Congenital Hallux Varus; a rare entity

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Abstract

Case report: Congenital hallux varus is a extremely rare deformity, leading to cosmetically unacceptable foot and difficulty in wearing footwear and trousers. The deformity varies in severity, cause, associated anomalies, patho-anatomy and treatment. We thus report such a rare case of congenital hallux varus associated with polydactyl and syndactyl in an infant which was treated by soft tissue procedure. The aim of this report is create awareness regarding this rare entity and to review the available literature on it

Keywords: Hallux varus, Polydactyl with syndactyl, Foot deformity

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Introduction

Congenital hallux varus is a rare deformity, which can be associated with other deformities [1]. The child has difficulty in wearing footwear and trousers and is not cosmetically accepted to the parents. There is lack in clear definition of the deformity; the deformity also varies in severity, associated features, patho-mechanisms and the choice of surgical treatment bony or soft tissue corrections [2]. We thus report such a rare case of congenital hallux varus associated with polydactyl and syndactyl in an infant which was treated by soft tissue procedure. The aim of this report is create awareness regarding this rare entity and to review the available literature on it.

Case report

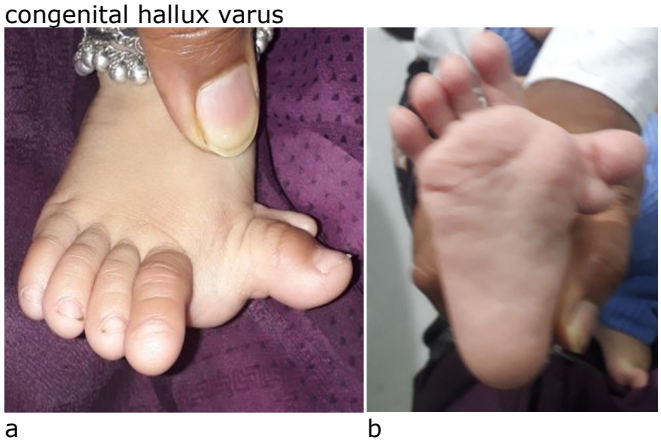
An eight months old male child presented to us with deformity present at right foot since birth. The deformity was double hallux i.e. duplication of great toe with hallux varus deformity of both the great toes (fig 1). The child's parents were concerned, about the bad cosmetic appearance of the foot deformity and they were unable to put regular footwear into the child's foot. They also complain of difficulty in pulling up the trousers/pants for the child. Apart from the foot deformity, there was no any other deformity present in the body. The child was born full term normal vaginal delivery and the neonatal period was uneventful. There was no history of trauma, surgery or any treatment taken.

On examination, the child had right foot deformity, with polydactyl having total of six toes in right foot, with syndactyl of great toe. The two great toes were abnormally placed in severe varus position, projecting almost medially from the inner border of the foot toward medial side rather than distally (fig 1). The fused great toes were perpendicular to the long axis of the first metatarsal. The proximal toe was slightly smaller than the distal toe, and it lacked proper nail plate, which was well developed in distal larger great toe. The first web space was significantly increased and the first metatarsal head was palpable in the web space. Movements dorsiflexion and plantar flexion was present at the both the toes, but movement of the deformed toes to the lateral

side towards the metatarsal head was not possible. Neurovascular examination of the foot and toes was normal.

Radiological, X-rays of the right foot AP and oblique view were done which showed, duplication of the great toes with only proximal phalanx in smaller toe and both the distal and proximal phalanges in the bigger toe. Both the toes were placed together side by side, articulating abnormally on the inner side of deformed first metatarsal head. The first metatarsal was short and thick and head was deformed.

