



## FRACTIONAL LENGTHENING OF GASTROCNEMIUS APONEUROSIS IN NEGLECTED LEFT-SIDED CTEV WITH TIGHT TENDO ACHILLES: A CASE STUDY

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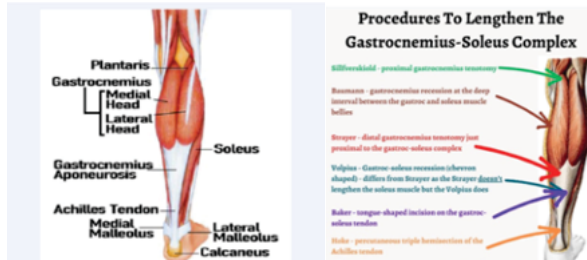
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**ABSTRACT** **Introduction:** Congenital Talipes Equinovarus (CTEV) is a complex congenital deformity. Neglected cases often present late with rigid equines due to contracture of the gastrocnemius–soleus complex and tendo Achilles. Surgical correction becomes necessary in such cases. **Case Presentation:** We report a case of neglected left-sided CTEV in a 6 year old child presenting with severe equines deformity and tight tendo Achilles, causing impaired gait. **Intervention:** Fractional lengthening of the gastrocnemius aponeurosis was performed using multiple staggered incisions. **Outcome:** Postoperative improvement in dorsiflexion and gait was achieved without complications.

**KEYWORDS :** CTEV, Fractional Lengthening, Tendo Achilles

### INTRODUCTION

Congenital talipes equinovarus (CTEV), commonly known as clubfoot, is one of the most common congenital deformities affecting the musculoskeletal system. It is characterized by a combination of equinus, varus, adduction, and cavus deformities. Early treatment using conservative methods such as the Ponseti technique has shown excellent outcomes. However, in neglected cases, especially in developing regions, children often present late with rigid deformities.

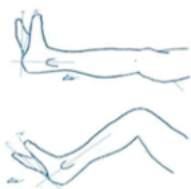


The equinus component in such cases is primarily due to contracture of the gastrocnemius–soleus complex and tight tendoachilles. Surgical intervention becomes necessary to achieve correction. Fractional lengthening of the gastrocnemius aponeurosis is a muscle-preserving technique that allows gradual elongation while maintaining functional strength. This case report highlights its role in the management of neglected CTEV with severe equinus deformity.

### Case Presentation

A male child aged 6 years presented with deformity of the left foot since birth, which had not received any prior treatment. The child had difficulty in walking and was unable to place the foot flat on the ground. There was no significant prenatal or family history.

On clinical examination, the left foot showed features consistent with CTEV, including equinus, varus, and forefoot adduction. The equinus deformity was rigid, and ankle dorsiflexion was severely restricted. The tendoachilles was tight, and the Silfverskiöld test suggested involvement of the gastrocnemius component. Neurovascular examination was normal.

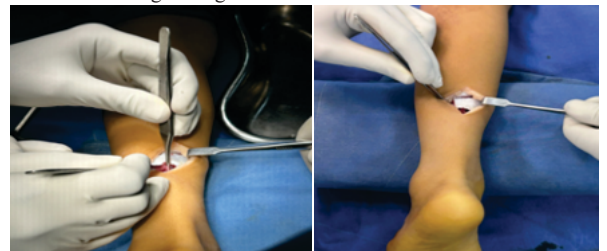


Silfverskiöld Test is used to evaluate the contracture of the ankle joint whether it's caused by gastrocnemius muscle contracture or by the Achilles tendon contracture.

Radiographic evaluation supported the clinical findings. Based on the severity and rigidity of the deformity, surgical correction was planned.

### Surgical Technique

The patient was operated under appropriate anesthesia in the supine position. A posterior approach to the calf was used. The gastrocnemius aponeurosis was identified, and multiple transverse staggered incisions were made to achieve fractional lengthening. Care was taken to avoid over-lengthening.



Intraoperative assessment showed improved ankle dorsiflexion. The tight tendoachilles was also addressed as required. Adequate correction of the equinus deformity was achieved, and the foot was brought to a plantigrade position. The wound was closed in layers, and immobilization was done using a below-knee cast.

### Postoperative Management

The limb was immobilized for 4 weeks. After cast removal, physiotherapy was initiated to improve range of motion and strengthen the muscles. Gradual weight-bearing was allowed.

### Outcome and Follow-Up

At follow-up of 6 months the patient demonstrated significant improvement in ankle dorsiflexion and gait. The foot was plantigrade, and the child was able to walk without difficulty. No complications such as infection, overcorrection, or recurrence were noted.

### DISCUSSION

Neglected CTEV presents a significant challenge due to the rigidity of deformities and adaptive shortening of soft tissues. The equinus component is particularly resistant to correction and often necessitates surgical intervention.

Fractional lengthening of the gastrocnemius aponeurosis offers several advantages over traditional tendoachilles lengthening, including controlled elongation, preservation of muscle strength, and reduced risk of over-lengthening. It is especially useful when the gastrocnemius component is predominantly involved, as indicated by the Silfverskiöld test.

Previous studies have emphasized the importance of tailored surgical approaches in neglected clubfoot. Combining soft tissue procedures with appropriate postoperative rehabilitation improves functional outcomes. In this case, satisfactory correction and functional recovery were achieved without complications, supporting the effectiveness of this technique.

**Conflict of Interest:** None to Declare

**Source of Funding:** Nil

**CONCLUSION**

Fractional lengthening of the gastrocnemius aponeurosis is an effective and safe surgical option for correcting equinus deformity in neglected CTEV with tight tendoachilles. It provides good functional outcomes while preserving muscle strength and minimizing complications. Early diagnosis and intervention remain crucial to avoid the need for surgical correction.

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