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Management of neglected congenital hallux varus in a 13 year old boy: A case report

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Abstract

Introduction: Congenital hallux varus is a rare condition. Primary congenital hallux varus results because of over activity of adductor hallucis whereas secondary congenital hallux varus results due to various conditions like polydactyl, metatarsus bracket and metatarsus adducts. Acquired hallux varus results due to damage to articular cartilage and lax collateral ligaments seen in inflammatory arthropathies like psoriasis, rheumatoid arthritis and trauma.

Treatment of neglected congenital hallux varus in adult is challenging due to soft tissue contractures and rigid bony deformities.

Case report: We present here a case of a 13 years old male patient who presented to outpatient department of SDM Medical College Sattur, Dharwad – Karnataka with neglected congenital hallux varus of secondary type. Patient had an extra rudimentary great toe (polydactyl) which was obvious on radiographs. We have treated this patient by farmer's procedure. Intra-operatively phalangeal, metatarsal and tarsal alignment was held with k-wire and post-operatively reduction maintained with specially formed splint. We have more than 14 month follow-up of indexed case. No recurrence of deformity was noted.

Conclusion: Congenital hallux varus is a rare condition. Treatment of neglected congenital hallux varus is challenging due to soft tissue contractures and bony rigidity. Farmer's procedure is an effective surgery to restore near normal anatomy, post-operative splint prevents recurrence of deformity.

Keywords: Neglected hallux varus, secondary congenital hallux varus, inter-metatarsal angle, rudimentary great toe, Farmer's procedure

Introduction

Case report

A 13 year old boy presented to the department of orthopedics with congenital deformity of left great toe with inward angulation and widened first web space. Apart from bad cosmetic appearance he was unable to wear footwear and was not able to participate in sporting activities due to pain. The condition was neglected since childhood.

On examination, the boy had an inward angulation of left great toe with extension at first metatarsophalangeal joint and inter-phalangeal joint. Attempted flexion was exaggerating the deformity. Wide 1st web space with prominent abductor hallucis tendon on medial side of great toe was noted. Movements at 1st metatarso-phalangeal joints were restricted. Passive correction of deformity at metatarsophalangeal joint towards lateral side was not possible. Other than the left foot, there were no musculoskeletal and neurological deformity and opposite foot was normal. (Figure 1)

Weight bearing antero-posterior, oblique and lateral radiographs of right foot were taken. Radiographs showed short first metatarsal with deformed head. Great toe had proximal and distal phalanges with medial subluxation of metatarso-phalangeal joint. Rudimentary great toe arising from the medial cuneiform was noted with ill formed metatarsal and phalanges. Inter-metatarsal angle of 1st and 2nd metatarsal measured 26 degrees. (Figure 2)

We achieve reduction by Farmer's procedure by excising medial rudimentary toe with its bony skeleton and release of soft tissues along with release of abductor hallucis as Described by McElvenny^[5].

Reduction was held stable using k-wire, post-operatively great toe kept in anatomical position using specialized foot splint which can be worn inside the footwear.

Intra-operatively, 1st inter-metatarsal and tarso-metatarsal joints were exposed using medial incision. A tight fibrous band along with bony skeleton of rudimentary toe was noted over base of 1st metatarsal and was excised. Abductor hallucis tendon was found to be taught and released of its fibrous attachments. Rudimentary toe was the reason for tight abductor hallucis and change in the direction of its pull along with soft tissue contractures around it. Adherent capsule and soft tissues around inter phalangeal and Metatarso-phalangeal joint was removed. Tarso-metatarsal and metatarso-phalangeal joint was reduced under direct vision and reduction held with two k-wires, one passing from the tip of great toe towards metatarsal base and cuboid and another one starting through medial aspect of distal phalanx to metatarsal and cuboid crossing the previous k-wire.

Patient was discharged after suture removal with below knee cast immobilization for 6 weeks (Figure 3 and 4). Significant correction without any wound complications observed at the end of 6 weeks. Patient was gradually allowed full weight bearing mobilization with customized foot splint inside the footwear. Follow-up radiographs taken at 3rd and 6th month showed maintained inter metatarsal angle to around 10 degrees. Though first toe was short, it was in acceptable planti-grade alignment.

Unlike preoperative status, after correction, patient was able to participate in all sporting activities, was able to wear shoes for long time without any pain or discomfort. Till the end of 14 months no recurrence of deformity was noted. (Figure 5, 6, 7 and 8)

Fig 3: Post-operative clinical picture showing correction

Fig 4: Left foot radiograph showing correction of deformity maintained by K wires

Fig 5, 6: Follow up clinical picture showing complete correction

Fig 1: Clinical picture showing hallux varus of left foot

Fig 2: Left foot radiograph showing hallux varus and rudimentary polydactyl

Discussion

Hallux varus is an abnormal condition resulting in medial angulation of great toe at metatarso-phalangeal joint. It is common in newborn to have hallux varus of around 20 degrees due to in utero position of fetus. This returns to normal when child starts walking. Persistent congenital hallux varus is called rigid varus deformity and can be classified as Primary congenital hallux varus, which occurs due to overactive abductor hallucis. Secondary congenital hallux varus associated with other congenital conditions like metatarsus adducts, great toe polydactyl, longitudinal epiphyseal bracket syndrome, and delta phalanx [6]. Apart from congenital deformity it occurs due to iatrogenic cause i.e. over correction of hallux valgus with additional soft tissue release on medial side. Other causes include post traumatic [7], inflammatory arthropathies [8].

Hallux varus is a relatively less common condition compared to hallux valgus. It can be best treated in infancy. Neglected congenital hallux varus poses various difficulties in management due to soft tissue contractures, rigid bony deformities, and joint arthritis. Congenital hallux varus deformity in the indexed case was neglected since birth. Farmer's procedure was carried out successfully. Rudimentary great toe was excised and soft tissue contractures and adhesions around the abductor hallucis were removed. Great toe proximal phalanx was small due to

congenital hypoplasia and deformation. Patient was happy with present results. Our case results are at par with procedure conducted by Hideharu Ono. *et al* ^[9], Dumbre Patil S. *et al.* ^[10].

Conclusion

Management of this case demonstrates the need for early intervention in congenital hallux varus to avoid suffering, development of soft tissue contractures and rigid bony deformities in late. Farmer's procedure in the indexed case resulted in satisfactory functional outcome. It's an effective and simple surgery to restore near normal anatomy even in adult patient.

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