

Introduction

In the adult hand surgery literature, there are multiple publications highlighting office-based hand surgery.¹⁻⁵ There are very few instances of office-based hand surgery in a pediatric population present in the literature.^{6,7} Polydactyly of the hand is one of the most common congenital hand malformations, with multiple treatment options available for various presentations of Type B post-axial polydactyly (Fig 1) of the pediatric hand. In a recent review of the topic, Kozin⁸ presents an algorithm for the management of Type B polydactyly. The preference stated for initial treatment is initial suture ligation with surgical excision reserved for the operating room when the child is age one or older. We present a case series of successfully performed in-office surgical excision of the polydactylous digit in children as young as two weeks old.

Methods

All pediatric patients who underwent in-office postaxial polydactyly excision from November 2013 through February 2015 were included in the study.

Surgical Technique

The parents remained present in the exam room for the entire procedure. The ulnar aspect of the polydactylous hand was prepped with an alcohol swab and the base of the polydactylous digit was injected with 0.2mL of 0.5% Lidocaine with 1:200,000 epinephrine. The surgical team would leave the exam room for a minimum of 15 minutes, in the interval seeing additional office patients while allowing for the epinephrine to take effect.

The hand and forearm are prepped with alcohol swabs and drapes placed to obtain field sterility. An assistant lightly holds the child's elbow on the exam table to prevent motion. The surgeon grasps the hand of the child and extends the small finger. An assistant holds the Type B polydactylous digit on gentle extension and under 4x Loupe magnification the base of the digit is excised with the curved Iris scissors. The ophthalmic cautery is opened only if needed. If the accessory digital nerve is prominent, then it is trimmed further as needed. The skin is closed with 5-0 Chromic sutures, followed by steri-strips.

Results

Over a 15 month period, a total of twenty-six children were treated in the office for post-axial polydactyly. Five patients were referred after having undergone ligation at birth with a resultant "bump" at the ligation site. Twelve patients had bilateral Type B post-axial polydactyly. The total of excised accessory fingers was thirty-eight. The proper digital artery or nerve was not encountered during any of the excisions. The average time it took to perform the procedure is recorded in Table 1. The procedure time excluded the injection of anesthesia and rooming of the patient. It refers to the time from the prepping of the hand to placement of steristrips at the conclusion of the procedure. There were no post-procedure complications regards to function and sensation based on physical exam on follow-up. The excised digits were disposed of as medical waste.

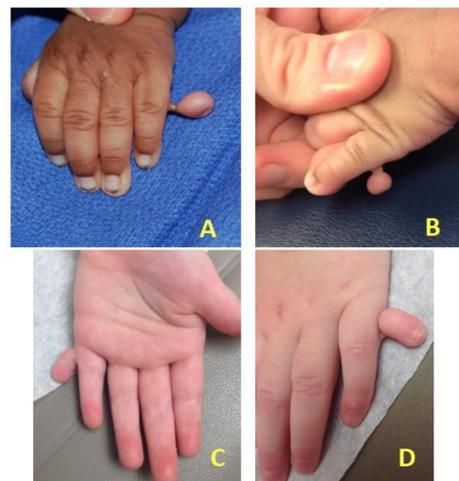


Fig 1: Examples of Type B post-axial polydactyly seen in our practice

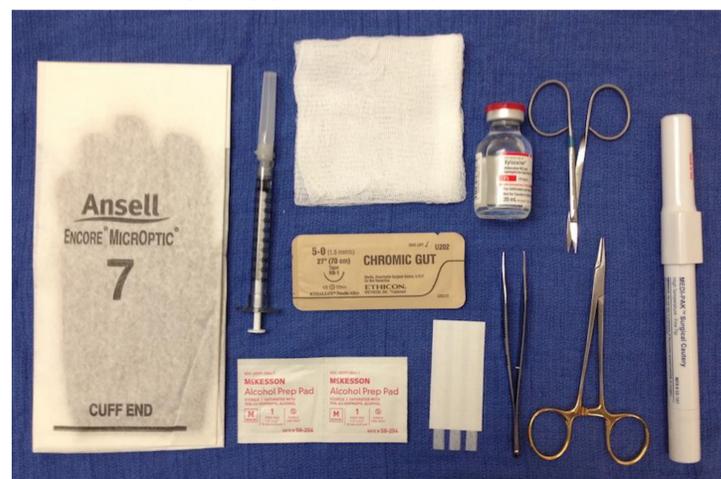


Fig 2: Supplies used for procedure

Discussion

Office-based excision of Type B post-axial polydactyly in children satisfies the goals of surgical excision, while decreasing the cost substantially, with no decrease in quality or safety. The use of general anesthesia in young children is not without risks^{9,10}. The SmartTots group has recommended surgical procedures in children under three years of age be avoided unless the situation is urgent or potentially harmful if not attended to¹¹. With an office-based technique, general anesthesia is avoided.

The cost savings of avoiding an anesthesia, inpatient pharmacy, and OR charges are substantial. Better utilization of operating room time is realized as well. The Current Procedural Terminology (CPT) code for the removal of a Type B post-axial polydactyly is 11200. This code reimburses 0.82 work RVUs with a Medicare national average national charge of \$86.12. The total "room time" for an office-based excision is roughly 45 minutes. During that time frame, the surgeon is able to see additional 3 office patients on average, and the time dedicated to the procedure itself is approximately 7 to 11 minutes. Therefore, it is a tremendous under-utilization of a surgeon's time to perform an excision in the operating room.

An advantage of performing an excision versus and suture ligation is the avoidance of a post-operative "bump" at the site of the polydactylous digit. Watson and Brent¹² found a 43% rate of post-operative bump following suture ligation. In our group there were no injuries to the native neurovascular bundle nor were there any remnant bumps were present at follow-up. Katz and Lindler⁶ performed excisions in the newborn nursery, using EMLA cream only, mirroring our results with no residual "nubbin" formation.

By performing the procedure in the exam room we have noted consistent positive feedback from the parents of the children we have treated. In older children, after the local has been injected, distraction techniques with iPads and books have been used to keep the child calm.

Conclusion

We report a case series of successful surgical excision of Type B post-axial polydactyly in children in an office setting. This technique is a cost-conscious approach to the condition without the need for general anesthesia, demonstrating excellent results with improved safety without sacrificing quality.

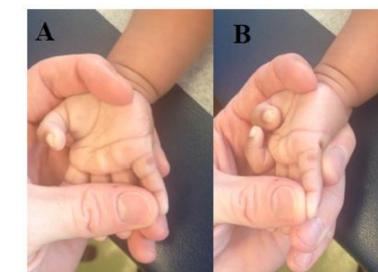


Fig 3: Sample post-op result

Table 1

	Unilateral Post-axial Polydactyly	Bilateral Post-axial Polydactyly
Average Age	1.4 months	
Median Age	3.3 months (range 9 days to 4.2 years)	
Average Time in Exam Room	41.8 minutes	47.1 minutes
Median Time in Exam Room	42 minutes	46 minutes
Average Procedure Length	6.8 minutes	11.1 minutes
Median Procedure length	7 minutes	11 minutes

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