RESULTS OF OPERATIVELY TREATED TYPE B AND C ANKLE FRACTURES 10 YEARS FOLLOW UP OF 41 CASES

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ABSTRACT

In this paper we report ten years follow up of operatively treated displaced type B and C ankle fractures according to AO system of classification. Fifty cases three were treated following AO principles between Nov. 1988 and Nov. 1990 at Services hospital Lahore. The results were studied using system of De Sousa JJ. et al., (1985) after a mean follow up of 10 years of 41 cases. Thirty patients were rated as excellent, five good, four fair and two as poor. Complications included two cases of infection, one necrosis of flap. Late complications included reduced range of movements in 4 cases, degenerative arthritis and painful joint in two cases, and were those who initially were treated by local bone setters, and reported late.

INTRODUCTION

Ankle fractures are increasing day by day as traffic, jogging and sports activities are on the increase. There had been controversies regarding internal fixation of the ankle fractures, but Yablon, James Hughes, Pettrone and De Sousa among others have emphasized the importance of operation on unstable ankle fractures and of repairing and fixing the syndesmosis. The importance of internal fixation was mentioned by Danis as long ago as 1949. Weber considered that every injury at the talo-crural joint involving one or more ligamentous or bony lesions is an absolute insication for operative treatment. According to Olerud all ankle fractures with incongruity of the joint surface should be considered as cases for surgery.

Muller, Allgower, Ramsey and Hamilton have reported that even minor displacements of the lateral malleolus and the talus reduce considerable contact between the talus and the distal articular surface of tibia with a consequent risk of incongruity arthritis. Lateral malleolus and the syndesmosis thus play an important role in the talo-crural joint, (Lauge Hansen, Muller and Allgower, Lamber, Yablon and Olerud) and these components of the joint should therefore be given great attention in the treatment of ankle injuries.

The medial malleolus does not have a corresponding supportive function, but plays a significant role as a strong medial anchor for the talus through deep part of the deltoid ligament, and when uninjured permits upto 2 mm of lateral displacement of the talus if the lateral support is impaired (Lauge Hansen, Pankovich).

The lateral support of the talus provided by the lateral malleolus and the syndesmotic ligaments therefore can be said to be responsible for the precision of the ankle joint function while the role of the medial malleolus and the deltoid ligament is more of an anchourage for the talus.

AIMS OF THE STUDY

To study the long term results of operatively treated cases of type B and C ankle fractures in terms of range of movements, functional

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outcomes and occurrence of degenerative arthritis.

MATERIALS AND METHODS

In this study adult ankles with type B and C fractures according to AO classification were treated operatively. Fifty Three cases were operated between Nov. 1988 and Nov. 1990 at the department of orthopaedics Services Hospital Lahore. The age of the patients ranged from 16 to 80 years with 77% being between 21 and 50 years. There were 43 men and 10 women. (90.5% of the injuries were caused by road traffic accidents).

The patients were treated according to AO principles. Eight cases had open fractures. Four cases were of established nonunion of medial malleolus and needed bone grafting also. Lateral malleolus was fixed with 1/3rd tubular plate and the medial malleolus with tentions band wiring or malleolar screw. The third malleolus was fixed by an antero posterior screw where ever required. Average period of immobilization in below knee cast was 6.75 weeks. First two weeks of non weight bearing, next two weeks partial weight bearing and then full weight bearing in anatomically reduced and stably fixed cases. The patients were evaluated at an average follow up of ten years. Forty one patients could be contacted. Each patient was interviewed and was examined clinically and radiographically. All cases were questioned with regards to pain, use of analgesics, stiffness, activities of daily living, use of walking aids, participation in sports activities and second surgery. At examination, the gate, tenderness and range of motion of the ankle were evaluated. Whenever needed talo-crural angle was determined to confirm the fibular length restoration (Sarkisian).

The cases were evaluated at an average of ten years follow up in terms of range of movements, residual pain and return to daily living activities.

LONG TERM RESULTS

The mean follow up period was ten years (range 13 years to 8 years). The patients were evaluated using the scoring system of De Sousa I. J. et al: Patients were questioned regarding pain, use of analgesics, walking aid, participation in sports activities, and any subsequent surgery at the ankle. Thirty patients had full range of movements, were completely pain free and were living a normal life fully participating in all physical activities. They were rated as excellent.

Five cases had occasional pain while walking long distance (more than one km) and were without any walking aid. They did not require analgesics. Four had 50% reduced range of movements and needed occasional use of analgesics. One patient developed distal tibio-fibular synostosis. Two patients had markedly reduced range of movements and persistent pain, and required fusion of the joint. Accordingly thirty cases were rated as excellent, five as good, four as fair two as poor. Excellent and good were collectively called as satisfactory and fair and poor as unsatisfactory results. It was noted that cases with larger third malleolar fragment or its comminution resulted unsatisfactory. The poor cases were initially open fractures and definitive fixation was delayed for soft tissue care.

COMPLICATIONS

One patient had non-union of the medial malleolus and required revision surgery and bone graft was added. This case was initially treated by quacks and was operated three weeks after the injury and was known diabetic. Finally it was graded as fair.

One patient ended up in a stiff ankle. This was also a diabetic and developed infection which was resolved with antibiotics, removal of implants and immobilization in plaster cast. Final result of this case was graded as poor. One case had comminuted 3rd malleolar fracture involving more than 25% of the tibial articular surface. The malleoli united but the joint remained stiff and painful and was rated as poor.

DISCUSSION

There have been many studies of open reduction and internal fixation of ankle injuries. However there are few having long term follow up. We had the opportunity of studying the effects and results of operatively treated cases at ten years follow up.

We obtained better results in those patients operated early, where exact anatomic reduction and stable fixation was achieved, and those who had no tibial articular surface involvement (third

malleolus). Particularly if the third malleolus involved more than 25% of the tibial articular surface and comminuted, the results were unsatisfactory. The open fractures and those previously manipulated by the bone setters also had unsatisfactory results in long term follow up, though they had satisfactory early results.

Post operative rehabilitation was found to be very important to achieve good range of movements.

CONCLUSIONS

- Open reduction and internal fixation is the treatment of choice for displaced bimalleolar fractures.
- Better results are obtained if the operation is performed early.
- Where the initial injury is severe or if there is involvement of 3rd malleolus more than 25% and comminution, less satisfactory are the results.
- Open fractures and delayed treatment also carry unsatisfactory results.

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