

Tri Malleolar Ankle Fracture Fixation in a Modified Lateral Position – Tips and Techniques

Khalid Hasan^{1*}, Shahin Kayum²

¹Department of Orthopedics, Virginia Commonwealth University, Richmond, Virginia, 23298, USA

²University of Toronto, Canada

*Corresponding author: Khalid Hasan, Assistant Professor, Department of Orthopedics, Virginia Commonwealth University, Richmond, Virginia, 23298, USA



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ABSTRACT

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Introduction

Ankle fractures are one of the most common injuries encountered as an orthopedic surgeon. Tri malleolar ankle fractures comprise of about 7% of all ankle fractures [1]. Tri malleolar ankle fractures with a large posterior malleolar fragment requires special consideration with patient positioning. Prone and lateral positions are commonly used to access these fractures. At times, it also becomes necessary to flip the patient intraoperatively to properly access all the fractured fragments. Many surgeons and anesthesiologists often do not prefer to use the prone position due to risk of complications [2]. We propose an alternate modified lateral position in treating these fractures.

Technique

After induction of general anesthesia, we place a high thigh tourniquet on the affected extremity. The patient is then positioned lateral on the operating room table with the non-affected side up. The limb that needs to be operated on is kept down for this specific positioning purpose. Axillary roll is placed under the dependent

axilla and pillows are placed between the arms. We have not required hip positioners or bean bag for this positioning technique. Keeping the upper body in lateral position, the lower body is rotated at the level of the hip. The hips are rotated by externally rotating the operative extremity until the heel faces the ceiling. We have noticed that about 45 degrees of external rotation at the hip is enough to bring ankle in prone position. It can be noticed at this time that the ankle is more internally rotated compared to external rotation alignment in pure prone position. While the operated extremity is brought prone, the non-operative limb is slightly flexed at the knee joint. This not only makes the position more patient friendly but also clears the other ankle out of the way clearing it for intraoperative fluoroscopic imaging. A major part of positioning is now complete. Next step is to pad all bony prominences and secure the patient with a safety belt. The operated extremity is now draped and prepped in normal sterile fashion and the patient is ready for surgery. We have also used intraoperative bump under the operative ankle if needed to clear for intra operative fluoroscopy (Figure 1).



Figure 1

Discussion

Positioning for tri malleolar ankle fractures can be challenging at times. Posterolateral approach with standard prone position is

often used if the posterior malleolar fragment requires fixation but increased risks of complications associated with prone position are a concern. Lateral position is also utilized in these cases but access to medial malleolus is difficult. Finally, supine position with percutaneous fixation of the posterior malleolar fragment is also utilized but is prone to mal-reduced posterior malleolus and thus the ankle joint. In this technique, we have modified the prone and lateral position in a way that provides proper prone access to the surgeon and the patient is lateral in the upper body. The benefit is avoiding the complications associated with prone position [3]. Similar positioning has been described earlier for Achilles tendon surgery [4,5], but we have been successfully utilizing this positioning technique for selected tri malleolar ankle fractures with good results.

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