



UNIPLANAR BILATERAL BOX FRAME EXTERNAL FIXATOR WITH TENS NAILING: THE NEW REVOLUTION IN EARLY TOTAL CARE OF OPEN TIBIA DIAPHYSEAL FRACTURE-A PROSPECTIVE STUDY

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KEYWORDS :

INTRODUCTION

Due to high likelihood of infection non-union, open tibial shaft fractures present a more challenging problem than open fractures in any other parts of the body. These high rates are result of the tibia's limited soft tissue covering and the comparatively inadequate osseous blood supply. While intramedullary nailing is the standard of care in closed diaphyseal fractures there exists a controversy over the stabilization method for open tibia shaft fractures. Many methods have been described with unreamed IMIL nailing being the front runner due to its more stable tissue friendly fixation. However, the problems with unreamed IMIL nailing is that of using a smaller nail which leads to re operations and the unreliable operative time due to free hand distal locking. To counter this we propose the use of Uniplanar Bilateral boxframe augmented with TENS nails as an alternative for early total care of open tibial diaphyseal fractures.

AIM:

To determine whether closed reduction and fixation with a uniplanar bilateral external fixator and TENS nail is successful as a single stage definitive intervention for open tibia diaphysis fracture.

OBJECTIVES:

To assess the operative time, time for union of the fracture and complications such as pin tract infection, non-union, malunion, ankle stiffness reoperation etc.

MATERIAL AND METHODS:

Study was conducted on 60 patients. Patients with open tibial diaphyseal fractures between the age of 6-59 were included in this study. Exclusion criteria included polytrauma patients; pre-existing ipsilateral lower limb deformity; femur, ankle or foot fractures on the same limb; Gustilo-Anderson IIIC; fractures with bone loss, Intra articular fracture. Informed consent was taken. After thorough debridement and wound wash, closed reduction with uniplanar bilateral external fixator was performed initially. After acceptable reduction was achieved internal fixation with TENS nail was performed. Wound wash was reperformed and primary closure of wound was done wherever possible and if not, possible vacuum assisted closure was used.

Dressing was done according to hospital protocol. Wound needing soft tissue coverage were posted for same after 5 days. Dynamization of the frame was done after clinical signs of union appeared, after which patient was started on personalized physiotherapy protocol.

RESULTS:

Most common type of injury treated was type IIIB, the mean operative time needed for fracture fixation was 47 minutes from incision to closure of incisions, median time for dynamization was 5th week. 52 out of 60 (86.66%) achieved union. Mean time for union was 23.7 weeks while median week was 24th week (Range 15-34 weeks). Out of the 8 non-union 6 were type GA IIIB while other 2 were IIIA. Most common

complication noticed was ankle stiffness which was seen in 24 patients, out of which 22 resolved with physiotherapy in 2 weeks. Other complications included pin tract infection 6 and malunion 1.

CONCLUSION:

Uniplanar bilateral box frame with tens nailing is a viable option for early total care of tibial diaphyseal fracture upto Gustilo Anderson type IIIB. It is comparable to unreamed IMIL nailing on most aspects with only drawback being resolvable ankle stiffness.