Surgical vs. Nonsurgical Management of Pediatric Ganglia - A Cost and Outcomes Analysis

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INTRODUCTION: Pediatric ganglia are an understudied phenomenon, with an estimated 10% of all ganglia occurring in pediatric patients. Data on treatment modalities, recurrence rates, and cost effectiveness remains sparse. This study aims to characterize recurrence rates of surgical versus conservative management of pediatric ganglia, along with cost effectiveness analysis of treatment modalities.

METHODS: This was a retrospective cohort study that included all patients from 12/1/2011 to 03/15/2023 that were treated at a single institution for primary or recurrent ganglia of the wrist. Patient data was gathered regarding ICD-10 code, CPT code, date of procedure, primary payer, and total cost of procedure associated. This data was then stratified into two cohorts: surgery, and percutaneous ultrasound-guided fenestration of ganglia (PUGG). Patient data was analyzed for rates of recurrence, treatment methods for recurrence, and total costs of treatment.

RESULTS SECTION: 595 patients comprised our cohort with a total of 710 procedures performed. - 296 underwent PUGG and 414 underwent surgery. We noted a recurrence rate of 14.7% after PUGG and 21.2% after surgery. Mean time to recurrence was 302.66 days after the PUGG cohort and 1619.13 days after surgery ($p < 0.0001$). PUGG recurrence was treated with surgery in 76.3% of cases and surgery recurrence was treated with re-operation in 59.2% of cases. Average payer charge was $2224.01for PUGG and $11645.71 for surgery ($p < 0.0001$). Significant differences were seen in charges amongst private insurers (BCBS, $p < 0.0001$) and Medicaid/CHIP ($p = 0.0004$). No significant differences were seen in cost of re-operation and repeat procedure for in both surgery and PUGG groups respectively, even after controlling for insurer status.

DISCUSSION: Ganglia are a challenging entity to definitively treat. PUGG can present as an alternative option for pediatric ganglia given its cost-effectiveness and comparable recurrence rates. One factor for practitioners to note is the faster time to recurrence for PUGG treated ganglia. Both cohorts saw a preference for recurrence treatment with surgical management. Overall, PUGG can serve as an effective management strategy for pediatric ganglia.

SIGNIFICANCE/CLINICAL RELEVANCE: (1-2 sentences): This study is one of a few to examine pediatric ganglia recurrence rates after surgery and PUGG along with associated costs. This study shows that PUGG can effectively manage pediatric ganglia, with lower associated charges and recurrence rates.

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