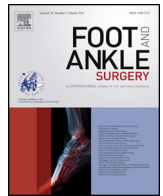




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Case report

Percutaneous foot surgery for the treatment of brachymetatarsia: A case report

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ABSTRACT

Background: The term *brachymetatarsia* refers to an abnormal shortening of the metatarsal bones as a result of early closure of the growth plate. The deformity, which may be congenital, idiopathic or secondary to surgery or trauma, may result in functional as well as cosmetic alterations, which require correction by an orthopedic surgeon. The purpose of this report is to illustrate the possibility of treating this condition by means of a minimally invasive technique which affords results as satisfactory as those of conventional techniques but with fewer complications.

We report on the case of a 35-year-old female with a diagnosis of congenital brachymetatarsia, with bilateral involvement of the fourth toe.

Methods: We present our experience of surgical correction of brachymetatarsia using percutaneous surgery. The surgical technique is illustrated by a case report with a follow-up of 2 years.

Results: Radiographic and cosmetic correction of the deformity were satisfactory after 9 weeks of treatment. No complications were observed during follow-up.

Conclusions: Although minimally invasive surgery for treatment of brachymetatarsia is a relatively unknown or explored procedure, it provides good clinical and radiological results in experienced hands. In addition, it causes little trauma to the soft tissues, reduces operative time and allows patients a better and faster functional recovery, offering clear advantages over other techniques used for correcting this bone malformation.

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1. Introduction

The term *brachymetatarsia* refers to an abnormal shortening of the metatarsal bones as a result of early closure of the growth plate. The deformity may be congenital, idiopathic or secondary to surgery or trauma.

This bone malformation tends to affect mainly the fourth ray, although the other toes may also be affected. Up to 72% of cases are bilateral, with females overwhelmingly more affected than men (96% of cases).



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Brachymetatarsia may also be associated to other conditions such as Albright's syndrome, Down's syndrome, Turner's syndrome and poliomyelitis. In patients with poliomyelitis, it is always the fourth ray that is affected, and always in the paralyzed limb.



Brachymetacarpia can also be observed in cases of congenital origin.



Surgery is indicated in patients with brachymetatarsia in the rare cases where biomechanical alterations are present (transfer metatarsalgia) or, more frequently, when it leads to cosmetic problems. These problems are the main reason why patients with the condition (especially adolescent females) present to orthopedic services.

Surgical correction of brachymetatarsia is still a matter of controversy among orthopedic surgeons. The main procedures reported in the literature are lengthening osteotomy (with or without interposition of a tricortical graft), gradual lengthening by callus distraction (callotaxis) or a combination of both.



Our purpose in this case report is to show our experience of treating brachymetatarsia by means of percutaneous surgery. We shall point out the great advantages we believe this kind of minimally invasive procedure provides as compared with conventional open surgery for the treatment of this condition.

2. Materials and methods

We report on the case of a 35-year-old female with a diagnosis of congenital brachymetatarsia, with bilateral involvement of the fourth toe.



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