

Contemporary Total Hip Arthroplasty for Slipped Capital Femoral Epiphysis: Long-Term Outcomes of 165 cases

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INTRODUCTION: Slipped capital femoral epiphysis (SCFE) is a pediatric hip disorder that may increase complexity of a total hip arthroplasty (THA) due to altered anatomy and retained hardware from previous surgeries. The outcomes of THA in this population are limited to small, historic series. We aimed to evaluate survivorship, complications, and radiographic results in this population.

METHODS: We identified 165 THAs performed for SCFE between 2000–2022. The mean follow-up was 9.3 years (range, 2–21 years). The cohort was 71% male, with a mean age at surgery of 45 years and a mean BMI of 32.8 kg/m². Prior SCFE treatment was documented in 81% of cases; 57% underwent in situ pinning, 20% had multiple surgeries for SCFE, and 2% were treated with isolated femoral osteotomy. Leg length discrepancy (LLD) was measured pre- and postoperatively. Most implants were cementless (96%), with 4% hybrid or fully cemented. The most common bearing surfaces were ceramic-on-HXLPE (47%), metal-on-HXLPE (41%), ceramic-on-ceramic (10%), and metal-on-metal (2%). Kaplan–Meier survival analysis was used to estimate survivorship free of aseptic revision, any revision, any reoperation, and any complication.

RESULTS: The 15-year survivorships free of aseptic revision, any revision, any reoperation, and any complication were 98%, 98%, 96%, 89% respectively. Only three revisions were performed: one for acetabular loosening, one for disassociated polyethylene liner, and one for infection managed with debridement, antibiotics, and implant retention (DAIR). There were 12 nonoperative complications. Eleven complications occurred within 30 days, and the remaining one occurred beyond 90 days. The most common complications were intraoperative calcar fractures (n=6), most of which were managed with intraoperative wiring, superficial wound infections (n=2), and sciatic nerve palsy (n=2). No venous thromboembolism events were observed. The average preoperative leg length discrepancy was –11.1 mm, which improved to –2.2 mm postoperatively (mean correction: +8.9 mm).

DISCUSSION AND CONCLUSION: In this largest known series, 165 contemporary THA for SCFE demonstrated excellent 15-year survivorship, outperforming historic series. Despite this being a young predominantly male cohort, there were very low rates of revision and reoperation, probably due to advances in implant fixation, techniques and bearing surfaces. THA also provided reliable correction of leg length discrepancy in this anatomically complex population.