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Original Research Paper

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COMPARATIVE STUDY TO ASSESS THE FUNCTIONAL OUTCOME IN FIXATION METHODS OF MEDIAL MALLEOLUS FRACTURE BETWEEN CC SCREW FIXATION AND TENSION BAND WIRING

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ABSTRACT

Background & Method: The aim of the study is to evaluate the Functional outcome in fixation methods of Medial Malleolus Fracture between CC Screw Fixation And Tension Band Wiring Fixation, as this study is Cross sectional study The standard medial incision runs posterior to the medial malleolus with cautious dissecting the saphenous vein and nerve. **Result:** In our study, we included all 40 patients who had operated over an eighteen month period in a cross sectional study type with their median age was 36, with a range of 26 to 54 and the average number of days between the injury and the operation date was 4days and the average procedure was 45 minutes, with a 38 to 56 minute range. **Conclusion:** Tension-band wiring fixation more valid option for Internal fixation of Medial Malleolar Fractures that may be more available and its usage could translate into overall cost saving, the utilization tension band wiring has been found to result in enhanced improvements in the range of motion at the ankle joint.

KEYWORDS : fixation, malleolus, fracture, CC SCREW & TBW.

INTRODUCTION:

Ankle fractures account for 9% of fractures representing a significant portion of the trauma workload: [1]. Ankle fractures have a bimodal age distribution with peaks in younger males and older female. They continue to pose vexing problems as these being intraarticular and are being subjected to continuous deforming forces from muscles[2]. Internal fixation of fractures speeds up the healing and rehabilitation. It also allows for early mobilization of the joint thereby preventing stiffness of joints and other complications related to immobilization.

Both Tension band wiring fixation and CC screw fixation technique improved the fracture healing, as stability produce compression statically or dynamically. Tension bands can enable immediate motion at the involved joints, which allows for an improved functional outcome[3]

AIMS:

To Evaluate the Functional outcome in fixation methods of Medial Malleolus Fracture between CC Screw Fixation And Tension Band Wiring Fixation.

OBJECTIVE:

- To assess the Functional outcome of fixation methods of Medial Malleolus Fracture using CC Screw Fixation and Tension Band Wiring Fixation using American Orthopaedic Foot And Ankle Society - Ankle –Hindfoot Scale.
- To assess the associated complications during follow up.

MATERIAL & METHODS:

- Type of Study - CROSS SECTIONAL STUDY
- Place of study - Sri Aurobindo Medical College & PG Institute, Indore (M.P.)
- Sample size - 40
- Study group - PATIENTS WHO GETTING ADMISION IN SAMC INDORE.(An informed written consent will be taken from all the patients after the approval of institutional ethical committee. Finally after the diagnosis, the patients are selected for the study depending on the inclusion criteria).
- Mode of selection of cases - All the patients fulfilling the inclusion criteria and giving consent will be included.
- Duration of study - 18 months (1 year for data collection & 6 months for analysis starting from 01.04.2022 to 30.09.2023)

Inclusion Criteria :

- All Patient Age – above 18 years
- Isolated medial malleolar Fractures
- Bimalleolar Fractures
- Trimalleolar Fractures

Exclusion Criteria:

- Pathological Fracture
- Fracture Associated with Neurovascular injury
- Fracture associated with Crush injury
- Patient not giving consent for surgical fixation

RESULTS:

- In our study, we included all 40 patients who had operated over an eighteen month period in a cross sectional study type
- Their median age was 36, with a range of 26 to 54 and the average number of days between the injury and the operation date was 4
- The average procedure was 45 minutes, with a 38 to 56 minute range.
- The result of my study achieved 100% union rate in both groups with one case of delayed union treated with CC screw fixation with union rate was 12 weeks (ranging from 8 to17 weeks) for patients treated with CC Screws Fixation with 10.2 weeks (ranging from 6 to 13 weeks) for patients treated with Tension-band wiring fixation. Fixation with a Tension-band wiring technique using Kirschner wires and cerclage may also effective on comminuted fractures of the Medial Malleolus Fracture

Tab 1: The details of 40 patients with medial malleolar fractures

Variable	Group1 (malleolar screw)	Group2 (tension-band)
Mean age in years	38 (24-50)	38 (21-53)
Male: female	4:6	4:6
Right: left	5:5	6:4
Weber B:Weber C	7:3	7:3

Tab 2: Causes of the fracture

Causes	Group1 (malleolar screw)	Group2 (tension-band)
Twisting	12	12
Fall	04	06
Motor cycle accident	04	02

Tab 3: The distribution of the patients with medial malleolar

fractured according to intra & post operation complication.

Complications	No.	Percentage
Intra operation: Medial malleolar crushing	01	8.3%
Post operation: Skin necrosis	02	16.6%
Superficial wound infection	00	00%
Delayed union	01	8.3%

DISCUSSION:

OLERUD & MOLANDER ET AL.STUDY[4] : Study showed that excellent and good results were achieved in 80 % in group1 patients (treated with CC Screws Fixation) and 90 % in group2 patients (treated with Tension-Band Wiring Fixation) , SANG-HANKO AND YOUNG- JUNPARK ET AL.STUDY[5] This agrees with the results of Sang-Hanko and Young-Junpark who was achieved excellent and good results in about 78 % of cases treated with Malleolar screws fixation and 89 % of cases treated with tension-band wiring fixation . SK. NURUL ALAM ET AL.STUDY[6] SK. Nurul Alam study that achieved excellent and good results in about 81% of cases treated with CC Screws Fixation and 90 % of cases treated with tension-band wiring fixation with Meantime of 12 weeks for CC Screws Fixation and 9 weeks for Tension-band wiring fixation AYYOUB A. MOHAMMED ET AL [7] This study shows about 83% score of cases treated with malleolar screws and 92% of instances treated with tension-band wire which produced excellent and good results.the mean time for radiologic bone union was 11.8 weeks with tension band wiring

CONCLUSION:

Tension-band wiring fixation more valid option for Internal fixation of Medial Malleolar Fractures that may be more available and its usage could translate into overall cost saving, the utilization tension band wiring has been found to result in enhanced improvements in the range of motion at the ankle joint.When applied to the large number of medial malleolus fracture this is an primary approach for treatment, demonstrating superior functional and radiological results in comparison to Open Reduction and Internal Fixation with Cannulated Cancellous Screws. The tension-band wiring is more technically advantageous for small fragment fixation of medial malleolar fractures.

At present we have only 6 month follow up , in this short term follow up TBW Fixation provides Excellent outcome and long term results are awaited.

Study Designed: Cross sectional study

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