



Proximal Femoral Deformity Following Threaded Prophylactic Fixation for Slipped Capital Femoral Epiphysis: Risk Stratification Using the Modified Oxford Score

Journal of Pediatric Orthopedics, 2020 – Dr. Vedant A. Kulkarni, et al.

Background:

This study assesses the effect of skeletal maturity on the development of iatrogenic proximal femoral deformity following threaded prophylactic screw fixation in patients presenting with unilateral slipped capital femoral epiphysis (SCFE).

Methods:

Children who underwent threaded screw prophylaxis of the uninvolved hip (Group P) and those who were observed with no prophylaxis (Group N) on presentation with unilateral SCFE were compared. Skeletal maturity was assessed with the Modified Oxford Score (MOS). Proximal femoral morphology was characterized by femoral neck length, femoral neck width, neck shaft angle, and trochanteric femoral head overlap percentage (TFHOP). Femoral head deformity at final follow-up was characterized as spherical (Type 1), mildly aspherical (Type 2), or ovoid (Type 3). Analysis of variance and *t* test were used to compare the groups.

Results:

Thirty-eight patients in Group P and 17 patients in Group N met inclusion criteria. The average follow-up was 2.6 years. Group P was younger than Group N by an average of 9.6 months ($P=0.04$), but the MOS for skeletal maturity was not different between groups ($P=0.15$). Group P had significantly diminished neck length ($P=0.008$) and significantly increased relative trochanteric overgrowth as evidenced by increased trochanteric femoral head overlap percentage ($P<0.001$), but there was no difference between groups in neck shaft angle and neck width. No patient in Group N developed femoral head deformity (all Type 1). In Group P, 14 patients (37%) developed Types 2 and 3 deformity. In patients with MOS 16 in Group P, 60% (3/5) developed Type 2 deformity and 40% (2/5) developed Type 3 deformity. In patients with MOS 17 in Group P, 45% (5/11) had Type 2 deformity.

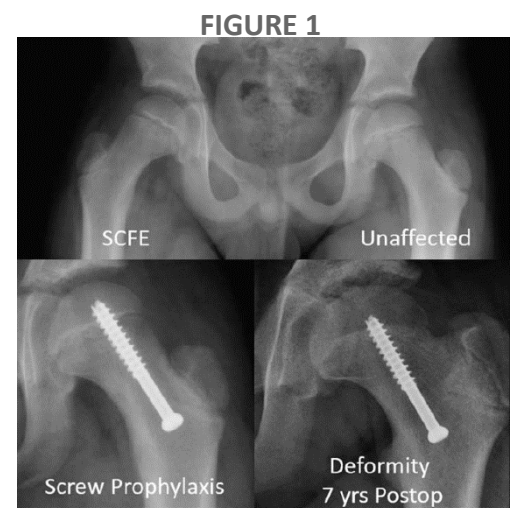


FIGURE 1: A 10-year-old male child with MOS 16 at presentation with right SCFE. Left side underwent prophylactic screw fixation, resulting in triad of trochanteric overgrowth, coxa breva, and femoral head deformity at 7 years post surgery.

Conclusions:

Skeletally immature patients with an MOS of 16 and 17 are at **high risk for developing** the triad of relative **trochanteric overgrowth, coxa breva, and femoral head asphericity** with prophylactic threaded screw fixation for SCFE. When prophylactic surgery is indicated, consideration should be given to **growth friendly fixation strategies** to avoid iatrogenic proximal femoral deformity.

Pega Medical

1111 Autoroute Chomedey, Laval, Quebec, H7W 5J8, Canada
www.pegamedical.com | info@pegamedical.com | +1 450 688-5144