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Case Report

Management of nonunion after an old - neglected ankle fracture in diabetic patient; case report

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Abstract

Ankle fractures represent 9% of fractures. Even if it is a relatively usual fracture, the presence of diabetes makes treatment more difficult and rate of complications is higher than in the rest of population.

The incidence of ankle fractures increased in the last half century. Many studies from SUA, England, Sweden and Finland suggest that the epidemiology of ankle fractures continues to change as populations age, up to the age 60 of years in men and above age of 50 years in women. Two-thirds of fractures are isolated malleolar fractures, bimalleolar fractures occur in one-fourth of patients and trimaleolar fractures occur in the rest of them.

We present a case of 60 years old women with non-insulin dependent diabetes for 22 years who sustained a fracture of ankle. Her first presentation at doctor was after 4 months after injury and surgical treatment occurred after 8 months after the injury. She was operated using an external fixator. Despite the fact the treatment was delayed, the evolution of lesion was good and patient could regained normal gate.

Keywords: ankle, fracture, diabetus, neglected patients

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Introduction

The incidence of ankle fractures increased in the last half century (1). Many studies from SUA, England, Sweden and Finland suggest that the epidemiology of ankle fractures continues to change as populations age (up to the age 60 of years in men and above age of 50 years in women) (2). Two-thirds of fractures are isolated malleolar fractures, bimalleolar fractures occur in one-fourth of patients and trimaleolar fractures occur in the rest of them (3).

In majority of cases, malleolar fractures are considered to be relatively benign injuries, but for patients with diabetes the treatment is challenging. These patients often are generally older and have peripheral vascular disease or peripheral neuropathy. Complications after treating ankle fractures are double than in the rest of population (4). These are represented by open wounds, infections and amputations (5-7).

We present a case of 60 years old women with non-insulin dependent diabetes for 22 years who sustained a fracture of ankle. This patient has already presented some common complications of diabetes as eye lesions and peripheral neuropathy. Because of these, she accused minimal symptomatology and didn't go to any doctor until 4 months after the injury. The first X-ray showed an arthritis and nonunion of left ankle fracture (Figure 1, a-b).

Figure 1, a-b. Aspect of fracture 4 months after the injury

She remained at home for another 4 months; during this period of time walked on injured foot accusing instability, but not serious pain. At 8 months after fracture patient she accepted surgical intervention and was operated (Figure 2, a-b).

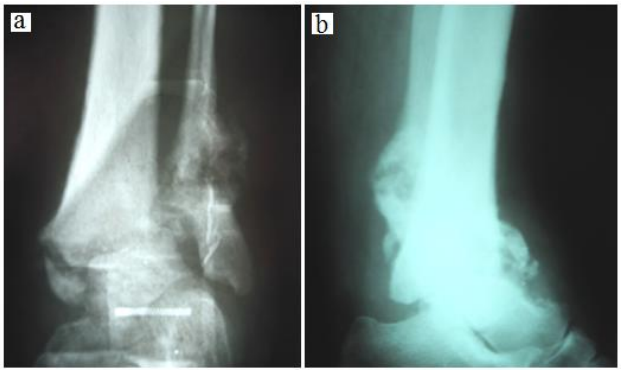

Figure 2, a-b. Aspect of ankle fracture 8 months after injury

Clinically the left foot was swollen, deviated in valgus with anterior subluxation and instable (Figure 3). The tibial surfaces was destroyed over 50% being necessary to fill the gap with bone from distal fibula. The fixation of graft was made using two screws.

Figure 3. Clinical aspect of left foot 8 months after fracture

We performed and ankle arthrodesis using two approaches: medial and lateral. Because the high risk of wound problems we choose a Charnley external fixator to obtain a good compaction and fixation (8) (Figure 4). Postoperative, local evolution of skin was good.

