ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

Title: COMPARITIVE STUDY OF CLAVICLE FRACTURE FIXED WITH MIPPO FIXATION V/S OPEN REDUCTION

Author/s:

Dr. RAVI G.R.

Presenting Author:- Dr. RAVI G.R.

Asst Prof, DEPT OF ORTHOPAEDICS,BGSMCH,NAGARUR,BANGALORE ,INDIA

Faculty Disclosure Information

- Disclosures: I have no financial conflicts to disclose

Introduction

- The Treatment of clavicle Fracture though there are many treatment modalities , each has there own advantages and limitations.
- Variable treatment options of clavicular shaft fracture, including conservative method , open plating, and intramedullary fixation, have been reported with good clinical outcomes.There is a delay in Functional resumption in Nonoperative Groups with low functional capability.
- Thus Operative Treatment is considered for early mobilization and good functional gain but Open Plating has given scarring in the Exposed part of the Trunk.Thus there is a need for MIPO Fixation Method of Plating of Clavicle which has good Function and Less scarring , so good Cosmetic Look.

TYPE OF STUDY

The study was a Prospective ,observational Study conducted in Department Of Orthopaedics ,MMCRI, Mysore From May 2019 to Aug 2021 fulfilling the Inclusion Criteria.40 Patients were selected for this study after taking valid Informed consent .

Materials and methods

20 Patients were selected Randomly to minimize Bias each for MIPO Plating and other 20 patients underwent Open reduction Internal fixation Plating.

Inclusion Criteria

Inclusion criteria for this study Age >18 years and <60 years, acute fractures,Middle diaphyseal fractures and No medical contradictions

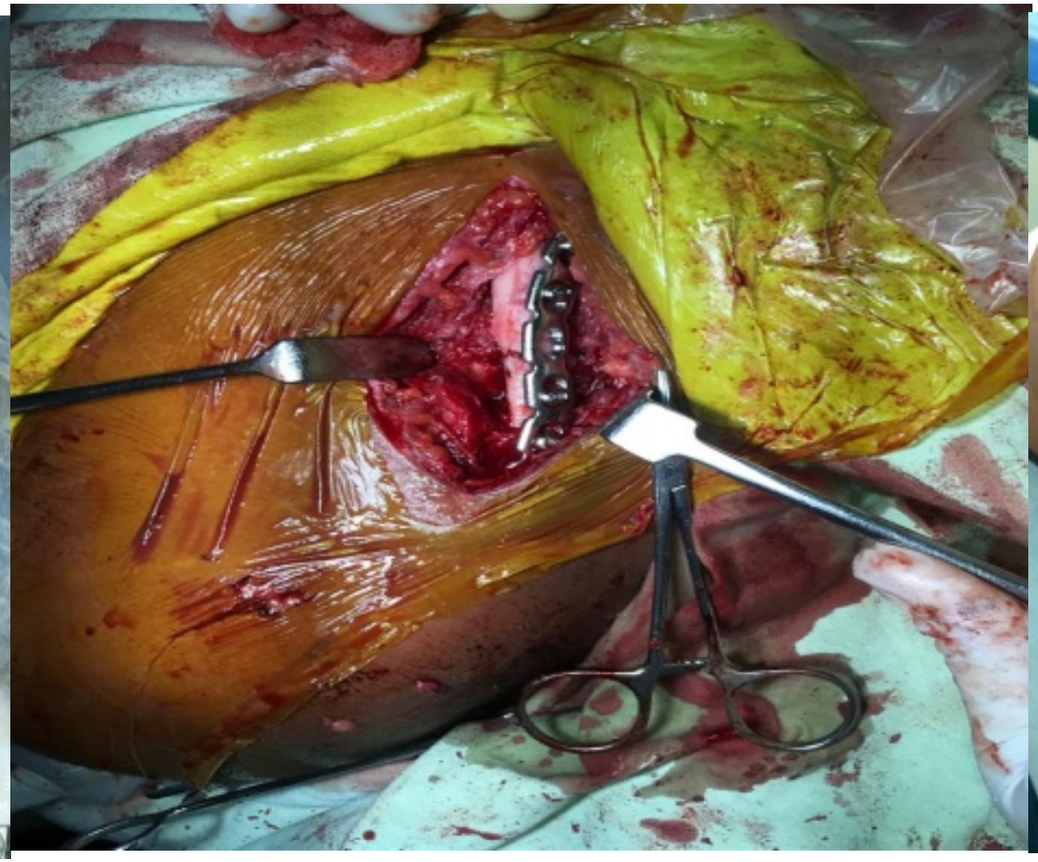
Exclusion Criteria

Exclusion criteria for this study was Age < 18 years ,Open fractures, medial or lateral clavicle fractures,Pathological fractures,polytrauma patients, neuro vascular injuries, Failure of other treatment modalities and associated acromioclavicular dislocation.

