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## STMIPO Technique in the Treatment of Diaphyseal and Distal Tibial Fractures: A Retrospective Study of 57 Patients

### Background

STMIPO (Second To Minimally Invasive Plate Osteosynthesis) is an emerging technique for treating limb fractures, combining the advantages of MIPO (Minimally Invasive Plate Osteosynthesis) and ORIF (Open Reduction and Internal Fixation). This study primarily evaluates the clinical efficacy of the STMIPO technique in treating diaphyseal and distal tibial fractures.

### Methods

This study retrospectively analyzes 57 cases of diaphyseal and distal tibial fractures treated with the STMIPO technique at our orthopedic department between January 2021 and January 2023. Among these cases, there were 38 males and 19 females. All tibial fractures were classified according to the AO classification. During surgery, we recorded the operation time (from skin incision to closure), length of the surgical incision, intraoperative blood loss, and the number of fluoroscopic images taken. Postoperatively, we evaluated fracture healing and the occurrence of relevant surgical complications.

### Results

All patients with tibial fractures achieved osseous union, with an average bone healing time of  $16.72 \pm 1.16$  weeks. The average postoperative follow-up time was  $18.65 \pm 2.81$  months. The average surgical time was  $42.61 \pm 3.01$  minutes, the average incision length was  $3.91 \pm 0.79$  cm, the average intraoperative blood loss was  $15.96 \pm 1.66$  ml, and the average number of fluoroscopic images taken was  $3.11 \pm 0.75$ . There were no intraoperative instances of surgeon exposure to fluoroscopy. One patient with a distal tibial fracture was unable to complete the STMIPO procedure during surgery and was converted to ORIF based on the STMIPO incision. Additionally, one case involved plate exposure with a subsequent soft tissue infection, which was managed with plate removal, debridement, suturing, and external fixation using the removed plate.

### Conclusion

STMIPO technology is a safe, effective, and minimally invasive surgical treatment option that is easy to perform and well-suited for the management of diaphyseal and distal tibial fractures.

### Keywords

tibial diaphyseal fractures, tibial distal fractures, STMIPO, MIPO, ORIF

### Biography

Chief Physician, Doctor of Medicine, Administrative Director of Orthopedics. With over 30 years of experience in the orthopedic field, Dr. Zhuang has accumulated extensive clinical experience and research achievements. He mainly focuses on trauma care in orthopedics, particularly in minimally invasive techniques for fracture treatment. Dr. Zhuang proposed the STMIPO theory, specifically designed for the treatment of limb fractures, providing new insights for the clinical management of fractures.