



A PROSPECTIVE STUDY OF FUNCTIONAL OUTCOME OF ANKLE FRACTURES TREATED WITH DIFFERENT TREATMENT MODALITIES

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ABSTRACT

Introduction: As we all know that the because of our sitting habits, the ankle joint movement is very important. But due to road traffic accidents ankle joint injuries are common now a days. Thus, accurate reduction is very important for fractures to be corrected. **Aim:** the present study aims to identify the deep surgical infection rate and related risk factors in surgically treated ankle fractures and to find the Merits and demerits of conservative treatment in different patients. **Objective:** To analyze the merits and demerits of different surgical and conservative methods of stabilization. **Materials and methods:** in the present study, we operated 42 cases of closed ankle fractures, at Aarupadai Veedu Medical College, Puducherry, from June 2017 to June 2019 with different treatment modalities. During the operating procedure Implants used were Reconstruction plate, SS wire (tension band wiring), K wires, Malleolar screws, Cannulated cancellous screws, Syndesmotic screws, Cortical screws. We evaluated the subjective and objective scorings which includes clinical and radiological findings. **Results:** the present study consists of 42 cases of closed ankle fractures which were treated with open surgical procedure, reduction and fixation. Olerud and Molander subjective scoring for ankle fractures in our study were Excellent in 16 cases (38.09%), Good in 25 cases (59.52%) Fair in 1 case (2.38). for objective scoring for ankle fractures in our study were Good – 39 patients(92.85), Fair – 3 patients(7.14). **Conclusion:** There is a satisfactory outcome in conservative management done for undisplaced ankle fractures. Anatomical reduction and fixation resulting in good functional.

KEYWORDS : closed ankle fractures, open surgical procedure, deduction, fixation, Reconstruction plate, SS wire (tension band wiring), K wires, Malleolar screws, Cannulated cancellous screws, Syndesmotic screws, Cortical screws.

INTRODUCTION

Ankle fractures are unstable injuries treated by Orthopaedic surgeons^{1,2,3,4}. Outcome is good with anatomic restoration and ankle mortise healing^{4,5}. Second most common lower limb fractures after hip fractures⁶. Kannus et al.⁷ reported that there is a raise of 319 percent ankle fracture cases in elder patients from past 30 years. Total ankle fractures constitute 10%⁸. Among ankle fractures, unimalleolar fractures are more common. In spite of special care, few patients have poor outcome. Hence the present study has been undertaken with the following aims and objectives.

AIMS

- 1) To identify the deep surgical infection rate and related risk factors in surgically treated ankle fractures.
- 2) To find the Merits and demerits of conservative treatment in different patients.

OBJECTIVES

To analyze the merits and demerits of different surgical and conservative methods of stabilization.

MATERIAL AND METHODS

Here is a study of 42 closed ankle fractures treated in Aarupadai Veedu Medical College, Puducherry, from June 2017 to June 2019, approved, By the institutional ethical committee. The age group was selected between 20yrs-65yrs. The gender ratio was equal. The side involved in patients were right side 28 patients, left side 14 patients. The mode of injury shows that more cases are from road traffic accidents I.e 24cases, self fall from twisting 17 cases, and fall from height only 1 case.

Inclusion criteria:

- a) Patients having any fracture of ankle joint.
- b) Patients of any sex & age groups
- c) Patients who are fit for surgery.
- d) Patients having fractures of ankle joint for which closed method is indicated.

Exclusion criteria:

- a) Open ankle fracture.

- b) fracture and open epiphyses.
- c) A previous fracture of either ankle.
- d) Patient not giving written consent for surgery.

All patients were informed about the study procedures and the consent forms were obtained before being included in the study. Radiograph images of the ankle were used to evaluate fractures. The fractures were classified using the Lauge Hansen classification system AO system as Supination-Adduction as 1, Supination-External rotation as 17, Pronation-Abduction as 2, Pronation-External rotation as 1. In the present study the types of fractures involved based on anatomy were Unimalleolar Fractures – 21, Bimalleolar Fractures – 20, Trimalleolar Fractures – 1

OPERATIVE TECHNIQUE:

Preoperative Care:-

Before the start of the operative procedure, X- ray for all patients. CT scan and MRI were done. Reduction is done immediately, and then again X-ray was taken. Preoperative antibiotic dose is given before shifting the patient to operation theatre.

Intraoperative Care:-

In Spinal anaesthesia the patient was placed in a supine position. The buttock was elevated on a sandbag to expose the lateral side. and , Tourniquet application is made. Fracture site reduced and fixed.

