



FUNCTIONAL OUTCOME OF LATERAL END CLAVICLE FRACTURES MANAGED WITH HOOK PLATE FIXATION.

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ABSTRACT

Fractures of lateral end of clavicle account for 15% of all clavicle fractures whereas 9% of shoulder girdle injuries involve acromioclavicular joint damage. These fractures are associated with disruption of the coracoclavicular ligaments and are unstable due to four displacing forces that retard union. The nonunion rate is approximately 30%, causing pain and impaired function of shoulder girdle and upper limb and hence surgery is recommended for unstable lateral end clavicular fractures. A variety of surgical treatment options have been developed with varying success over the years. Currently clavicle hook plate is accepted as a surgical option for these injuries. This study is 2 pronged- analyzes the results of clavicle hook plate compared with the literature. In our study, Twenty patients with Lateral End Clavicle Fractures Were Treated With Open Reduction And Internal Fixation With Hook Plate Fixation To Study The Functional Outcome Of Lateral End Clavicle Fractures. From The Analysis Of The Study Following Points Were Noted. Hook Plate is a good treatment modality for the management of lateral end clavicle Fractures.

- Limited use of instrumentation
- Short duration of the procedure upto 1 hour to 1 hour 15mintues.
- Low incidence of complications
- Good objective and subjective outcomes
- Short learning curve
- Implant removal is advisable but the decision depends on the presence or absence of osteolysis and impingement or patient choice.

KEYWORDS :

INTRODUCTION

Fractures of lateral end of clavicle account for 15% of all clavicle fractures whereas 9% of shoulder girdle injuries involve acromioclavicular joint damage.

These fractures are associated with disruption of the coracoclavicular ligaments and are unstable due to four displacing forces that retard union.

The nonunion rate is approximately 30%, causing pain and impaired function of shoulder girdle and upper limb and hence surgery is recommended for unstable lateral end clavicular fractures (3).

A variety of surgical treatment options have been developed with varying success over the years.

Currently clavicle hook plate is accepted as a surgical option for these injuries. This study is 2 pronged- analyzes the results of clavicle hook plate compared with the literature and also evaluates the need for repair of soft tissue structures around the acromioclavicular joint.

Primary objective was to evaluate the functional outcome of clavicle hook plate for fractures of lateral end of clavicle. Secondary objectives were to study complications, cosmetically better beauty bone, clinical and Radiological outcomes, outcomes on Constant Murley shoulder score.

METHODS

Design of Study – Prospective, Interventional, Observational Study.

The study was approved by the Ethical Committee of the Hospital, and written informed consent was obtained from the patients.

Source of Data – Patient's age > 18 years TO 70 years with LATERAL END

CLAVICLE FRACTURES visiting OPD & CASUALTY and those admitted to ward and treated in the Tertiary care centre.

Study Group: Total number of 20 cases who got admitted in between DECEMBER 20 to DECEMBER 2022 in Tertiary care centre were taken for the study.

All the cases were operated and ASSESSED BY Constant-Murley Shoulder score (CMS).

Inclusion Criteria

- Patients who are within the age group of 18 to 70 years of age.
- Patients who are willing to get operated.
- Patients with primary surgery and fresh trauma.
- Patients with NEER type 2,3,4,5 with skin impingement or requiring early mobilisation.
- Patients who are fit on Preanaesthetic checkup with no life threatening comorbidities.

Exclusion Criteria

1. Patients who are not willing to get operated.
2. Patients with age less than 18 yrs and more than 70 years
3. Patients with h/o previous surgeries
4. Patients with radiographic or clinical union with old healed fracture.
5. Patients who are unfit for surgery on preanaesthetic checkup with life threatening comorbidities.

This study is descriptive study of patients from DECEMBER 2020 to DECEMBER 2022.

We reviewed all patients who fit our criteria and had undergone surgery with Clavicle Hook Plate Available With Implant Provider Under Government Scheme In Our Hospital Without Giving Patient Any Financial Burden.

All cases from DECEMBER 2020 TO DECEMBER 2022 were reviewed.

All operations were done by ORTHOPAEDIC surgeons of tertiary care centre.

1. All patients were either from the Out-patient department or Emergency.
2. Preoperative X-ray of shoulder in AP and Axillary view were taken.
3. The injuries were classified as per the inclusion criteria.
4. All surgeries were performed in a specified manner
5. A CLAVICLE HOOK PLATE AVAILABLE UNDER MJPJAY SCHEME was used.
6. Specified postoperative protocol was followed for all patients.
7. Outcome was measured as per CONSTANT MURLEY SHOULDER SCORE at frequent intervals by one single examiner.
8. Radiological assessment was done at DAY 1, 6WEEKS, 6MONTHS.

