

Impact of Hip vs. Knee Pain at Initial Slipped Capital Femoral Epiphysis Presentation: Time to Imaging, Surgery, and Complications

Shayan Hosseinzadeh, David A Momtaz, Abhishek Tippabhatla¹, Rishi Gonuguntla, Mehul Manoj Mittal, Pooya Hosseinzadeh²

¹Washington University In St. Louis School of Medic, ²Washington Univeristy Orthopedic Surgery

INTRODUCTION: Slipped capital femoral epiphysis (SCFE) is a common pediatric hip disorder that affects roughly 1/10,000 children and adolescents, with delayed diagnosis and treatment leading to poor outcomes. This study compares the association between presenting hip or knee pain symptomatology and its effects on the time to diagnosis and treatment of SCFE, mid- to long-term complications, and the risk of requiring second surgeries.

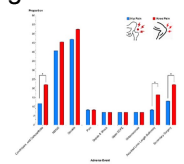
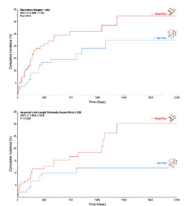
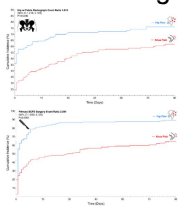
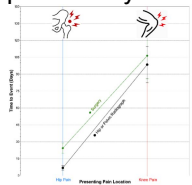
METHODS:

A federated health research network encompassing inpatient records, acute care, outpatient, and emergency department visits with information on the temporality of patient visits was utilized. A retrospective cohort study was conducted comparing SCFE presentations with chief complaints of either hip or knee pain that eventually underwent SCFE surgery. Propensity score matching adjusting for demographic factors, which include BMI percentiles, was performed on these cohorts. Lastly, survival analysis was implemented on the matched cohorts to compare time to imaging, primary SCFE surgery, complications, and the need for additional interventions.

RESULTS:

A total of 724 patients undergoing surgery for SCFE were initially identified, of which 571 had hip pain and 153 had knee pain. After propensity score matching was performed, 145 patients were included in each group. The average age of patients in the study was 11.5 years old. Children in the knee pain cohort experienced a significantly longer delay of approximately 92 days in obtaining hip/pelvis imaging (98.51 vs. 6.79 days, HR 1.62, 95% CI [1.22-2.14]; p = 0.034) and an average delay of approximately 82 days in undergoing surgery from presentation (106.38 vs. 24.34 days; HR 2.39, 95% CI [1.83-3.14]; p < 0.0001) compared to the hip cohort. In addition, patients presenting with knee pain exhibited a notably increased risk of developing chondrolysis and osteoarthritis (RR 1.88, 95% CI [1.10-3.24]; p = 0.019), as well as requiring secondary hip reconstruction (RR 1.68, 95% CI [1.002-2.83]; p = 0.045) compared to their counterparts in the hip pain cohort.

DISCUSSION AND CONCLUSION: SCFE patients with initial knee pain symptoms are often misdiagnosed at presentation, causing a delay in treatment. This study is the first report attributing increased risks of chondrolysis, osteoarthritis, and need for future hip reconstructive procedures to the delay in diagnosis among SCFE patients presenting with knee pain. Maintaining a high index of suspicion for SCFE among children presenting with knee pain, particularly among overweight adolescents, is crucial.



Event	RR	95% CI
Chondrolysis and OA	1.883	(1.095, 3.236)
OSAR	1.117	(0.886, 1.409)
Open SCFE	1.680	(0.665, 2.151)
Minority	1.000	(0.429, 2.331)
Significant Short-Leg	1.000	(0.429, 2.331)
Open SCFE	1.000	(0.429, 2.331)
Chondrolysis	1.000	(0.429, 2.331)
Acquired Limb-Len	2.000	(0.846, 4.641)
Secondary Surgery	1.684	(2.833, 1.002)

Event	RR	95% CI
Chondrolysis and OA	1.883	(1.095, 3.236)
OSAR	1.117	(0.886, 1.409)
Open SCFE	1.680	(0.665, 2.151)
Minority	1.000	(0.429, 2.331)
Significant Short-Leg	1.000	(0.429, 2.331)
Open SCFE	1.000	(0.429, 2.331)
Chondrolysis	1.000	(0.429, 2.331)
Acquired Limb-Len	2.000	(0.846, 4.641)
Secondary Surgery	1.684	(2.833, 1.002)