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Traumatology

Anterior Tarsectomy in Adult Pes Cavus: Case Report

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Abstract **Case Report**

Pes cavus defined as a high arch in the sagittal plane, A cavus foot may be a variant of normal, a simple morphological characteristic, seen in healthy individuals. When it is found to be bilateral, it is often from a hereditary or congenital source. This deformity is caused by palsy of the intrinsic foot muscles, usually related to Charcot-Marie-Tooth disease. This pathology is often observed from newborn to teenager, we present rare case report in adult pes cavus with radiological and clinical results, Considerable outcome. Anterior tarsectomy for pes cavus in adults is designed to relieve pain and correct the deformity. Extra-articular surgery is indicated when the response to orthotic treatment is inadequate. Arthrodesis is indicated in severe rigid cavus foot or in degenerative cases. The fixed forefoot deformity is addressed first and a valgising osteotomy should be performed if required. Any bony correction must be in conjunction with a soft-tissue balancing procedure and residual toe deformities are corrected as a final step.

Keywords: Anterior tarsectomy, adult pes cavus, case report.

INTRODUCTION

Pes cavus and pes cavovarus are often used interchangeably as the most common manifestation of the cavus foot is the cavovarus presentation.

All forms of pes cavus are characterised by a high arch in the sagittal plane of the foot., Pes cavus is usually acquired, although a minority of cases are congenital [1].

There are many aetiologies of unequal frequency that account for cavovarus foot deformities. Traumatic causes are rare (improperly treated fracture or subluxation of the tarsal bones or scarring from a burn of the sole of the foot). Cavovarus deformity has been long associated with neurological disease such as cerebral palsy or other hereditary sensory and motor neuropathies [2].

In response to the complexity and anatomoclinical variety of the pathology, numerous surgical techniques have been developed, with dorsal-based wedge osteotomy as the reference procedure in adults. The principle underlying anterior tarsectomy is to correct forefoot plantar flexion by a dorsal cuneiform bone resection centered on the cuneonavicular joint space [3].

CASE PRESENTATION

A 31-year-old patient who presented with bilateral very pronounced pes cavus, he complained a chronic in the heel, the cuboid region, other portions of the lateral foot. In the beginning he treated by custom orthosis, but the conservative treatment fail to control the symptoms, in front of this situation, the patient required the surgical option.

We agreed for an intervention on the right foot which consisted of an osteotomy of the top of the deformity and corrective arthrodesis.

Figure 1: Rigid cavus foot with severe plantarflexed forefoot and claw toes

Figure 2: Lateral view of x ray showing the deformity

Figure 3: Anteroposterior weight-bearing view demonstrating deformity

The surgical procedure consisted on anterior osteotomy, arthrodesis, plantar fascia release, re-alignment of the toes.

In the first time : Incision under the calcaneus on the internal side at the dorsal skin plantar skin junction, entire release of the plantar fascia; then incision next to the 2nd and 4th ray, the 1st centered on the

navicular, the 2nd on the cuboid, careful dissection of the pedicle which is lifted en bloc, disinsertion of the pedal muscle, communication of the 02 incisions, the osteotomy has been made in a prismatic way, a plantar and external corner; on a complete plantar using chisels and gouge pliers; reduction of the tarsectomy, fixing of the 1st cunneiform and 1st meta by screwed clip, locking of the 04 screws, grafting of the spaces at the lateral level by grafts taken from the level of the remaining bones of the tarsectomy; complemented by a staple at the level of the cuboid.

In the second time consisted on the corrective procedure of claw toes by flexor tenotomy of the four lateral toes.

In the immediate postoperative period : immobilization by plaster splint for one month, unauthorized support

Post-operative follow-up: At 06 weeks the foot has taken a suitable shape, ambulation authorized. At 06 months, good clinical progress with resumption of walking, some neuropathic pain treated with pregabalin.