The hook plates we used were available in sizes 4 -7 hole, 3.5mm which was available for right and left side for optimal sizing and screw positioning for each individual.

RESULTS

20 patients were followed prospectively from DECEMBER 2020 TO DECEMBER 2022 of which 13 were males and 7 were females. Left shoulder was involved in 12 patients and right shoulder was involved in 8 patients There were total 3 patients with neer's classification type IIA, 6 patients with type IIB, 6 patients with type III, 2 patients with type IV, 3 patients with type V.

Mode of injury was road traffic accident in 12 patients, Fall at home in 5 patients, Fall of heavy object 2 patients and others 1. One patient had burn contracture. Two patients had Diabetes mellitus and two patients had hypertension. Two patients had both DM and hypertension. And no comorbidities in 13 patients.

4 patients had associated injuries, of which 3 patients had associated chest injuries and 1 patient had associated head injury. Among 20 patients operated, we used 3holes hookplate in 8 patients, 4 holes plate in 10 patients, 5 holes plate in 2 patients.

2 patients had wound infection, patient were posted for debridement surgery and infection settled down.

2 patients developed shoulder stiffness which was treated with physiotherapy (shoulder abductor strenthening exercises) and 1 patients developed impingement during the course of followup.

All the patients had a unified surgical approach and operative procedure. The post-operative protocol regarding medication and rehabilitation was also unified (as mentioned earlier). At the last follow up, 15 patients had an excellent outcome according to CONSTANT score, 2 patients had a good outcome, 2 patients had moderate outcome and 1 patients had poor outcome.

DISCUSSION AND CONCLUSIONS

From the analysis of the study following points were noted. Hook plate is a good treatment modality for the management of lateral end clavicle FRACTURES.

- Limited use of instrumentation
- Short duration of the procedure upto 1 hour to 1 hour 15mintues.
- Low incidence of complications
- Good objective and subjective outcomes
- Short learning curve
- Implant removal is advisable but the decision depends on the presence or absence of osteolysis and impingement or patient choice.

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MUHS/Medical/MUHS-0341932019 Date: 28/02/2022

To,
 The Dean / Principal / Director,
 Indra Gandhi Govt. Medical College, Nagpur

SUB: Regarding approval of Title & Synopsis.

Sir / Madam,

With reference to the above, it is informed that, the proposal of "Title & Synopsis of Dissertation" of following student is duly "Accepted" by the BORS Committee of the College. Accordingly, the University hereby grant approval to the Title & Synopsis proposal of following student(s).

Name of Student	RUCHIKAVAN THAKUR
Name of Guide	MARUTI KIRCHADE
Course/ Specialty	MS - Orthopaedics
Academic Year of admission	2020-21
Name of the College	Indra Gandhi Govt. Medical College, Nagpur
Title of Synopsis	TO STUDY FUNCTIONAL OUTCOME OF LATERAL END CLAVICLE FRACTURES WITH HOOK PLATE FIXATION

1) Please note that the appearance of the concerned student to the final year examination is subject to final eligibility of the university and fulfillment of relevant rules and regulations of the concerned central council / university

2) It is mandatory for the candidate to work for minimum 18 months on the title & synopsis approved by the university prior to submission of dissertation, failing which the term of the candidate shall be extended by the college to that extent

3) It is also mandatory for the colleges to maintain Teacher : Student ratio as per norms prescribed by concerned Central Council/University

Sd/-
Registrar

Funding- None

Conflict Of Interest- none declared

Ethical Approval Not Required.