Fig 1. Pre-operative clinical photograph (a & b) of congenital hallux varus

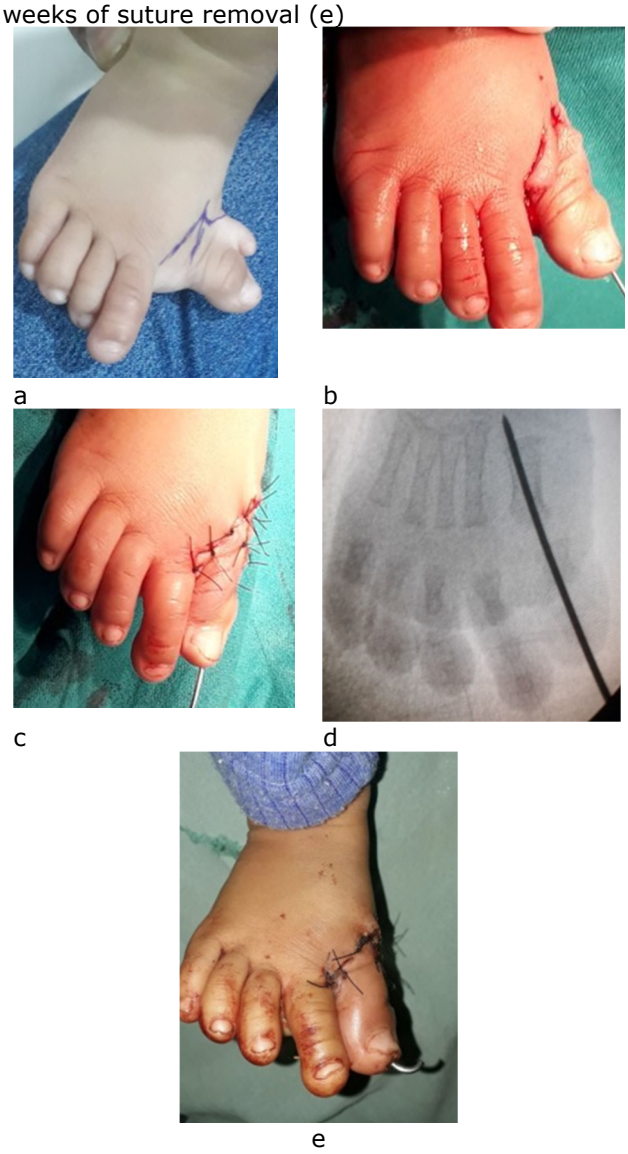


a b

We planned the surgical treatment of the patients, with excision of the supernumerary toe and alignment to the toe with the metatarsal head. The child was operated under general anesthesia under tourniquet in supine position. A 'Y' shaped incision was given with the vertical limb towards the web space (fig 2). Following this, the deep Y-shaped flaps were elevated and the proximal smaller accessary great toe was excised. The bigger toe with proper nail was displaced laterally and temporary fixed with a k-wire (fig 2).

Post operatively, a below knee slab was given and was removed at 2 weeks at the time suture removal. The k wire was removed at 4 week. At final follow up of 4 months, child has cosmetically acceptable foot and is comfortably able to wear normal footwear and trousers. There is slight shortening of great toe.

Fig 2. Intraoperative clinical photo (a to c) and intraoperative AP fluoroscopic vie (d) showing incision planned, the excision of the accessary toe & closure and k wire fixation. Clinical photo at 2 weeks of suture removal (e)



a b

c d

e

Discussion

Hallux varus is a very rare deformity as compared to hallux valgus [1]. Among the ethological types, the congenital variety of hallux varus is further rare variety as compared to other caused of varus deformity like surgical overcorrection of hallux valgus, idiopathic, spontaneous, inflammatory arthropathy or post-traumatic type [3]. Congenital hallux varus has multifactorial causes like thickened medial cords, medial slopes to the first metatarsocuneiform joints, first metatarsal longitudinal epiphyseal bracket (LEB; delta phalanx), shortened block first metatarsals, space occupying extra metatarsals with the first web spaces and

ineffective abductor halluces and adductor hallucis insertions [2,4-7].

Since the deformity is present since birth, these patients present early. But, our case presented to us only at the age of eight month, when the child started mobilization and parents tried to put regular footwear to the child, which they were unable to do, due to the deformity. Dumbre reported a case of congenital hallux varus presenting at age of 23 year, which was complicated with soft tissue contracture, bony deformities and arthritis of joints [3].

Presentation and diagnosis is quiet obvious on clinical examination. Three types of congenital hallux varus are describes by Alfred [8].

a. 1^0 (primary) - not associated with any other deformity
b. 2^0 (secondary) – associated with polydactyly, syndatyly, metatarsal adductus, CTEV, LEX (longitudinal epiphyseal bracket / delta phalanx)
c. 3^0 (tertiary) – with severe deformities like diastrophic dwarfism

Our case was a secondary type, which was associated with both polydactyl and syndactyl. The deformity can range from mild (few degrees) to severe (to 90^0), ours was a severe type who had deformity almost 90^0.

Treatment of the deformity is by surgical correction and various techniques have been described. For mild to moderated deformity only soft tissue procedure are sufficient like, Farmer described a Y rotational skin flap and syndactylization of the first and second toes [2,9]. For very severe deformity and short metatarsal, bony procedures are needed like, Kelikian described reverse osteotomy [2,10]. McElvenny, described the removal of accessory bones, medial sesamoidectomy and capsulotomy, release of the medial fibrous band, reinforcement of the lateral capsule, transfixing of the metatarsophalangeal joint with a Kirschner wire and a partial syndactylization of the first and second toes [11]. Mills and Menelaus compared surgical outcomes of various procedure and found results of soft tissue procedures, such as McElvenny or Farmer technique, and those of arthrodesis were satisfactory, but the metatarsal osteotomy produced unsatisfactory results [12].

Recurrence of deformity after the surgical correction has been described if soft tissue correction alone for congenital hallux varus with LEX is done, due to persistent abnormal growth of the aberrant epiphysis of first metatarsal [2]. Hence to prevent recurrence, the combination of the two procedures, like farmers procedure combined with open wedge osteotomy are described as by shim et al [2]. Other procedures like resection or tenotomy of abductor hallucis muscle and tendon, arthrodesis and even amputation of toes have been described [2,13]. The choice of surgery depends on the type of deformity, associated features and the severity. Since our case was severe type we performed Farmers procedure alone with good results. At last follow, our patient was fine with cosmetically acceptable foot and able to wear normal footwear, without recurrence.

Conclusion

Congenital hallux varus is very rare deformity, which causes gross cosmetic and inability to wear normal footwear. Treatment is by surgical correction which gives excellent results and amputation is reserved as a salvage procedure.

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