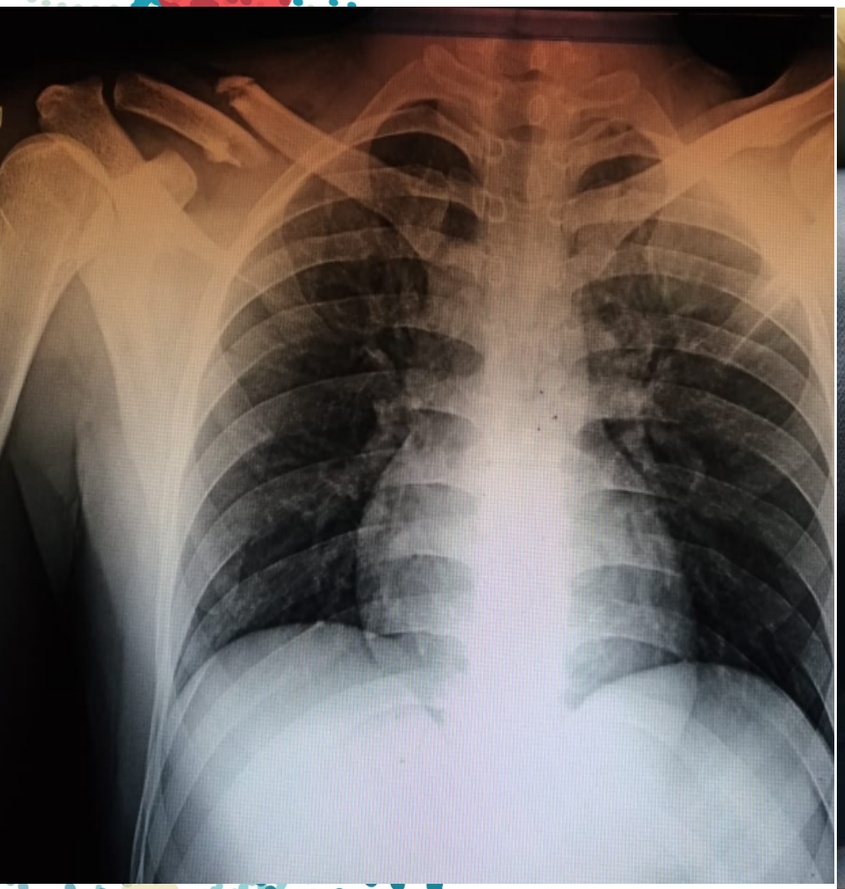
Study

- Total 40 patients were included in this study, which was conducted after obtaining approval from the institutional review board at our hospital.
- Detailed patient's history,including smoking, alcohol, diabetic status, COPD.20 patients were treated using the OPEN technique and 20 patients were treated with MIPO technique.
- There were 24 male and 16 female patients. The mean age at the time of trauma was 32 years. The mean time from the injury to the surgery was 3 days . All fractures were classified according to the AO Classification.The average Followup Period for each study was 6 months