Implants used were Reconstruction plate, SS wire (tension band wiring), K wires, Malleolar screws, Cannulated cancellous screws, Syndesmotic screws, Cortical screws. Suction Drain was fixed and Sterile Compression bandage with below-knee slab applied to the patient and the patient was shifted to ward.

Postoperative Care:-

In post operative care, Limb elevation was done and Active toe movements was started and Quadriceps exercises was also Started. Drain removed on POD 2 and tip culture was done. Wound inspected on POD 2, 5, 9 and 13. Suture removal done

Follow up:- The follow up of the patients was done on 6th week, 3rd, 6th, and 12th month.

COMPLICATIONS

- The postoperative complications were encountered in the present study. Complication involving Superficial Infection were 2, and Talar tilt was 1.

RESULTS

The analysis was done based on the subjective and objective criterias and the scoring systems are given below.

Table 1 : Showing Subjective And Objective Scoring

Subjective scoring	Parameters	Score
1. Pain	Never	25
	Walking on uneven surface	20
	Walking on even surface outdoors	10
	Walking indoors constant and severe	05
2. Stiffness	None	10
	Present	0
3. Swelling	None	10
	Only evening	05
	Constant	0
4. Stairclimbing	Noproblem	10
	Impaired	05
	Impossible	0
5. Running	Possible	05
	Impossible	0
6. jumping	Possible	05
	impossible	0
7. squatting	Possible	05
	impossible	0
8. types of supports	None	10
	Tapping, wrapping	05
	Stick on crutch	0
9. Affecting work and activities of daily life	Same as before injury	20
	Loss of tempo	15
	Part time work/simple job	15
	Severely impaired	0
Objective scoring	Parameters	Score
1. pain	Rest pain	3
	Routine walking	2
	Prolonged walking	1
	Pain free	0
2. Ranges Of Movements (plantar Flexion + dorsiflexion) Normal 65	No movement	4
	0-15	3
	16-30	2
	31-45	1
	Above 45	0
3. deformity	Present	2
	Absent	0
4. radiological criteria	Osteo arthritic changes	3
	Unacceptable talar shift and or talar tilt	2
	Acceptable talar shift and or talar tilt	1
	Normal	0

OBJECTIVE SCORING

Objective score was based on

- a) Clinical
- b) Radiological criteria.

Table 2: Showing Objective Scoring Objective score was classified into 3 groups

Good - 0 -3

Fair - 4 -6

Poor - 7 -12

Table 2: Results With Subjective And Objective Scoring

Results (subjective scoring)	Number of patients	Percentage
Excellent(>90%)	16	38.09
Good (81%-90%)	25	59.52
Fair (60%-80%)	1	2.38
Poor (<60%)	0	0
Results (objective scoring)	No. of patients	Percentage
Good (0-3)	39	92.85
Fair (4-6)	3	7.14
Poor (7-12)	0	0

DISCUSSION

This is a study of 42 closed ankle fractures. In this study we had operated 21 Unimalleolar fractures , 20 Bimalleolar fractures , and 1 Trimalleolar fracture. 12 unimalleolar fracture cases are treated conservatively and Rest 30 cases are treated surgically. Incidence is high in the age groups from 36 to 50, in our study. Ankle injuries are common in males 22, which is about 52.38 % Right ankle fractures are more common i.e., 28 patients constituting 66.66%. Road traffic accidents is the common cause for ankle fractures. Noted 24 cases, which is about 57.14 %. The other causes of ankle fractures are self fall and fall from height. Most common injury pattern was Supination and external rotation in the present study.

Olerud and Molander⁹ subjective scoring for ankle fractures in our study are Excellent in 16 cases (38.09%), Good in 25 cases (59.52%), Fair in 1 case (2.38). Olerud and Molander objective scoring for ankle fractures in our study were Good – 39 patients(92.85), Fair – 3 patients(7.14)

In the present study the P-value for the subjective scoring is 0.5 and the P-value for objecting scoring is 0.9. in the present study total 3 cases have complications i.e., 2 were superficial infections and one was Talar tilt.

A similar study done by Hafiz et al.¹⁰ showed in his study that Subjective score outcome for excellent and good is about 84 percent. Objective scoring was good in 78.8%, Poor in 4.2%.

Our study is similar to Hafiz et al. study but in the present the results were not in accordance with the Hafiz et al. study which might be due to as fewer subjects were taken for the study. If the study would be done on larger scale, it may get better results.

CONCLUSION

The Infection rate is low in AVMCH for Orthopaedic procedures with care in surgical procedures. There is a satisfactory outcome in conservative management done for undisplaced ankle fractures.

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