Table. 1. Gender Wise

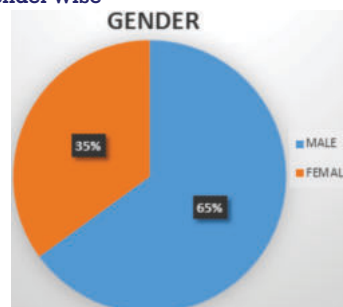


Table. 2 Side Involved

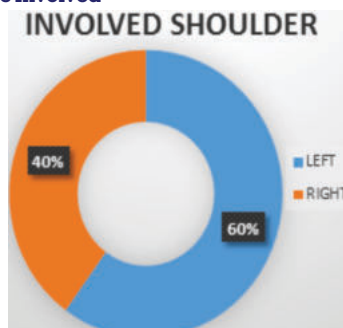


Table. 3, Fracture divided according to NEER'S classification

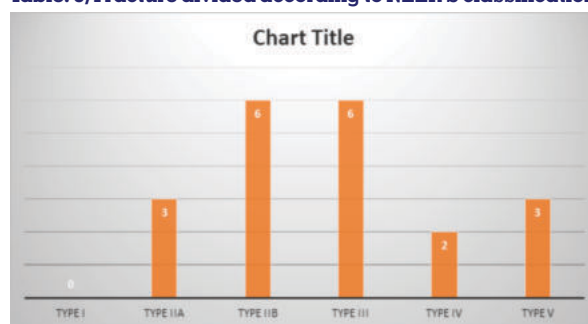


Table. 4 Mode Of Injury

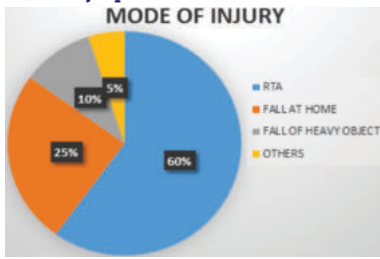


Table: Distribution of patients according to Age (Years)

AGE (YEARS)	NO. OF PATIENTS	PERCENTAGE
<21	1	5%
21-30	4	20%
31-40	6	30%
41-50	4	20%
51-60	3	15%
61-70	2	10%
		TOTAL 100%

Table. 5 Hook Plate Size

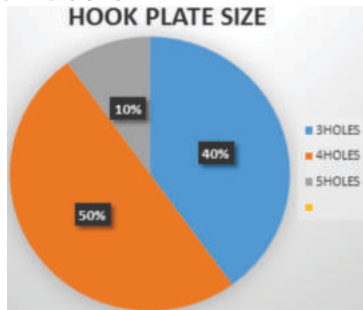


Table 6. Complications

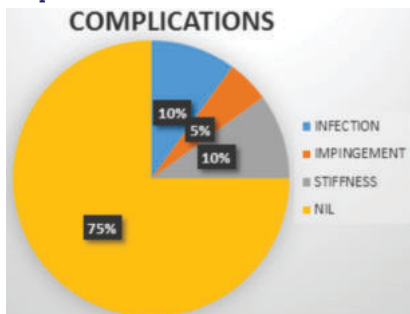


Table. 7 Constant Shoulder Murley Score



Figure. 1 Anatom of Clavicle Bone

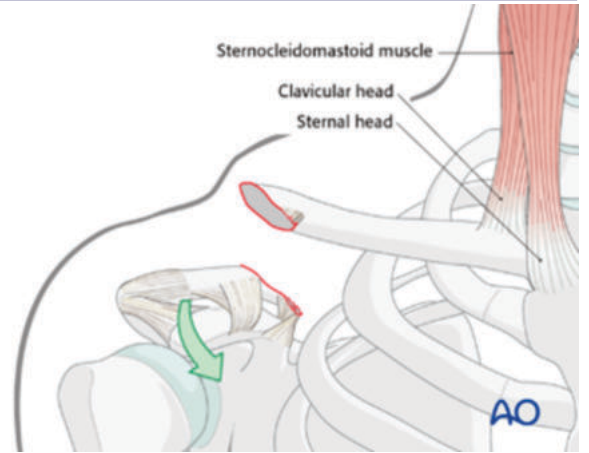


Figure. 2 Deforming Forces

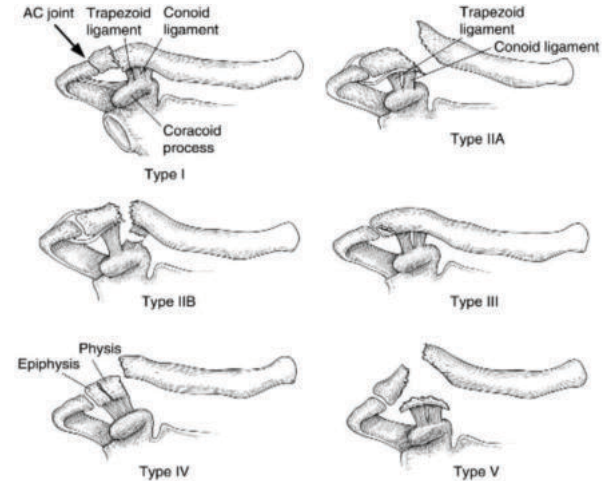


Figure. 3 Neer's Classification



Figure. 4 Plates Available Through Government Schemes



Figure. 5 Trolley



Figure. 6 Implants Set



Figure. 7 Implant Design



Figure. 8 Incision



Figure. 9 Intraop Flouroscopy



Figure. 10 Plate Application

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