CASE REPORT

Journal of International Surgery and Clinical Medicine (*JISCM*) 2024, Volume 4, Number 1: 18-20
E-ISSN: 2807-7008

Published By :
Surgical Residency Program
Universitas Syiah Kuala

Mirror foot : a case report of rare ten toes polydactyly

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Received: 2024-02-26
Accepted: 2024-04-16
Published: 2024-05-24

ABSTRACT

Background: A rare congenital abnormality known as "mirror image polydactyly" of the feet is typified by symmetrical duplication of the foot's fingers. According to Fukuzawa et al., only 28 cases—seven of which include treatment records—have been described in the English literature. Mirror foot can arise as a single congenital defect or a component of a hereditary syndrome involving several congenital defects.
Methods: Our outpatient department received a referral for a 3-month-old infant who was born with unilateral mirror-image polydactyly of the foot, along with congenital talipes equinovarus (CTEV) and congenital genu recurvatum. A radiographic examination verified that the left foot had nine metatarsals and ten fingers. Five digits were ablation after preaxial duplicates of the first through fourth metatarsals were disarticulated.
Results: Rebuilding a functional and aesthetically beautiful foot was the goal of the surgical care of this case, which will help orthopaedic surgeons manage CTEV for serial cast correction. The foot appeared excellent six months following the surgical procedure. The youngster was referred to the pediatric orthopaedic facility in Jakarta after the local orthopaedic department managed the CTEV without incident.
Conclusion: Mirror feet are uncommon, and each patient needs treatment specifically designed for them. Coordination across various departments should be pursued to provide patients with the best care possible.

Keywords: Mirror Foot, Polydactyly, Congenital anomalies.
Cite This Article: Sitorus, G.Y.J., Putra, T.N., Ikhsan, M., Jannah, S.M. 2024. Mirror foot : a case report of rare ten toes polydactyly. *Journal of International Surgery and Clinical Medicine* 4(1): 18-20. DOI: 10.51559/jiscm.v4i1.36

INTRODUCTION

The condition known as polydactyly is the existence of extra fingers on the hands or feet. The Dutch physician Theodor Kerkring first used the word polydactyly around 1670.[1] In 40 to 50 percent of instances, polydactyly of the foot occurs bilaterally and accounts for 45% of congenital foot deformities.[2] The placement of the extra digit is described by Temtamy and McKusick's well-known classification of polydactyly: preaxial (medial ray), central, and postaxial (lateral ray).[3] Eighty percent of patients have postaxial polydactyly, fifteen percent have preaxial polydactyly, and five percent have central duplication. Postaxial polydactyly is the most prevalent type.[4]

The ultimate type of polydactyly, known as mirror image polydactyly of the foot, is an uncommon congenital malformation marked by symmetrical duplication of the foot's digits. The foot's mirror image polydactyly can develop as a single congenital disorder or a component of a hereditary syndrome with several congenital abnormalities. Mirror hands, tibial hemimelia (varying degrees of tibia hypoplasia), fibular dimelia (absent tibia with duplication of fibula), and Laurin-Sandrow syndrome have all been reported abnormalities associated with mirror foot.[5]

We present a case of preaxial mirror polydactyly in which the left foot of a 3-month-old girl has ten fingers and nine metatarsals. Because of the case's uncommon presentation, rarity, and exemplary surgical outcome, we are reporting it.

CASE REPORT

A 3-month-old child with unilateral preaxial polydactyly of the left foot with a congenital abnormality. Our outpatient department received referrals for congenital genu recurvatum and talipes equinovarus (CTEV). She was the third child born to a non- consanguineous couple, and she arrived at full term. There was no family history of a comparable skeletal problem, and the antenatal history was eventful. A clinical examination revealed the left foot's ten digits (Figure 1). The left foot's proximal, middle, and distal phalanges are fully formed by radiographic evaluation of 10 fingers and nine metatarsals (Figure 2). A tourniquet was inserted, and the procedure was performed under general anaesthesia. An initial, medial longitudinal incision was used to disarticulate preaxial duplicates of the first through fourth metatarsals, and the five digits were then ablated (Figure 3).

