

Case Report



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A Rare Case Report of Congenital Subtalar Dislocation

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Abstract

Congenital dislocation of the subtalar joint is a very rare deformity and one of the causes of the calcaneovalgus foot. Only 2 cases were reported earlier in the literature. We are reporting the third case. A seven year old female child came to our hospital with a deformity of the left foot noticed by parents at birth. There was no history of trauma. The patient was treated in early childhood with casting. On examination the foot was in severe valgus and the patient was bearing weight on the medial malleolus. Calcaneus was displaced laterally. Radiographs and a CT scan of the left foot confirmed the diagnosis of a congenital subtalar dislocation. Surgical correction was achieved through lengthening of various tendons and release of subtalar joint followed by fixation with a K wire.

Keywords: Congenital subtalar dislocation, Calcaneovalgus foot, K wire fixation, Ankle foot orthosis

Introduction

Congenital foot deformities are common in children. Equinovarus deformity (Clubfoot) is a very common deformity. The incidence is 1.2 per 1000 live births with wide variation based on geographical location [1]. The calcaneo-valgus deformity is less common. Rarely one comes across Congenital Vertical talus [2] which presents as a Calcaneovalgus deformity or a rocker bottom flat foot. We are reporting an unusual case that presented as severe Calcaneovalgus foot where the subtalar joint was dislocated by birth. Congenital subtalar dislocation is very rare although traumatic subtalar dislocation is relatively common and is associated with fracture of the talus. Two cases of the Congenital dislocation of Subtalar joint were reported earlier and ours is the third such case to the best of our knowledge.

Case presentation

We are presenting a case of 7 years old, female child that came to our hospital with calcaneovalgus deformity of the left foot that was present since birth (Fig. 1). There was no history of trauma. The patient was treated in early childhood with casting that resulted in no correction of deformity. On examination the foot was in severe valgus and the patient was bearing weight on the medial malleoli. Calcaneus was displaced laterally. The diagnosis of congenital subtalar dislocation is based on clinical grounds and radiological examination. We did weight bearing AP and lateral views of the foot. Typical findings include lateral dislocation of the calcaneus. CT confirmed the diagnosis and demonstrated dislocation of the subtalar joint and gross lateral displacement of the Calcaneus. Radiographs and a CT scan of the left foot confirmed the diagnosis of a congenital subtalar dislocation (Fig. 2). Since the child presented very late there was severe contracture of Tendo Achilles, Peronei, and dorsiflexors. There was subluxation of peroneus brevis and peroneus longus anteriorly over lateral malleolus, that lead to marked heel valgus and forefoot pronation. The heel equinus

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Figure 1: shows images at the presentation

though severe, was masked by laterally displaced Calcaneus. Tight structures were an obstacle to the reduction of dislocated joint. Moreover, a 7 year old dislocation had altered the shape of the bones and the articular surfaces making a congruent reduction impossible. Surgical correction was achieved by lengthening of the Tendo-Achilles. Fractional lengthening of Peroneus longus and Peroneus brevis was done through a single posterolateral incision. Fractional lengthening of Tibialis anterior, Extensor digitorum longus and extensor hallucis longus was done through an anterior incision. An additional, Ollier's incision, was used to release the subtalar joint from the lateral side. Posterior capsulotomy of the ankle and the subtalar joint was done. The reduction achieved was satisfactory though not fully congruent. It was followed by K- wire fixation of the calcaneum to the Talus in the corrected position (Fig. 3). The reduced joint was stabilized with k-wires for 6 weeks; the foot was immobilized in above knee cast for 6 weeks. After cast removal an ankle foot orthosis was provided for regular use. After three months follow up the deformity was corrected significantly, though not fully, both on clinical and x-ray examinations, and the patient could now bear weight on the foot (Fig. 4, 5).

Discussion

Subtalar dislocation is defined as an entity where the calcaneus is dislocated from beneath the talus; it is uncommon and is difficult to diagnosis. The traumatic variety, usually seen in adults, is almost always associated with talus fractures. The flexible calcaneo-valgus foot is a common variety that is frequently seen at birth and it requires minimal or no treatment [3]. More severe forms may be encountered, like those



Figure 3: shows post op x-ray images



Figure 2: shows x-ray (AP, Lateral and AP standing) and CT images at the presentation.

associated with congenital fibular hemimelia and congenital vertical talus. Many conditions come into consideration for differential diagnosis; trauma was ruled out by the history and radiology [4], moreover, the deformity was first noticed at birth by the parents. In congenital vertical talus (CVT) there is a vertically lying talus that was excluded on x-ray. There was no Talonavicular break and no dorsal midfoot dislocation [2]. Fully formed fibula was seen on a radiograph that excluded fibular hemimelia [5].

A literature review revealed two case reports of congenital subtalar dislocation [3, 6], one case had a unilateral deformity like our case and the other had a bilateral deformity [3, 6]. Many features of our case were similar to the case described by Saini et al in 2009 [3] ours was also a unilateral involvement in a female child. However, our patient reported much later at the age of 7 years making reduction very difficult. Kauffmann et al described a bilateral involvement in a male child [6]. In both the papers attempts were made to surgically correct the foot. Kauffmann et al surgically corrected the foot by taking a Cincinnati incision and Z lengthening of Tendo-Achilles was done along with posterior release of the ankle and the subtalar joint followed by Z lengthening of both peroneal tendons on the right side and z lengthening of peroneus brevis tendon on the left side and peroneus longus tendon was excised. Then taking an anterior incision Z lengthening of EHL was done and proximal lengthening of EDL was done. K wire was used to stabilize the talonavicular joint and another K wire was passed through the calcaneus into the talus to keep it in the reduced position [6]. Saini et al surgically corrected the foot by taking a posterolateral incision and Z lengthening of Tendo-Achilles was done along with z-lengthening of the peroneal tendons followed by excision of the interosseous ligament. The subtalar joint was reduced and a 1.5 mm K wire was passed from the



Figure 4: shows clinical images of the patient after three months



Figure 5: shows x-ray images after three months follow up

calcaneus [3]. In our case we did lengthening of the Tendo-Achilles, fractional lengthening of Peroneus longus and Peroneus brevis, Tibialis anterior, Extensor digitorum longus and extensor hallucis longus followed by posterior capsulotomy of the ankle and the subtalar joint and release of subtalar joint from the lateral side and K wire fixation. K wire

was introduced from the calcaneus into the talus. The resultant surgical correction has made the child plantigrade and the child no longer bear weight on the medial malleolus, however the child may need another surgical procedure at skeletal maturity to correct any residual deformity or relieve pain if the joint becomes painful. As our patient presented much later than Saini et al and Kaufmann et al, we are less optimistic in obtaining a remodelled, supple foot and it is likely that eventually the child may need subtalar or Triple arthrodesis.

Conclusion

We report an unusual congenital anomaly of the foot. There was a Lateral dislocation of the subtalar joint with Calcaneus grossly displaced laterally resulting in a severe Calcaneovalgus foot, necessitating the child to walk on the medial malleolus. After the surgical intervention the child is comfortably bearing weight on the foot. As the joint was incongruent and reduction less than anatomical, the child may need additional surgical procedure on skeletal maturity.

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Declaration of patient consent : The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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