

Bifocal versus Trifocal external bone transport by Ilizarov ring external fixator as a treatment method for posttraumatic bone defects more than 5cm in lower extremities in adults.

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INTRODUCTION:

This study aimed to compare the efficacy and outcomes of bifocal bone transport (BFT) and trifocal bone transport (TFT) for treating post-traumatic tibial bone defects.

METHODS: : There were a total of 21 eligible patients with an average age of 30.5+ _ 10.32 years (range 18–50 years), 20 males and one female, with large tibial defects (ranging from 7-14 cm) due to trauma who were admitted to our hospital from May 2020 to May 2023. Among the patients, 15 underwent bifocal bone transport (BF group), and the remaining 6 were treated with trifocal bone transport (TF group). The demographic data (age, sex), intraoperative outcomes (size and location of the defect, operation time), postoperative variables (lengthening speed, external fixation index, distraction index, maturation index, duration of regenerate consolidation and docking union), postoperative bone and functional outcomes as (delayed consolidation, pin problems, repeated fracture, joint stiffness) of the two groups were recorded and compared with follow-up till device removal.

RESULTS:

The duration of follow-up was till device removal. There was no statistically significant difference in the demographic data, intraoperative outcomes including the size of the defect as well as postoperative complications. However, in the TF group's lengthening speed, the external fixation index (EFI) was reduced when compared with the BF group but with a non-significant value.

DISCUSSION AND CONCLUSION:

Both Ilizarov techniques (Trifocal and Bifocal) bone transport is a safe, reliable, and successful method for the management of large post-traumatic tibial bone and soft tissue defects in one-stage surgery with highly satisfactory comparable results.