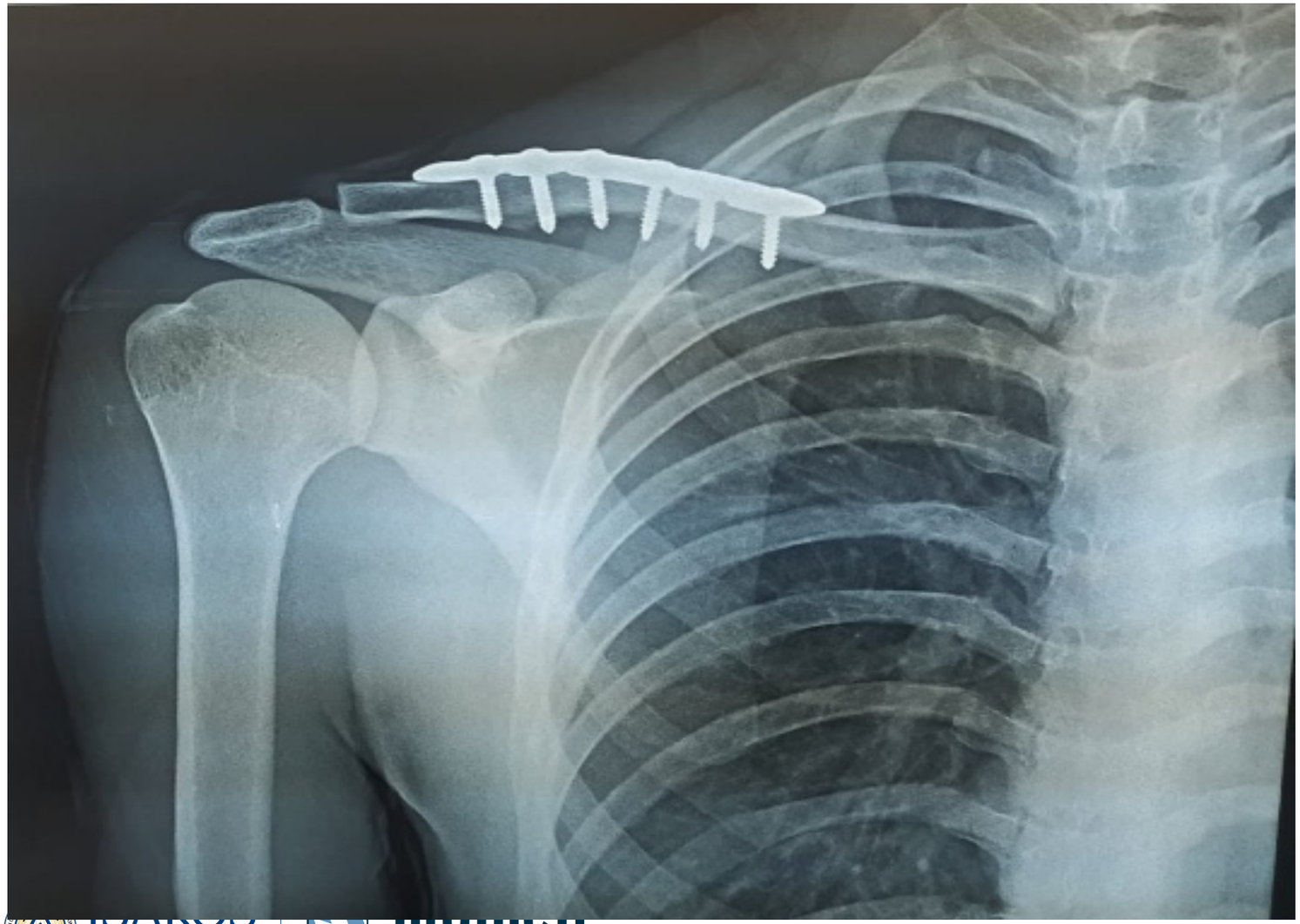
Open Plating Preoperative, intraoperative and Postoperative images



