 10 and/or mHHS of ≤ 70 were considered to indicate a clinically symptomatic hip.

RESULTS:

Kaplan-Meier analysis revealed a hip survival rate of 76.6% (95% confidence interval [CI]: 61.4% to 86.5%) at 20 years postoperatively. Of the 128 that completed follow up, 16.4% underwent THA at an average of 11.8 years (range: 1.4-20.6 years), and 3.1% hips underwent revision PAO at an average of 3.4 years. An additional 15.6 % of hips were considered symptomatic based on a WOMAC pain score of ≥ 10 and/or mHHS of ≤ 70 ; these hips did not undergo THA conversion or revision. The remaining 64.8% of hips did not undergo THA/revision and did not meet the criteria for clinically symptomatic hip; these hips had a mean mHHS of 91.7 ± 8.5 and WOMAC pain subscale score of 1.1 ± 2.1 at the average 15-year follow up.

DISCUSSION AND CONCLUSION: This study demonstrates that in patients with symptomatic acetabular dysplasia, preservation of the native hip can be improved through the Bernese periacetabular osteotomy with most hips surviving beyond 15 years postoperatively. A third of patients undergoing a PAO clinically failed for pain or function. Only half of these patients required conversion to total hip arthroplasty occurring, on average, over 10 years after PAO.