

Congenital Left Foot Polydactyly in Corrected Case of Congenital Talipes Equinovarus of Left Foot

Rajesh Kishanrao Ambulgekar¹, Amit Manohar Awachat², Ramesh Laxman Dhakare³

¹Professor and HOD, Department of Orthopaedics, Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra. ²Second Year Junior Resident, Department of Orthopaedics, Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra.

³Second Year Junior Resident, Department of Orthopaedics, Dr. Shankarrao Chavan Government Medical College, Nanded, Maharashtra.

PRESENTATION OF CASE

We report a rare case of a patient with left unilateral clubfoot and left foot polydactyly. The patient presented to our orthopaedic clinic with left unilateral clubfoot, with left foot seven toes. The pattern does not fit any described syndrome such as Laurin-Sandrow syndrome or Martin syndrome.

A 1 year 28 days old female patient was referred to our clinic for evaluation of left club foot with polydactyly. She was born full-term normal vaginal delivery and weighed 2 and ½ kg at birth. Upper extremity examination revealed both hand with normal anatomy. The long bones of the arms were normal. In her lower extremities she had unilateral hind foot equinovarus, metatarsal adductus, and cavus deformities consistent with clubfoot. Left foot had seven toes, and none appeared to be a hallux. She had no calluses laterally from weight bearing on the outside of her feet. Radiographic examination showed seven metatarsals; the appendicular toes are joint with each other. She had no other anomalies and growth and development were normal. The patient was evaluated by an orthopaedic specialist to address her left club foot with polydactyly. No other abnormalities were found. Surgery planned to optimize care and minimize patient morbidity.

Polydactyly of the feet with club foot is a rare diagnosis. In this condition, there is abnormality of hallux or thumb is usually associated. They can occur in isolation or as part of syndromes.¹⁻³ Congenital anomalies are formed by embryonic failure of formation of parts, failure of differentiation, duplication, overgrowth, undergrowth, congenital constriction band syndrome, and generalized skeletal abnormality.^{4,5} polydactyly belongs to category of duplication.⁶ More specific loci and genetic mechanisms responsible for disorders of duplications will be defined with time, as molecular research continues.⁶ These anomalies are usually associated with facial and other extremity features which required thorough history and physical examination.^{1-3,7} Treatments must be given to correct each deformity individually and to restore good functional outcome for patient.

Corresponding Author:

*Dr. Amit Manohar Awachat,
R. No. 69, PG Hostel,
SCGMC, Vishnupuri, Nandad,
Maharashtra.*

E-mail: awachatamit1141@gmail.com

DOI: 10.18410/jebmh/2020/192

*Financial or Other Competing Interests:
None.*

How to Cite This Article:

Ambulgekar RK, Awachat AM, Dhakare RL. Congenital left foot polydactyly in corrected case of congenital talipes equinovarus of left foot. J. Evid. Based Med. Healthc. 2020; 7(17), 880-882. DOI: 10.18410/jebmh/2020/192

*Submission 10-03-2020,
Peer Review 16-03-2020,
Acceptance 11-04-2020,
Published 27-04-2020.*



CLINICAL DIAGNOSIS

1 year and 28 days old female with corrected case of left foot congenital talipes equinovarus with left foot polydactyly.

PATHOLOGICAL DISCUSSION

In this report, we present a case of one year and twenty-eight days old female with left foot congenital talipes equinovarus with left foot polydactyly. This case highlights several important topics which required further discussion. There are various types of clubfoot most common being primary / idiopathic. Types of secondary club foot are i) muscular type - arthrogryposis multiplex congenita ii) osseous type - tibial hemimelia iii) neuromuscular iv) cerebral at palsy v) polio vi) trauma, etc.⁸ Congenital talipes equinovarus is one of the most common congenital deformities involving the musculoskeletal system with a prevalence of 0.6 per 1000 to 6.8 per 1000.^{9,10} The Ignacio Ponsetti developed method with sequential manipulation and cast application for treatment of clubfoot. clinical correlation using this method produced functional plantigrade foot in about 90% of the cases without the need of surgery. It has been accepted worldwide as the standard for non-operative management of clubfoot.^{9,10}



