

**Management of Post-Traumatic Osteomyelitis in Distal Tibia by Ankle Arthrodesis Using Retrograde Intramedullary Nail**

*Wonseok Choi, MD; Jae-Woo Cho, MD; Han-Ju Kim, MD; Eic Ju Lim, MD; Whee Sung Son, MD; Seungyeob Sakong, MD; Jong-Keon Oh, MD*  
 Korea University Guro Hospital, Seoul, Korea, Republic of

**Purpose:** Management of critical bone defect in posttraumatic osteomyelitis (PTOM) is challenging. The purpose of this study is to introduce management of PTOM in distal tibia by retrograde ankle joint arthrodesis using tibial nail and assess the success rate of bone reconstruction.

**Methods:** Between August 2014 and August 2020, 10 patients who were diagnosed as PTOM in distal tibia and treated by ankle joint arthrodesis using intramedullary nail at our Level I trauma center were included. Patients' demographic data and surgical details were collected using medical chart and PACS (picture archiving and communication system). PTOM was managed in 3 stages. Thorough debridement and antibiotics-loaded polymethylmethacrylate (PMMA) spacer with temporary fixation was done in first stage. When post-debridement culture was negative, we proceeded to second stage, which is definitive fixation. For definitive fixation, tibial nail was inserted in retrograde fashion from calcaneus to proximal tibia to achieve longer working length and stability due to severe bone defect after debridement of osteomyelitis. In third stage, bone graft was done. Consolidation of bone graft was evaluated using RUST scores (Radiographic Union Scores for Tibia Fractures).

**Results:** Mean follow-up period was 2.8 years. Average bone defect size after debridement was 6.64 cm. Average distal tibia bone stock length was 0.17 cm. One patient had fatigue failure with 1 broken screw but had no functional effect. Eight patients had successful reconstruction and in 2 patients implant removal and debridement was done due to recurrence of infection. In 2 patients, implant removal was done after complete fusion out of patient's desire.

**Conclusion:** Retrograde ankle joint arthrodesis using tibial nail can be a treatment option in patients with PTOM around the ankle joint with severe bone defect, when hindfoot fusion nails are not available. Successful reconstruction can be achieved with nail in posterior angulation with enough stability.

TECHNICAL TRICKS AND TIPS



See the meeting app for complete listing of authors' disclosure information. Schedule and presenters subject to change.