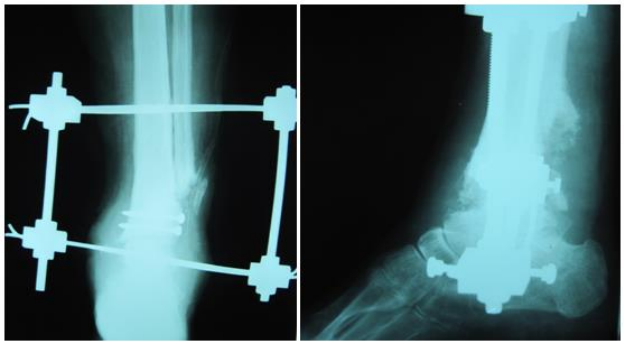

Figure 4. Ankle arthrodesis using external fixation device to obtain a good compaction

The external fixator was kept in place for 3 months. After that period of time it was removed and ankle was immobilized in a cast for another month (Figure 5). In the moment of hardware removal, in the holes of pins was present a small secretion, but biological test didn't show any infection. The secretion disappeared in a few days and skin closed very well.

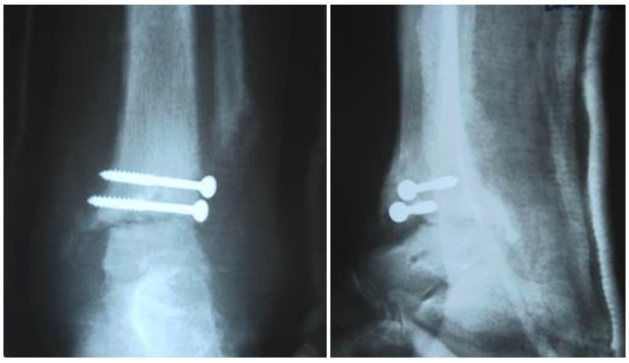

Figure 5. X-ray aspect 3 months after surgical intervention

Four months after the surgery the cast was removed. On x-ray it is noticed a calcification on medial side of the ankle (Figure 6). Walk was avoided for another month.

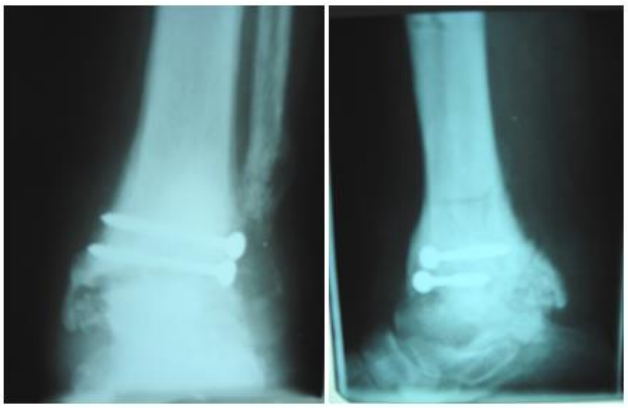

Figure 6. Aspect of ankle 4 months after surgery

Five months after surgery the patient started to walk, putting weight on the left foot. The gate was quasinormal without pain. Were no sign of infection, or another skin problem (Figure 7). After 6 years from the surgery the patient walks normally, having no pain and discomfort.

Figure 7. Aspect of ankle after 5 months from the surgery

Discussion

External fixation devices have a long history, more than 150 years. Begging with papers of Malgaigne, Keetley, Lambotte (9), Humphry, Riedel, Pitkin and Blackfield, and continuing with works of Bosworth (10), Charnley, Hoffman (11, 12), Ilizarov (13). This method has numerous advantages in fractures treatment of diabetic patients. It allows a good care of soft tissue wounds and avoids devitalisation and contamination of large areas.

The patient we discussed above had diabetes for more than 20 years with many complications of this disease, specially eye lesions and peripheral

neuropathy. Beside this, she sustained a fracture that was neglected for 8 months with nonunion and some skin problem as swollen and valgus deviation of foot. Because of these facts, was impossible to perform an osteosynthesis with plate, or other internal devices. The external fixator was the best solution. It allowed us to obtain a good compression of the fragments and in the same time to avoid the presence of metal under the skin.

This case had several particularities: first was a patient with diabetes for a long period of time, second was the long period of neglecting fracture, third was the consequence of the previous: arthritis of ankle and nonunion of the fractures. The treatment had two objectives: to fix the fractures and cure the arthritis.

The best solution for the treatment of this case was Charnley external fixator. It permitted a good compression between fragments avoiding possible complications of internal fixators, as infection or wound problems (14-16). Besides this, external fixator allowed adequate management of the wounds and skin. During period of immobilization were no signs of infection. Ankle was stable and patient could walk without any other difficulties.

Conclusions

Even if it is a relatively usual fracture, the presence of diabetes makes treatment more difficult and rate of complications is higher than in the rest of population.

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