Image 1. Clinical Photograph of Deformity



Image 2. Radiological Evidence of the Extra Digits on the Medial Side

On the contrary, clubfoot with extra digits is a rare congenital anomaly. There are very few case reports to describe their treatments and clinical outcome. Clubfoot with polydactyly may occur as an isolated deformity or may be associated with other deformities such as tibia hypoplasia, nasal abnormalities, fibula dimelia, or other upper extremities abnormalities.¹ Laurin-Sandrow or Martin syndrome have various other anomalies which are not associated with this patient.^{2,3}

The three-dimensional form of organisms is achieved through a process called pattern formation. Limb development occurs along three axes which are dorsal-ventral, proximal- distal and anterior-posterior. disturbance of limb pattern formation in the anterior-posterior axis result in polydactyly.⁷ Genes which are shown to influence the process including the Sonic Hedgehog gene which is expressed by the zone of polarizing activity, the Homeobox genes, BMP- 2.⁷ Analysis of skeletal defects, produced by gain or loss of Hox gene function. Since the anterior-posterior axis formation includes both radial/ulnar axis formation for the upper limb and tibia/fibula axis formation for the lower limb, congenital abnormality of feet may be associated with abnormalities of upper limb.

DISCUSSION OF MANAGEMENT

The patient was treated initially with the Ponseti clubfoot protocol. After one year of serial casting patient had pain free functional plantigrade foot. After correction of foot she underwent surgical intervention with left foot extra digit resection. The medial two digits were resected. Regular dressings were applied for the period of two weeks for wound site to heal then sutures were removed. The patient was placed in long leg casts and kept non-weight bearing for 1 month post-operatively. After 1 year of follow up, the patient wore normal shoes walking without pain or discomfort. Overall, she was doing well, was active at a level comparable to her peers.

Thus, thorough examination of patient is more important in order to adequately correct every deformity. The goals of foot reconstruction are more cosmetic, but also to allow for pain free plantigrade foot that accept normal shoe wear. But there is no definitive protocol for treatments of such deformities. The treatments for such deformity may be staged to recover while limiting anesthesia time. Treatments in patients with club foot with polydactyly require careful considerations of other associated anomalies and best outcome requires proper surgical plan with better surgical skills and post-operative care.

FINAL DIAGNOSIS

Congenital Talipes Equinovarus of Left Foot with Ipsilateral Polydactyly.

REFERENCES

- [1] Fukazawa H, Kawabata H, Matsui Y. Mirror foot: treatment of three cases and review of the literature. *J Child Orthop* 2009;3(4):277-282.
- [2] Laurin CA, Favreau JC, Labelle P. Bilateral absence of the radius and tibia with bilateral reduplication of the ulna and fibula. A case report. *J Bone Joint Surg Am* 1964;46:137-142.
- [3] Martin RA, Jones MC, Jones KL. Mirror hands and feet with a distinct nasal defect, an autosomal dominant condition. *Am J Med Genet* 1993;46(2):129-131.
- [4] Frantz CH, O'Rahilly R. Congenital skeletal limb deficiencies. *J Bone Joint Surg Am* 1961;43(8):116-138.
- [5] Swanson AB. A classification for congenital limb malformations. *J Hand Surg Am* 1976;1(1):8-22.
- [6] Watt AJ, Chung KC. Duplication. *Hand Clin* 2009;25(2):215-227.
- [7] Kim KC, Wakui K, Yamagishi A, et al. Tetramelic mirror-image polydactyly and a de novo balanced translocation between 2p23.3 and 14q13. *Am J Med Genet* 1997;68(1):70-73.
- [8] Varshney MK. *Essential orthopedics principles & practice*. 2nd edn. Jaypee Brothers Medical Publishers 2018: p. 871.
- [9] Ponseti IV. Treatment of congenital club foot. *J Bone Joint Surg* 1992;74(3):448-454.
- [10] Morrissey RT, Weinstein SL. *Lovell and Winter's pediatric orthopaedics*. 6th edn. Philadelphia: Lippincott Williams & Wilkins 2006: p. 1262.