Случаи из практики

Несращение перелома пяточной кости у больной диабетом

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Non-union of calcaneal fracture in a diabetic patient

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Представлен обычный случай несращения пяточной кости после перелома её тела у 42-летней женщины, у которой в подростковом возрасте начался диабет в связи с последствиями невропатии, ретинопатии и нефропатии. Несмотря на немедленную продолжительную иммобилизацию гипсовой повязкой и ограниченную нагрузку на конечность, развилось несращение пяточной кости. Пациентку лечили методом наружной фиксации по Илизарову. Сделанная через два месяца рентгенограмма выявила заживление несращения.
Ключевые слова: пяточная кость, несращение, аппарат Илизарова.

We present an usual case of non-union ofcalcaneus following a fracture of body ofcalcaneus in a 42-year-old woman who have juvenile-onset diabetes with associated sequelae of neuropathy, retinopathy and nephropathy. Despite prompt prolonged immobilization in a plaster cast and protected weigth-bearing has developed non-union of the calcaneus. The patient was managed with external fixation by Ilizarov. Two months a roentgenogram showed the healing of non-union.
Keywords: calcaneus, non-union, Ilizarov apparatus.

INTRODUCTION

Adults with juvenile-onset diabetes and associated sequelae ofnephropathy, retinopathy and neuropathy are of high risk for a fracture in the region of ankle or the tarsal bones. The diabetic neuropathy probably contributed to the fracture of the calcaneus by decreasing the patient's awereness of trauma even with everyday walking. The kinematics of the patient's gait changes because of the affected toes and the patient walks with much more force on the heel-strike [1]. The primary goal oftretment of fracture of the tarsal bones in diabetic patients is to obtain a plantigrade foot that is capable of bearing the weight when the fracture has healed [2].

CASE REPORT

A forty-two years old woman with juvenile-onset diabetes was seen after an episode of walking and lateral simple sprain of the right ankle. This has been followed by discomfort, pain, swelling and local increase in temperature. Initial lateral radiograph of the foot and ankle showed no obvious abnormality (fig. 1A). The ankle-brachial Doppler index had 0.80 with intact skin (grade 0 by Wagner [3]). The treatment involved immobilization in plaster cast for nine weeks with non-bearing. At the end of this period the pain and swelling persisted despite conservative therapy. Radiograph then revealed a strikingly depressed calcaneal fracture (fig. 1B). The patient was allowed to walk on crutches, with progressive weight-bearing in the plaster boot. Six weeks later repeated standard radiographs showed evidence of nonunion of the fracture (fig. 1C) with superficial ulceration (grade 1 by Wagner). The patient was treated with external fixator by Ilizarov (fig. ID). Radiographs showed progressive healing of non-union of the calcaneus and after eight weeks complete healing was obtained (fig. IE). Two months later, the patient returned to work as sitting worker in a factory.

Fig. 1A. Lateral radiograph of the right calcaneus interpreted as simple sprain with soft-tissue only.

Fig. 1B. Two months later radiograph of right calcaneus showing depressed calacaneus fracture.

Fig. 1C. Two months later lateral radiograph of right calcaneus showing non-union in fracture side of calcaneus.

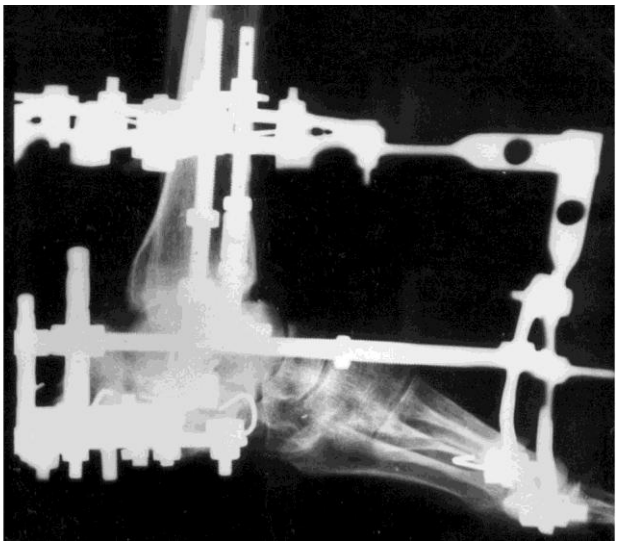

Fig. 1D. Non-union of body of calcaneus was treated by external fixation by Ilizarov.

Fig. 1E. Two months the non-union of the calcaneus has healed and external fixation was removed.

DISCUSSION

We have beeen unable to find similar published report in review of the orthopaedic and radiology literature. Levine J. et all presented one case of non-union of a fracture of the anterior superior process of the calcaneus [3]. Fractures associated with neuropathic foot are becoming more commonplace and are a new and challenging problem for the orthopaedic surgeon [2]. Our case suggests that unrecognized stress fracture may be the initial laesion. With normal sensation once the the infraction occurs, pain is generally sufficient to prevent further serious damage to the bone. However, if there is no warning pain because of sensory deficit, the patient does not stop the injurous activity and continues to traumatize the damaged bone. Protection for further trauma must be adequate and sufficiently prolonged [4]. Education of the patient about prevention and prompt insitution of protective treatment are clearly the most effective means available to diminish the impact of the serious problem. The mainstay of the treatment is prolonged external immobilization in plaster cast or orthosis [5].

Despite prompt prolonged immobilization in a plaster cast and protected weight-bearing, nonunion ofcalcaneal fracture develops. This demonstrates that significant destruction of the calcaneus can occur with minimum but repeated stress.

In adults who have type I diabetes it becomes imperative to define the role of operative reconstruction in attempts to salvage limbs that have deformities in the region oftarsal bones. External fixation used when the ulcer has not healed and the laesions are in radiographic phases of coalescence (described by Eichenholt [5]).

The patient had Grade I ulcer (Wagner) and was managed with external fixation by Ilizarov. The operative treatment was avoided during the acute stage of the neuropathic arthropathy. During this hyperemic stage, fragmentation of the bones occurs, and adequate rigid internal fixation is usually not possible [5].

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Руководство предназначено для врачей-ортопедов и рентгенологов, физиологов и биомехаников, психологов и психотерапевтов.