Neglected clubfoot in an adolescent treated with posteromedial release-Case Report.

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Authorship and contribution Declaration:
Each author of this article fulfilled ALL 4 Criteria of Authorship:
1. Conception of case report
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.
4. All authors agree to be responsible for all aspects of their research work.

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ABSTRACT

Neglected clubfoot in adolescent is a challenge to treat for an Orthopedic surgeon. The aim of treatment is a pain free and cosmetically acceptable foot with near normal function. Different treatment modalities have been reported with variable results and include Ponseti method of casting, soft tissue release alone or with some bony procedure like triple arthrodesis, talectomy, and Ilizarov ring fixator. We present a case report of a neglected club foot in 18-year-old female treated with isolated posteromedial soft tissue release (PMR). We achieved a cosmetically acceptable pain free plantigrade foot.

Keywords: Congenital Talipes Equinovarus, Neglected clubfoot, Posteromedial release, Tripple arthrodesis.

This article may be cited as: Mahmood T, Zafir MBD. Neglected clubfoot in an adolescent treated with posteromedial release-Case Report.J Pak Orthop Assoc 2022;34(2):

INTRODUCTION

Neglected clubfoot is one of the common foot deformity in developing countries which results in disability and social stigma for patients.[1-3] Various treatment options have been tried to treat neglected club foot in adult age and each has merits and demerits. Extensive soft-tissue releases is associated with problems of skin closure and healing, scarring and persistent adduction of the forefoot or hind foot varus.[4-6] Bony procedures alone cannot completely correct severe foot deformities and a combination of procedures are usually needed.[1,4] Triple arthrodesis may cause stiffness and ankle osteoarthritis.[7] Talectomy is associated with high incidence of hindfoot deformity, recurrence, pain and bony ankylosis of the tibiotarsal joint.[8] Ponseti technique of serial casting has also been tried for neglected club foot in adolescents, [9,10] but casting and tendo-Achilles tenotomy are not sufficient in many cases and additional procedures are required to achieve complete correction.[11,12].

We present a case report of 18 year old girl with neglected clubfoot who was successfully treated with PMR only.

CASE REPORT

An 18-year-old girl was brought to the outpatient department of Orthopaedic surgery unit-II, Nishtar Medical University Hospital Multan with right foot deformity, limping, inability to touch heel on the ground and inward deviation of the right foot. Her medical and family history was unremarkable. The deformity was present since birth and she had not received any treatment. Examination revealed limping gait with relatively thin shin and small right foot with fore foot adduction, cavus, hind foot varus and equinus. These deformities were rigid and not correctable passively. The Pirani score was 6 (Fig I). Hip, spine, neck and upper limbs were normal with normal distal neurovascular status. X-ray right foot AP view in 30° plantar flexion and lateral view forced dorsiflexion were undertaken We measured the talocalcaneal angles in both views. They were almost parallel in both views (Fig II). We planned soft tissue release at first stage and bony procedure (if required later on) at second stage so that we may not have to take more wedges during bony procedure and to prevent skin necrosis and healing issues. The procedures were explained to patient and her family and informed consent was taken for surgery and publication of the case report.

Operative Technique

Under general anesthesia in supine position tourniquet was applied. A bolster was placed under the contralateral hip to bring the right lower limb in slight external rotation. After painting and draping, a single posteromedial skin incision was given. Securing the hemostasis deep dissection was done. Neurovascular structures were identified and separated by small feeding tube. Tibialis Posterior, Flexor Digitorum Longus and Flexor Hallucis longus and Tendo-Achilles were identified and separated and Z lengthening was done. Posterior capsulotomy of the ankle and subtalar joint was done. On medial side Master Knot of Henry was released. Abductor Hallucis muscle was cut at its proximal site. Plantar fascia was identified and released proximally. Superficial part of the Deltoid ligament was released and Tibialis posterior was traced to identify Navicular where spring ligament was released and Talonavicular joint was opened all around. Y-ligament, Calcaneocuboid joint capsule and ligament was released from medial side. Interosseous ligament was partially released. Posterior Talofibular ligament was also released. Per operatively Talonavicular joint was reduced with very good coverage of the head of talus and hind foot varus was corrected along with mid foot Cavus.