Rebuilding a functional and aesthetically beautiful foot was the goal of the surgical care of this case, which will help orthopaedic surgeons manage CTEV for serial cast correction. The foot appeared excellent six months following the surgical procedure. Nevertheless, functional abilities could not be achieved because

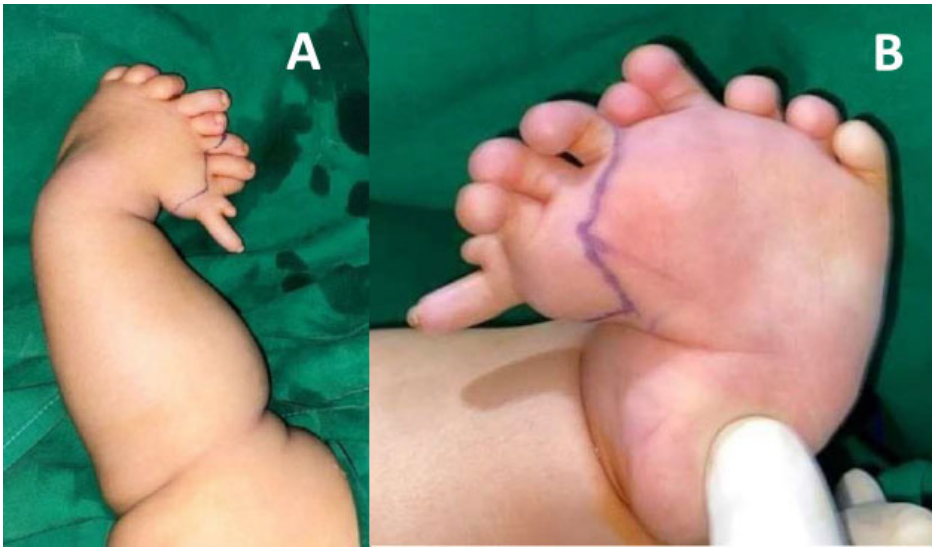

Figure 1. A) Dorsal view of the left foot showing 10 digits B) Plantar view of the left foot.

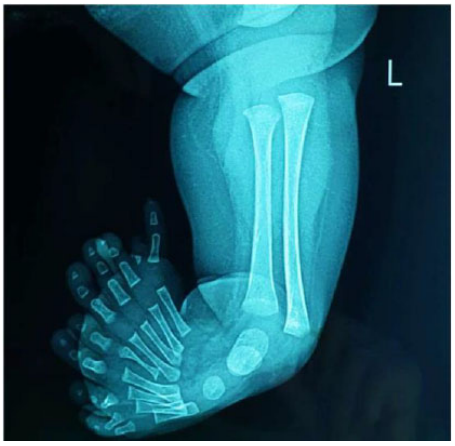

Figure 2. Radiographic examination revealing 10 digits with fully developed metatarsals, proximal, middle and distal phalanges of the left foot.

the patient was still unable to walk (Figure 4). The local orthopaedic department handled the CTEV without incident, and because Aceh, Indonesia, lacks a facility, the patient was directed to the pediatric orthopaedic hospital in Jakarta. A follow-up is necessary to evaluate this patient's functional growth in later life.

DISCUSSION

There is still no commonly accepted definition of mirror foot in the world.Six There is no universal classification for the true meaning; it depends on the author.[7] The existence of an accessory tarsal bone, according to some authors, should be used

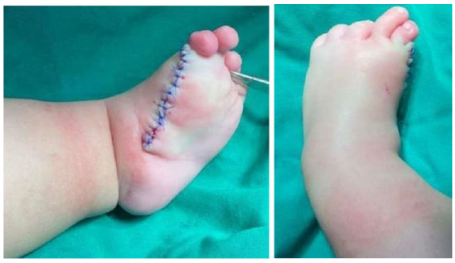

Figure 3. Post operative A)Medial view of the left foot B) Dorsal view of the left foot.

to distinguish between polydactyly and mirror foot. However, this claim is still up for debate regarding the fulfilment of the criteria, particularly the duplication of all tarsal and metatarsal bones on the medial side of the foot.[8] While some authors recognize Mirror Foot as "an extreme form of preaxial polydactyly" and as a distinct type of preaxial polydactyly, others have included Foot Mirror Duplication to the spectrum of preaxial polydactyly. The phrase "Preaxial Mirror Polydactyly" was coined by Verghese et al. to describe feet that have extra rays medially positioned to the initial ray, a feature common to post-axial toes. Since the tarsal duplication is unpredictable, it was left out.[10]

