



Case Report

Polydactyly in A Young Male Child – A Rare Case Report

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ABSTRACT

In this article, we will be discussing a rare case of polydactyly of both hand and feet (tetradactyly) of a young male child. Polydactyly is one of the most common congenital anomalies of the hands and feet consisting of supernumerary fingers or toes. Our patient came with complaints of supernumerary digits in both feet. Examination of the child revealed foot polydactyly with 6 toes at both feet. Examination also showed involvement of bone apart from soft tissue which was confirmed by X-Ray. The patient underwent surgical correction, and the extra toe was removed with associated skeletal regularization and soft tissue closure. Incidence of tetrapolydactyly was not found as it has been reported to be very rare. Because hand and foot polydactyly are associated with congenital defects in 23.4% of patients, genetic workup and thorough medical examination in these patients is recommended. Careful clinical and radiographic evaluation should be made prior to treatment to achieve good functional and cosmetic results.

KEYWORDS: polydactyly, tetradactyly, supernumerary digits.

INTRODUCTION

Malformations affecting the limbs and particularly the number of digits are the most frequent congenital malformation in human occurring in about one in 1000 neonates.[1] Polydactyly is one of the most common congenital anomalies of the hands and feet consisting of supernumerary fingers or toes.[2] The extra digit is usually a small piece of soft tissue. Occasionally, it may contain bone without joints; it may be a complete functioning digit.[3] This condition can occur in one limb or can be exceptionally present in all four limbs a condition called tetrapolydactyly.[4] Isolated polydactyly is often autosomal dominant, while syndromic polydactyly is commonly autosomal recessive.[5] Operation remains the definitive treatment with a goal to improve cosmesis and possibly hand function.[6,7,8]

CASE REPORT

A one and half year old male child delivered at 39 weeks and weighed 3600 grams with head circumference and body

length within normal limits was admitted with complaint of supernumerary digits in both feet. The patient also had a history of extra digits in both hands which eventually shed off. There was no family history of hand and foot malformations in his other siblings or in his own family or that of his father. There was no history of drug ingestion by his mother other than the routine drugs prescribed to her during antenatal care.

Examination of the child revealed foot polydactyly with 6 toes at both feet.[Figure 1] Other than this finding, there were no other malformations or conditions noted. Further examination of the feet revealed involvement of bone apart from soft tissue which was confirmed by X-Ray.[Figure 2] Clinico-Radiological examination revealed no other congenital abnormality.

The patient subsequently underwent surgical correction, and the extra toe was removed with associated meticulous skeletal regularization and soft tissue closure.[Figure 3 and 4] Healing was uneventful and the patient was discharged with no occurrence of surgery related inconvenience.

Figure 1: Pre-operative photo of both feet of the patient



Figure 2: Xray Bilateral Foot showing Polydactyly



Figure 3: Excised supernumerary digits



Figure 4: Post operative photo of the operated site



DISCUSSION

Polydactyly is perhaps the most common congenital hand anomaly.[3] Various incidences have been reported but on average the incidence in blacks is about 1 in 300 while in white it is about 1 in 3000.[9] Incidence of tetrapolydactyly was not found as it has been reported to be very rare.[10] Polydactyly is classified into preaxial, central, and postaxial types. Preaxialpolydactyly, the most common type, refers to the duplication of the first digital ray.[11] Radiographs of the affected limb are recommended to show whether the rudimentary digit contains skeletal elements. The degree of deviation of the digit and the size of the articulating metacarpal or metatarsal also may be helpful in surgical planning.[12]

In polydactyly, extra digit may be functional or nonfunctional. Extra digit usually lacks muscular

connections.[13] Currently, the Wassel classification is universally accepted to categorise the patho-anatomy of the polydactyly and to guide respective surgical procedures.[14]

However, its prognostic significance has been speculative as long-term outcomes of surgical treatment are seldom reported.[14] Surgery is necessary to create a single, functioning thumb. Typically this is performed around one year of age, before the development of pinch and fine motor function.[15] It is important to evaluate and treat the skin, nail, bone, and the ligaments in a simultaneous manner in order to obtain a good reconstruction and to decrease both the complications and the need for subsequent operations.[16] The majority of cases of polydactyly without bony involvement usually have the extra digits tied off at birth.[9]

Sr. No.	Table 1: Classification: Types I to VII based on level of duplications
I	Bifid distal phalanx
II	Duplicated distal phalanx
III	Bifid proximal phalanx
IV	Duplication of proximal phalanx which rest on broad metacarpal
V	Bifid metacarpal
VI	Duplicated metacarpal
VII	Triphalangism

CONCLUSION

Because hand and foot polydactyly are associated with congenital defects in 23.4% of patients, genetic workup and thorough medical examination in these patients is recommended. With current techniques of surgery, good results are usual, although secondary reconstructive procedures may be required. Simple excision is seldom indicated. Combination procedures, involving core tissues of bone, joint, and tendon or peripheral tissue (neurovascular, subcutaneous and skin) or sometimes all of these, are preferred for reconstruction. The major current problem is to achieve the maximal good result with a minimal number of surgical operations. Careful clinical and radiographic evaluation should be made prior to treatment to achieve good functional and cosmetic results. Most cases are treated during childhood before walking age.

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