The Natural History of Pediatric Hand and Wrist Ganglion Cysts: Longitudinal Follow Up of a Prospective, Multicenter Cohort

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INTRODUCTION: Ganglion cysts are the most common mass seen in the hand and wrist. Despite their frequency, there is a paucity of data on the natural history of pediatric ganglion cysts. This investigation sought to elucidate the natural history of pediatric ganglion cysts in a large, prospective cohort. Our specific aim was to investigate the rate of spontaneous resolution over time. The goal of this study was to improve patient and parent counseling regarding treatment alternatives by clarifying the rate of spontaneous resolution.

METHODS: A multicenter, prospective investigation of children (≤18 years) who presented to clinic for ganglion cysts of the hand or wrist was conducted between 2017-2021. Data collected included age, sex, cyst location and laterality, hand dominance, pain (Wong-Baker scale), and Patient-Reported Outcome Measurement Information System (PROMIS) scores for upper extremity (UE) function. Follow-up surveys were completed by the parent or patient at 6 months, and then annually for up to 5 years.

RESULTS: A total of 154 children with ganglion cysts were enrolled in the registry and elected for observation (no surgery or aspiration) with an average age of 9.4 years and female: male ratio of 1.4:1 (p=0.003). The dorsal wrist was the most commonly affected site (66/154, 41.9%) followed by the volar wrist (47/154, 31.8%), flexor retinaculum (26/154, 16.9%), and extensor tendon sheath (7/154, 4.1%). A total of 63.0% (91/154) of patients responded to follow-up surveys with an average follow up of 2.12 years. Some 56.7% (55/97) of cysts spontaneously resolved, with an average time to resolution of 14.1 months after cyst presentation (interquartile range 5.6 to 20.8 months). In total, 30.9% of cysts resolved within 1 year and 47.4% of cysts resolved within 2 years of onset (Figure 1). The spontaneous resolution rate was 52.3% (23/44) for dorsal wrist ganglions, 38.5% (10/26) for volar wrist ganglions, 77.8% (14/18) for retinacular cysts, and 100% (3/3) for extensor tendon cysts. Cysts were more likely to resolve in the hand than the wrist (81.0% vs. 47.1%, p=0.003). Cysts present for greater than 6 months at initial evaluation were less likely to resolve spontaneously (38.5% vs. 62.7%, p=0.031). The mean PROMIS scores for UE function in children whose cysts resolved was 51.1.

DISCUSSION AND CONCLUSION: This is the largest population of pediatric hand and wrist ganglions followed without intervention. Our study provides clinicians with important longitudinal data on spontaneous resolution rate of pediatric ganglion cysts which can be used when counseling families on the natural history of this condition. Ganglions of the hand have a greater probability of resolution than ganglions of the wrist. Cysts that resolve spontaneously usually do so within 2 years of cyst presentation. This information improves guidance and allows family to better select among treatment alternatives.