MIPO Plating Preoperative, Intraoperative and Postoperative images



Open Plating Union Xray at 18 wks post op



MIPPO Technique union at 16 wk postop

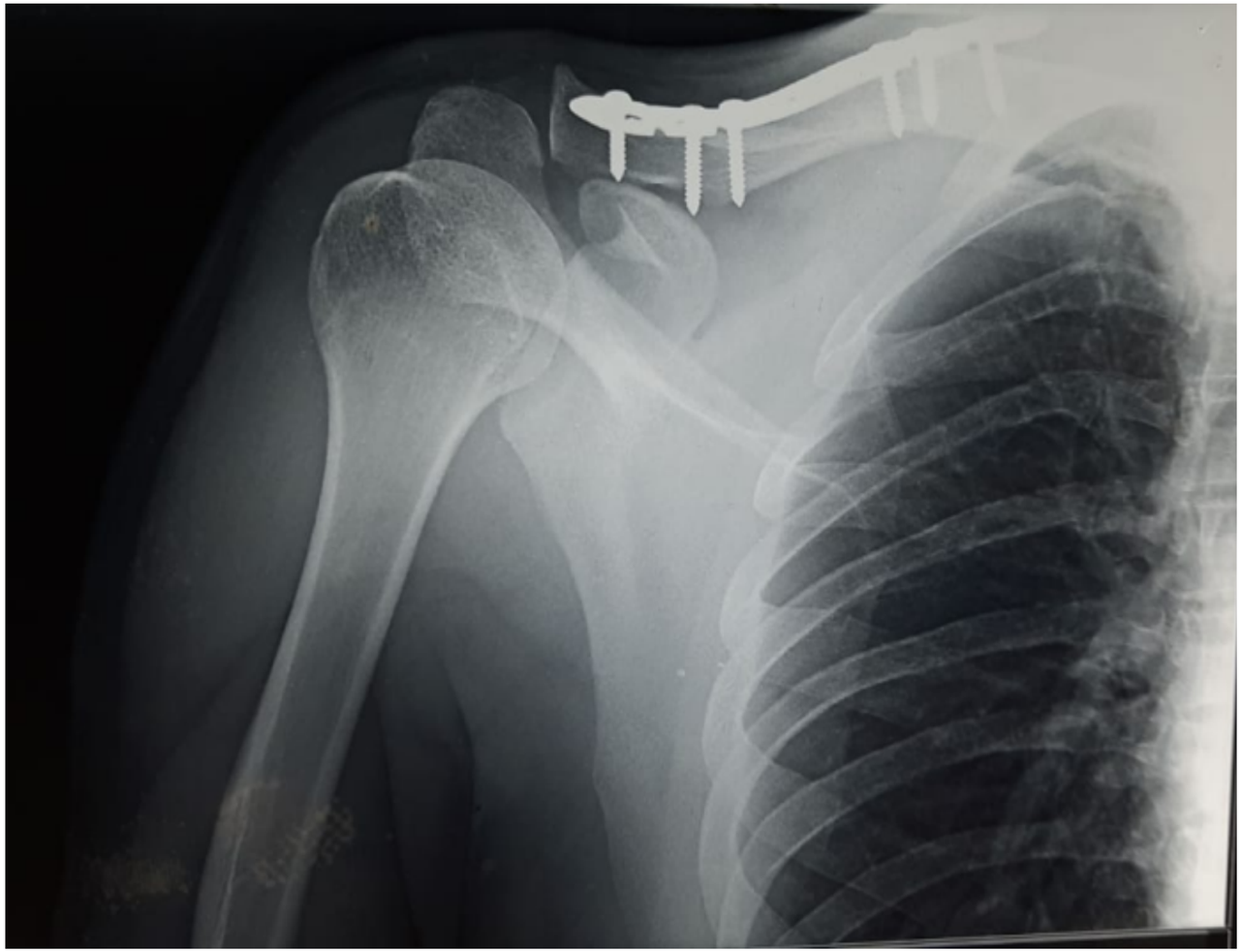


TABLE OF DATA, AND FUNCTIONAL OUTCOMES OF PARTICIPANTS

Table 1:

		MIPO	Open Plating
1.	Number	20	20
2.	Sex Ratio(M:F)	11:9	13:7
3.	Side (R : L)	12:8	15:5
4.	Average Operation Time	82.4 mins	68.2 mins
5.	Union Time	16.5 wks	18.4 wks
	Constant Murley score	92.1	81

Results

MIPO Group has a mean Constant Score of 96.4 Points which was very good functional Outcome.Open Reduction Fixation Group has a mean score of 91.2 points which was very good functional outcome but little less than that of MIPO Group. In MIPO Group there was minimal Scarring with almost equal functional end result as that of Open Plating group.

Conclusion

This study shows that both open plating and minimally invasive plate osteosynthesis (MIPO) are equally effective and safe treatment methods for acutely displaced clavicle shaft fracture. The advantage of MIPO technique is no or less skin numbness with good cosmetic look, soft tissue respect thus the union and less complications. For many Patients with Open technique has given good functional and radiological outcome but at the cost of Hypertrophic scarring or bad cosmosis. Thus for clavicle fracture we can consider MIPO Technique for Surgical Treatment for good Outcome as well as Good Cosmetic Outlook.

References

- Zenni EJ Jr. Krieg JK, Rosen MJ, open reduction and internal fixation of clavicular fractures, J Bone Joint Surg Am,1981; 63: 147-51.
- Manske DJ, Szabo RM. The operative treatment of mid shaft clavicular non union. J Bone Joint Surgery (Am), 1985;67:1367-1371
- Davids PH, Luitse JS, Strating RP, Vander Hart PC. Operative treatment for delayed union and non union of mid shaft clavicular fractures : AO reconstruction plate fixation and early mobilization. J Trauma, 1996; 40: 985-986
- Krettek C,Sehandelmaier P,Tscherne H (1996) [Distal femoral fractures.Transatricular reconstruction,percutaneous plate osteosynthesis and retrograde nailing.]Unfallchiurg ;99:2-10.German.
- Sohn HS, Kim BY, Shin SJ. A surgical technique for minimally invasive plate osteosynthesis of clavicular midshaft fractures. J Orthop Trauma. 2013 Apr;27(4):e92-6. doi: 10.1097/BOT.0b013e31826579c7. PMID: 22773015
- H.Jlang , W.Qu .Operative treatment of clavicle midshaft fractures using a locking compression plate: Comparison between mini-invasive plate osteosynthesis (MIPPO) technique and conventional open reduction. Orthopaedics & Traumatology: Surgery & Research. doi.org/10.1016/j.otsr.2012.02.011.
- Xiuhui Wang, Zhe Wang, Shengli Xia, Beigang Fu, Minimally invasive in the treatment of clavicle middle part fractures with locking reconstruction plate,International Journal of Surgery,Volume 12, Issue 7,2014, Pages 654-658, ISSN 1743-9191, https://doi.org/10.1016/j.ijsu.2014.05.001