Pitfall, Error and Complication of Treatment for Ankle Fractures

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Abstract

Ankle fractures are common and the goal for treatment is to achieve a stable congruent joint and to maximize the long-term function of the ankle. Because the static incongruity and dynamic instability both lead to post-traumatic arthritic degeneration. Current trend of surgical treatment for ankle fractures is aiming for anatomic reduction, rigid internal fixation and early range of motion to accomplish this goal. However, unusual fractures and various associated problems can occur and these may lead to errors in diagnosis, require alternative management, or result in different prognosis.

From 2000 to 2006, 649 cases of ankle fracture treated surgically were retrospectively evaluated by interpreting their pre-operative, post-operative and follow-up X-ray. These cases were divided into 3 groups. Group 1: Those cases of pre-operative X-ray showed associated injuries and were neglected or miss-diagnosis of ankle fracture type which lead to errors of surgical planning. Group 2: Those cases of postoperative X-ray showed technique error or unsuitable implants which leads to poor reduction and fixation. Group 3: Those cases of follow-up X-ray showed poor results such as non-union, malunion, traumatic arthritis and other late complications. The correlation and cause-effect of these 3 groups were matched and discussed.

The Pitfalls of ankle fractures can be divided into associated injuries, atypical ankle fractures and patients problems. The elder, diabetis and osteoprotic patients must be treated carefully to avoid complication such as infection, non-union and implants failure. Failure to recognize associated injuries is a frequent problem, the talus fracture is often neglected and pilon fracture in osteoprotic patient might be miss-interpreted as ankle fracture on the X-ray, soft-tissue injury of peroneal or posterial tibial tendon are rare but lateral ankle ligament rupture are often untreated and lead to late ankle instability. Un-recognized syndesmotic injury and anteriolateral plafond fracture might be untreated or poor treated due to either miss-diagnosis of fracture type or technique difficulty and errors. Combined axial load component makes the ankle fracture more complicate to manage and lead to less favorable result, such as posterior plafond fracture or vertical medial malleolar fracture which may have compression fracture at weight-bearing joint surface and result in traumatic arthritis.

Fully understanding the mechanism of ankle fracture by using the Lauge-Hansen classification to know every injured part of mortise, carefully select the patients by excluding contraindicated cases so that treatment planning could be made to avoid the pitfalls and to prevent the surgical errors. Thus the complication and late sequelae could be minimized to obtain a good clinical outcome.