Abnormalities of the mirror foot are extremely rare and severe types of congenital duplication of the preaxial polydactyly spectrum. A survey of the English literature by Fukazawa et al. (2006) states that, until 2009, only 28 cases of Mirror Feet had been recorded, with even fewer describing treatments and results. Anomalies of the hindfoot, midfoot, and forefoot were discovered, along with variability in tibial and fibular abnormalities.[7]

The documented literature for this rare abnormality with functional and aesthetic implications offers few surgical therapeutic recommendations. The surgical treatment of these abnormalities was described as complicated by Mc Carthy et al. (2011) and Galois et al. (2012), who reported poor long-term results. However, because hand and foot functions differ, it is less sophisticated than its equivalent in the upper limb.[13]

According to this report, the patient also had congenital genu recurvatum and talipes equinovarus deformities, which called for a follow-up referral to the orthopaedic department. With an incidence of 0.6 to 6.8 per 1000, clubfoot, also known as congenital talipes equinovarus, is one of the most prevalent congenital malformations affecting the musculoskeletal system. The Ponseti technique, which involves sequential manipulation and cast insertion, is widely recognized as the gold standard for managing clubfoot without surgery.[14]

The rarity of mirror foot, along with additional limb anomalies, is highlighted in this case report. There are no recommendations for treating mirror foot. While the primary purpose of foot restoration is cosmetic, it also helps orthopaedic doctors by enabling regular shoe usage and facilitating serial cast repair. When treating individuals with mirror feet, it's essential to consider any further underlying abnormalities, and working with many surgeons will yield the most outstanding results. To detect, stop, and treat any irregularities, early and routine gait examinations should also involve occupational therapists and physiotherapists.

CONCLUSION

Mirror feet are uncommon, and each patient needs treatment specifically designed for them. Mirror foot management is still tricky and calls for a multidisciplinary strategy. Coordination across various departments should be

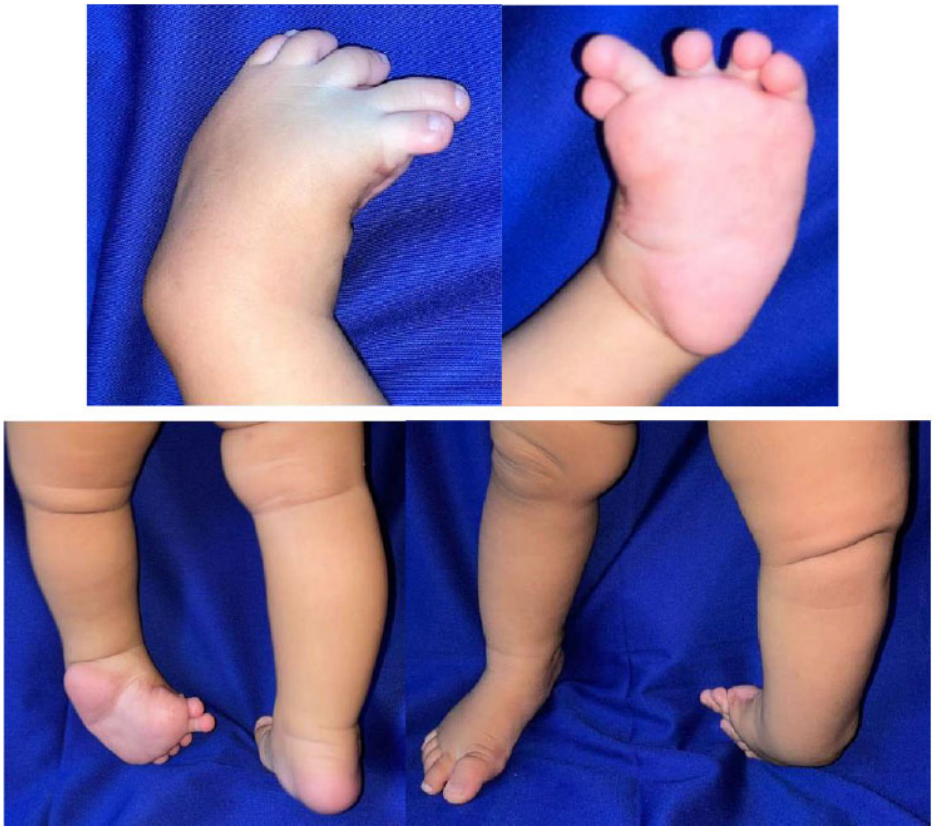

Figure 4. Clinical results after a follow up of 6 months.

pursued to provide patients with the best care possible.

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