

## **Abstract**

**Background:** Total hip arthroplasty (THA) in patients with developmental dysplasia of the hip (DDH) is technically difficult and challenging due to severe deformity and anterolateral bone deficiency. The disadvantage of Crowe classification is that it focuses on the degree of displacement of the femoral head and not consider the anatomical abnormalities of the acetabulum.

**Aim:** The purpose of this study was to determine whether tip of the greater trochanter can predict the use of osteotomy of femore during THA in patients with Crowe type IV hip dysplasia.

### **Materials and Methods:**

We retrospectively included 39 patients affected developmental dysplasia who underwent primary total hip arthroplasty from April 2018 to April 2023 in our institution. Based on radiographs and operative notes, we found 6 hip with Crowe type IV were performed at 5 cases osteotomy, and 8 hip with Crowe type III were performed at 4 cases osteotomy.

The predictive values of height of greater trochanter, height of femoral head/neck junction, in four type of Crowe were analyzed using

**Results:** All of Crowe type I and II patients were below 130% GT Score. Among Crowe type III, patients who had GT Score above 130% underwent osteotomy, while patients with GT Score below 130% did not need osteotomy. In Crowe type IV, four patients With a GT Score above 130%, they underwent osteotomy. One patient in this group did not need osteotomy, and in this patient, the GT Score was below 130%

### **Conclusion:**

This study reveals that indicators of greater trochanter height are useful in predicting the use of femoral osteotomy during total hip arthroplasty in patients with developmental dysplasia of the hip. However, a comprehensive, multivariate analysis may be required to validate these results.

**Key words:** developmental dysplasia of the hip, total hip arthroplasty,