

OUTCOME OF FIXATION OF MEDIAL MALLEOLUS FRACTURES WITHOUT IMAGE INTENSIFIER: A CASE SERIES

Tan LS; Tiew SK

Department Of Orthopaedics, Hospital Tengku Ampuan Rahimah, Klang, Selangor

INTRODUCTION:

Malleolar injuries are articular fractures. Treatment is aimed at restoring normal joint anatomy and providing sufficient stability for early movement¹.

REPORT:

We report a total of five cases of individuals aged between 16 to 28, who sustained closed medial malleolus fractures due to motor vehicle accident. Surgeries were performed without image intensifier (II) guidance. All cases were done using medial approach, from the anterior tip of the medial malleolus curved towards the tibia and were extended to visualize the anterior ankle joint line. Anatomical reduction were ensured via direct visualization before applying the reduction clamp. Using a jig as guidance, provisional K wires were inserted, drilled and two 4.0mm cancellous screws were inserted perpendicular to the fracture site. Reduction was ensured throughout the surgery by directly visualizing the anterior joint line. We were able to achieve good reductions in all the cases from the post-operative radiographs (Figures 1&2).

Anatomical restoration and stable fixation is best achieved by open reduction, internal fixation¹. Incidence of cancer in orthopaedic surgeon is four times higher than a non-orthopaedic professional². Average radiation exposure for a case of ankle fracture is 0.1933Gycm². Usage of II can be avoided. We ensure that good reduction is maintained by directly visualizing the anterior ankle joint line. Using a specially designed jig for medial malleolus, screws can be inserted parallel to each other. The jig must be aimed medially to the ankle joint, and a needle can be used to run through the joint surface to ensure screws are not in the joint. Lastly, surgeon's experience plays a major role too.

CONCLUSION:

By directly visualizing the ankle joint line, fixation of medial malleolus can be performed without II guidance with good reduction and outcome, thus, reduce the exposure to radiation.



Figure 1: Case 1

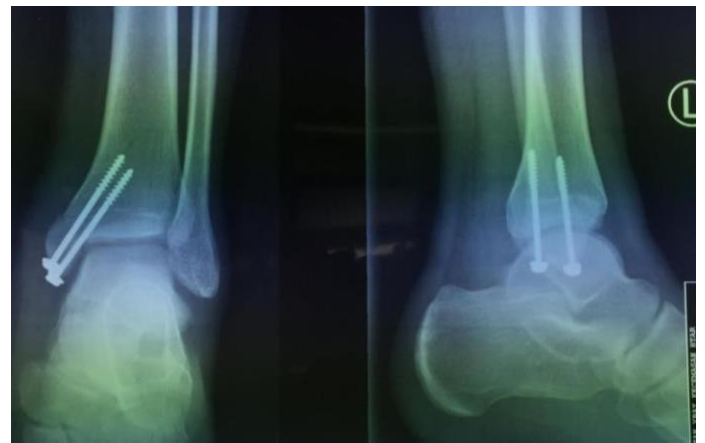


Figure 2: Case 2

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1. Buckley RE, Moran CG, Apivatthakakul T. AO Principles of Fracture Management. 3rd ed. Davos Platz: Library of Congress Cataloging.
2. Botchu R, Ravikumar K. Radiation exposure from fluoroscopy during fixation of hip fracture and fracture of ankle. Indian J Orthop. 2008;42(4):471-3.