

The Efficacy of the Masquelet Technique for Ankle Joint Fusion in the Treatment of Pyogenic Ankle Arthritis with Osteomyelitis

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INTRODUCTION: Although the ultimate limb-salvaging method for pyogenic ankle arthritis is ankle fusion, it has been reported that the rate of bone union is lower compared to its use for osteoarthritic ankles. This study aimed to elucidate the effectiveness of ankle joint fusion using the Masquelet technique in managing pyogenic ankle arthritis concurrent with osteomyelitis.

METHODS: We analyzed ten cases (nine males and one female; median age: 45.5 years) that underwent the surgical procedure. The infection was postoperative in eight instances (following periprosthetic ankle fractures), hematogenous from multiple abscesses in one case, and of unknown origin in one case. Key evaluation parameters included bone defect length post-initial surgery, internal fixation methodology, the presence or absence of bone fusion and its duration, and the Lower Extremity Functional Scale (LEFS) scores pre-surgery and at the final observation.

RESULTS: The median follow-up period was 46.5 months. The median bone defect length was 41mm. Internal fixation methods comprised four screws, four progressive intramedullary nails, and two retrograde intramedullary nails. All patients achieved bone fusion within a median period of 5 months (range: 3-10 months). All patients regained unassisted ambulatory capability. The median LEFS scores significantly improved from preoperative 18.5 points (range: 0-38) to 64 points (range: 27-71) at final observation.

DISCUSSION AND CONCLUSION:

Ankle fusion for pyogenic ankle arthritis with osteomyelitis demands rigorous debridement, presenting challenges due to resultant bone loss. Historically, bone transport and vascularized fibula were used, but these methods entail specialized techniques and numerous issues. Conversely, the Masquelet technique used in our study is a straightforward surgical procedure employing basic techniques like debridement, internal fixation, and autogenous bone grafting.

Ankle joint fusion utilizing the Masquelet technique demonstrated considerable effectiveness in treating pyogenic ankle arthritis with osteomyelitis. This method may potentially be considered the gold standard for managing pyogenic ankle arthritis associated with osteomyelitis in the future.

