

Cumulative 30-Year Followup After Bernese Periacetabular Osteotomy

Orthopaedics / Pelvis, Hip & Femur / Joint Preserving Surgery

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Introduction

Since its first description in 1984, periacetabular osteotomy has become the gold-standard worldwide in surgical treatment of developmental dysplasia of the hip. Several long-term studies have proven the efficacy of this procedure. In this study, we evaluated the mean 30-years results of this procedure of the first 63 patients operated at the institution where this procedure had been developed.

Objectives

We determined the (1) cumulative 30-year survivorship of symptomatic patients treated with this procedure, determined the (2) clinical and (3) radiographic outcomes of the surviving hips, and (4) identified factors predicting the need for total hip arthroplasty (THA).

Methods

We retrospectively evaluated the first 63 patients (76 hips) who underwent periacetabular osteotomy between 1984-1989. The mean age of the patients at surgery was 29 years (range, 13-56 years), and preoperatively 24% presented with advanced grades of osteoarthritis (Tönnis Grade 1). All patients were invited for a regular clinical and radiographical follow-up 30 years after surgery. (1) We calculated the cumulative survivorship of the hip according to Kaplan-Meier with conversion to THA as the only endpoint. In addition, we assessed the (1) Merle d'Aubigné and the Harris Hip Score and assessed (3) radiographic progression of osteoarthritis according to Tönnis in the surviving hips. (4) A Cox-regression model was used to calculate predictors for failure.

Results

(1) The cumulative survivorship of the hip at 30-years was 32% (95% confidence interval 17-47%). 40 hips (53%) had subsequently undergone THA (2) The Merle d'Aubigné score of the surviving hips was 10+/-4 (range, 2-17), which was significantly lower compared to the 10 years, and 20-years results and even to the preoperative value. (3) The majority of the preserved hips presented with radiographic progression of osteoarthritis. (4) The following predictors for failure were identified: age (hazard ratio [HR] 1.05), decreased preoperative internal rotation (HR 1.03), decreased preoperative external rotation (HR 1.03), preoperative limb (HR 1.57), positive preoperative impingement sign (HR 4.7), preoperative radiographic osteoarthritis (HR 2.8).

Conclusions

Thirty years postoperatively, almost one third of hips undergoing PAO for DDH can be

preserved. Periacetabular osteotomy is an effective technique for treating symptomatic developmental dysplasia.