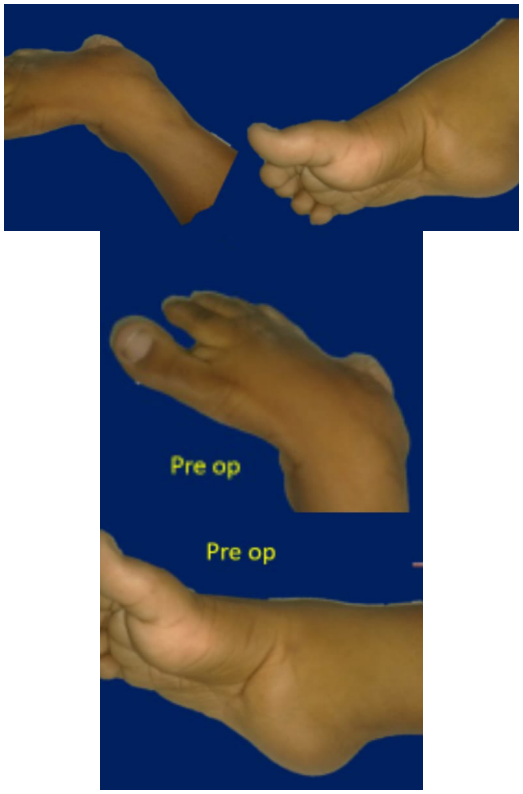

Fig. I: Preoperative neglected club foot

A 2.5 mm k wire was passed from dorsal side of the base of 1st meta tarsal into Navicular bone and Talus. Wound was washed with saline. All the tendons were repaired with Vicryl 2/0. Tourniquet was released and hemostasis was secured. Subcutaneous tissue was approximated with Vicryl 2/0 and skin was closed with Prolene 2/0. A well-padded dressing was applied with above knee back slab keeping the foot in slight equinus and knee in flexion.(Fig.III) Dressing was changed on the first post op day. The patient was discharged on 3rd post op day with back slab. She was reexamined after 2 weeks. At 4 weeks the wound was healed and pop cast applied in correction under general anesthesia and window to inspect any wound complication. At 6 weeks another cast was changed under anesthesia with almost full correction. At 12 weeks cast was removed and poly propylene AFO was applied (Fig.III, IV). Post op X-rays taken to measure the angles. Post op Pirani score at one year follow up was zero (Fig.V).

