

The Forgotten Art: Cast and Wedging of Tibial Fracture in a Skeletally Immature Patient

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INTRODUCTION

Displaced tibia shaft fractures are common orthopedic injuries often managed surgically. However, conservative approaches with casting remain viable, particularly in cases where surgical risks are high, minimally displaced fractures and in the pediatric age group. We discuss a case of successful conservative management of a displaced tibia fracture utilizing a cast and wedging technique.

REPORT:

A 14 years old boy presented with a displaced distal tibia shaft fracture following a motor vehicle accident. Check X-ray post application of long leg cast noted recurvatum of 13 degree with no valgus or varus deformity. Posterior wedging was performed based on the calculation and measurement as per indicated in (Figure 1). Post wedging the deformity was corrected and patient achieved fracture union after 3 months with no residual deformity both clinically and radiologically (Figure 3)

DISCUSSION:

Wedging cast technique comprises measurement of deformity angle, determination of apex, measurement of distance at concave side of the cast¹. This technique was performed during follow up for this patient. Firstly, the angle of deformity was measured by drawing a line from A to B; which measures 13.5° (Figure 1). Next step, a horizontal line drawn perpendicular to the long bone axis for proximal and distal fragments (C and D) with its apex towards the convex side of the cast. A line drawn from C to D, measuring 2.2cm was determined indicating size required for this wedging technique. A line drawn from the plantar tip of the cast towards point C which measured at 18cm to demarcate the starting point of wedging. Post wedging xrays shows restoration of deformity angulation (Figure 2).

CONCLUSION:

In tibial shaft fractures in pediatric patients, cast and wedging can be a reliable method in correcting the deformity hence reducing the burden and risks of surgical management.

REFERENCES:

1 Jacobson, Nathan & Lee, Christopher. (2014). Some Historical Treatments should not be Forgotten: A Review of Cast Wedging and A Trick to Normalize Non-Standardized Digital X-rays. Journal of orthopaedic case reports. 4. 33-7. 10.13107/jocr.2250-0685.164.

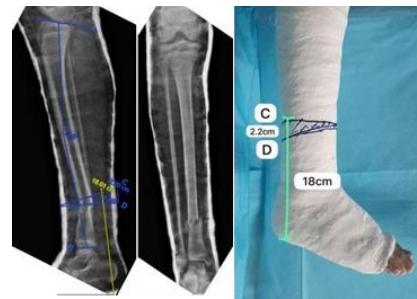


Figure 1: Posterior wedging was performed based on the calculation and measurement



Figure 2: Post wedging xrays shows restoration of deformity angulation



Figure 3: Post wedging the deformity was corrected and patient achieved fracture union after 3 months with no residual deformity both clinically and radiologically