Bilateral Ankle Arthrodesis. An Analysis of Functional Outcomes

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Summary: Despite loss of motion in both ankles, patients are able to return to the daily activities as well as their work after bilateral ankle arthrodesis. It may be a good solution in patients with bilateral ankle pathologies, who are not candidates for ankle replacement.

Objective: Bilateral ankle arthrodesis is thought to be a morbid procedure with poor functional outcomes. However, the treatment for bilateral ankle arthropathy is still debated. The aim of our study was to evaluate the functional outcomes following bilateral ankle arthrodesis procedures.

Methods: From January 2004 to December 2008, ankle arthrodesis was performed in 325 patients. Of these, there were 11 patients who had bilateral ankle arthrodesis. There were four males and seven females. Four were employed while the rest were not working at the time of either surgery. Indication for arthrodesis included six patients with degenerative arthritis, two with posttraumatic arthritis, two with rheumatoid arthritis and one with Charcot arthropathy. Mean age at first surgery was 54 years and at second surgery 55 years. The mean duration between the two surgeries was 14.3 months [range, 5 to 22]. Radiologically, all patients showed bone on bone arthritis. One patient showed bilateral avascular necrosis [AVN] of the talus. Six of the patients had a varus tilt to the talus while two had a valgus tilt. Bone graft and internal fixation were used in all the patients. Serial radiographs were assessed to determine the time to fusion after both surgeries. Complications and reoperations were noted. The time required to begin unassisted full weightbearing and return to work after the second procedure was evaluated. Any work restrictions were also recorded.

Results: Twenty one of the 22 ankles [11 patients] showed union at mean 3.6 months [range, 3 to 8]. Delayed union was seen in one ankle, which healed at eight months following use of a bone stimulator. Nonunion occurred in one ankle and failed to unite despite revision fusion. It progressed to a painful pseudoarthrosis, requiring below knee amputation. This patient had AVN talus preoperatively. Painful hardware required removal in one ankle at 13 months. Mean time to return to unassisted routine activities after the second fusion was six months [range, 4 to 9]. Of the four employed patients, three returned to the same job at mean six months and the fourth patient required a change of job to sedentary work. All except one patient were ambulating without any walking aids six months from second fusion.

Conclusion: We conclude that bilateral ankle arthrodesis allows return to work and daily functions within a reasonable postoperative duration. It has a complication rate comparable to that of unilateral ankle fusions and ankle replacement. It may not be as morbid as it is thought. Careful selection of patients is important. It may be a good option in patients with bilateral ankle pathologies where ankle replacement may not be possible. However, further research in form of gait analysis and long term studies is required to assess whether the favorable outcomes are maintained in the long term.