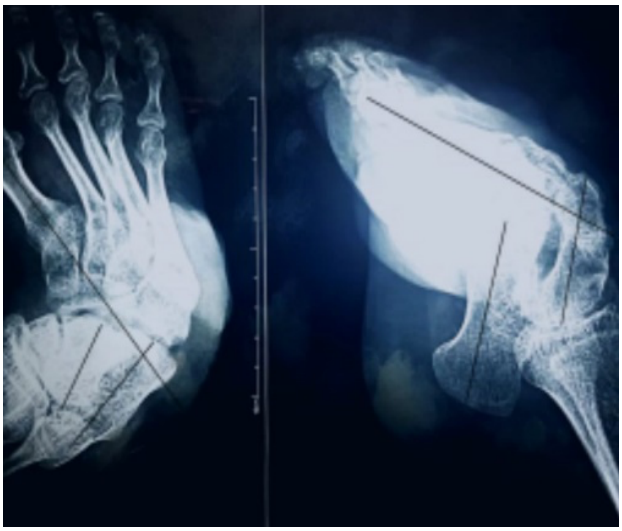

Fig. II: Radiographs showing talocalcaneal angles

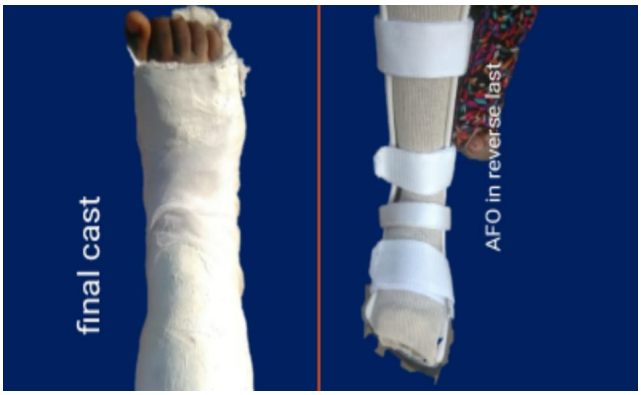

Fig. III: Application of post operative splints

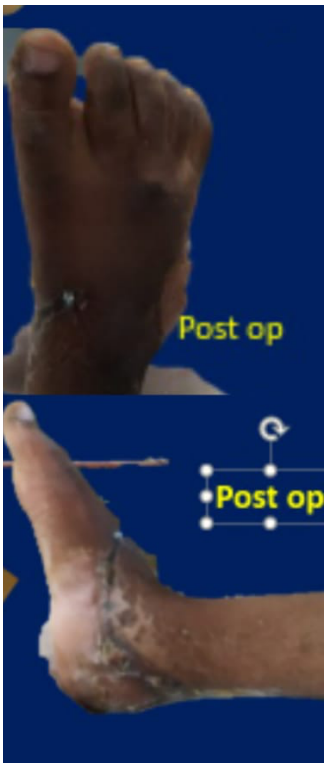

Fig. IV: Post operative correction after soft tissue release

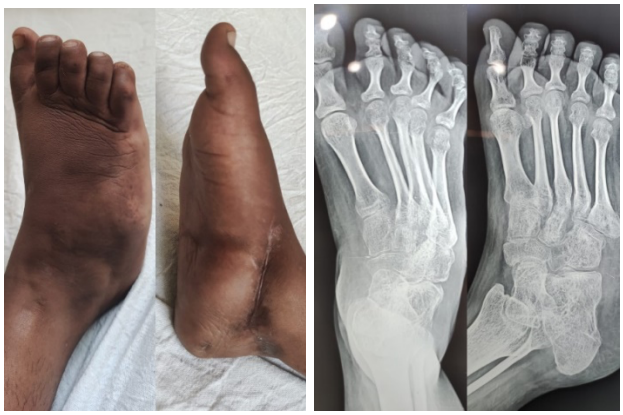

Fig. V: Clinical and radiographic images at one year of follow up

DISCUSSION

Ponseti treatment of serial casting is the gold standard for treating idiopathic clubfoot before walking age.[13] Children who have not received treatment for the club foot before the walking age are termed neglected club foot.[14] Neglected clubfoot usually require surgical intervention.[15,16] The ideal age for surgical intervention in neglected club foot is still controversial.[17] In our case report we treated an 18 year old girl of neglected clubfoot with PMR only and achieved cosmetically acceptable, pain free and plantigrade foot. Pigeolet[2] treated 32 neglected clubfeet (age 2 to 24 years) with PMR plus one or two soft tissue procedure (group I),PMR plus bony procedure(group II) and triple arthrodesis(group III).At two years follow up excellent, good and fair Laaveg-Ponseti score was noted in 81% in group I,80% in group II and 0% in group III. Pigeolet concluded that good functional outcome can be achieved with PMR only in neglected club foot regardless of the age of the patient. Hoque[18] treated neglected clubfoot patients upto 16 years of age with PMR alone and noted good and excellent Turco score. Contrary to the above studies Helmers[19] preferred bony procedure over isolated PMR and recommend Lambrinudi arthrodesis with double incision for neglected club foot. Akinci and Akalin[20] treated 15 neglected clubfeet (ages 15 years to 50 years) with single incision PMR and triple arthrodesis and yielded acceptable cosmetic and functional outcome. Haje[21] reported a case of a 26-year-old patient with bilateral neglected clubfoot treated successfully Ponseti serial casting.

The follow up of our case report was one year. We recommend longer follow up of such cases so that patient satisfaction and any complications can be documented and treat accordingly.

CONCLUSION

Neglected clubfoot in adolescent can be treated successfully with PMR. Acceptable outcome can be achieved with PMR alone specially in areas where Ponseti serial casting is not available or not feasible for some patients. The operating surgeon however should thoroughly evaluate the pre operative and per operative anatomy and then decide for the appropriate soft tissue release. Furthermore, regular and long term follow up of such cases are mandatory.

Conflict of interest: None
Funding: None

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