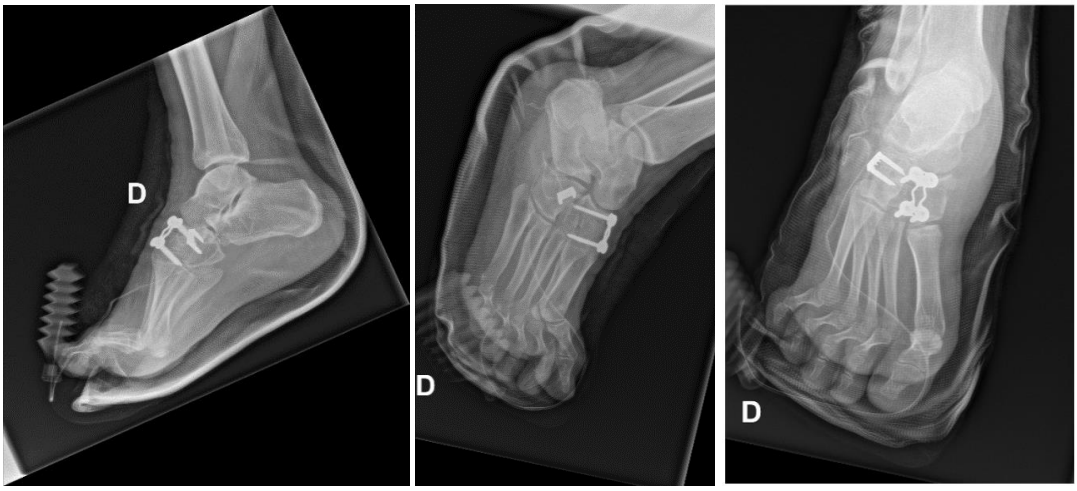

Figure 4: Post-operative radiographs after surgical correction

DISCUSSION

Surgery is considered if conservative treatments fail to control the symptoms but operative treatment should only be considered in carefully selected patients. The aim of surgery is to achieve a foot that is plantigrade, mobile and pain-free. In any case, surgical treatment should leave the foot in a normal position or slightly overcorrected, because an iatrogenic flat foot is better tolerated than a residual cavus deformity. A wide variety of procedures for the treatment of cavovarus foot deformities have been described including softtissue release or lengthening and tendon transfers, hindfoot or midfoot osteotomy, or arthrodesis [2]

Although the complexity of the rigid cavus foot has been appreciated for roughly 100 years, a myriad of surgical options have failed to yield consensus on the appropriate treatment selection applicable to the rigid cavus foot for any given origin [4].

McHale and Lenhart described a bicolumn osteotomy for the residual clubfoot deformity that they termed the bean-shaped foot. Two incisions, one laterally based and one medially based, are used to address the 2 columns of the foot. The lateral column is effectively shortened using a laterally closing wedge osteotomy in the cuboid. Through the medial incision, an opening wedge osteotomy is created through the medial cuneiform [4]. Other authors have reported satisfactory results using this type of surgical approach [5, 6].

With regards to tendon transfers, in the flexible cavus foot, the posterior tibial tendon may be transferred to the dorsum of the foot to augment the weak tibialis anterior. The peroneus longus may also be transferred to the peroneus brevis to reduce the pull on the first ray and to assist with the eversion of the foot [7].

Pes cavus typically presents in adolescence or early adulthood and is often a sign of an underlying neurological disease. Through a combination of a history, physical exam, and imaging, the clinician should be able to diagnose if the deformity is forefoot or hindfoot driven. The clinician must also determine, primarily through specialized tests such as the Coleman block test, if the deformity is rigid or flexible.

Non-operative management may be considered, but in the majority of cases, where the underlying etiology is an HMSN (hereditary motor and sensory neuropathies), the cavus foot will continue to progress, and the deformity will become fixed and rigid without surgical correction.

Surgical interventions, including tendon transfers, osteotomies, and joint fusions, must be tailored to each specific patient’s clinical picture [8].

CONCLUSION

Recent literature indicates that adult cavovarus foot deformities should be commonly addressed with joint preservation osteotomies and adjunctive softtissue procedures and less with triple arthrodesis, especially in subtle cavovarus foot. Many surgical options are available to achieve good results and the order in which surgery is performed is important. The fixed forefoot deformity is addressed first and a valgising osteotomy should be performed if required. Any bony correction must be in conjunction with a soft-tissue balancing procedure and residual toe deformities are corrected as a final step. Treatment strategies should be individualised but the difficulty in obtaining a plantigrade and balanced foot using conservative surgery must not be forgotten.

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