

<a>Complications from >4,000 Pediatric Knee Arthroscopic Procedures: A Multicenter, Surgeon-Driven Prospective Quality Improvement Registry

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INTRODUCTION: Knee arthroscopy is a common orthopaedic procedure, with a frequency that is steadily increasing in the pediatric and adolescent age groups. However, knowledge on safety is limited in this subpopulation. The purpose of this initiative was to provide national benchmarks for the incidence of complications through a prospective, multicenter, surgeon-driven quality improvement registry investigating anterior cruciate ligament reconstruction (ACLR), meniscus repair (MR), discoid meniscus (DM) treatment, and arthroscopic tibial spine fracture (TSF) treatment and assess variables associated with these complications.

METHODS: A multicenter, surgeon-driven quality improvement registry (20 institutions, 29 surgeons) focusing on four procedures (ACLR, MR, DM, TSF) was reviewed. Audit processes using CPT codes were designed to ensure that all consecutive cases were prospectively entered on patients <19 years old. Demographic and perioperative data were reviewed. Complications were defined as any deviation from a typical postoperative course for that condition, and only Clavien Dindo grade II (G-II) or greater complications were included. Each complication was reviewed by a single senior principal investigator to ensure uniformity. Chi-Square or Fisher's exact tests were used for categorical comparisons (complication vs. no complications) and Kruskal-Wallis or Student t-tests were used for continuous comparisons, to identify variables associated with a complication.

RESULTS: A total of 4,429 cases (mean age 14.7+/- 2.6, 44.9% Female) were reviewed with an overall complication rate of 11.1% (G-II 6.7%; G-III 5.7%). Stiffness was the most common complication (4.12%) and was more commonly seen with ACLR (28.85 per 1,000 surgeries) and TSF (23.14 per 1,000 surgeries). The most common G-III complication was a failed MR (1.30%) which was more common in isolated MR (57.92 per 1,000 surgeries) and repair of DM (13.05 per 1,000 surgeries). Medial MRs of the posterior horn and longitudinal lateral meniscus tears were more commonly associated with both G-II and G-III complications ($p=0.003$). ACLR in female patients were more likely to sustain both G-II and G-III complications than in males ($p<0.001$).

DISCUSSION AND CONCLUSION: A prospective multicenter quality improvement registry reveals that clinically significant complication rates associated with pediatric arthroscopy are greater than one in ten, which may be higher than previously reported or assumed. The most common complications are stiffness and failed repairs. ACLR in females, posterior horn medial meniscus tears, and longitudinal lateral meniscus tears are associated with higher rates of complications and the need for repeat surgery.