Clavicular Fractures: A Retrospective Study of 60 Cases

Saurabh Agarwal¹, Ankur Das²

ABSTRACT

Introduction: Clavicle fractures are very common injuries in adults and children and represent the 44-66% of all shoulder fractures. This study was conducted to investigate and analyze the epidemiology of clavicle fractures.

Material and methods: This study was conducted in department of Orthopedics from June 2015 to may 2016. Records of 60 clavicle fractures were retrieved from department.

Results: Out of 60 clavicle fractures, 48 (80%) were seen in males and 12 (20%) were seen in females. The difference was statistical significant. Fractures were seen in middle 1/3 (40%), middle (20%), lateral 1/3 (11.6%) and compound (8.4%). Maximum cases were involving middle third of clavicle and least cases were seen involving compound fractures (8.4%). 24 (40%) cases were seen in right side and 36 (60%) cases were seen in left side. The difference was not significant. 36 cases were due to road traffic accident, 21 cases were of fall and 15 cases occurred due to work place injury.

Conclusion: Clavicle fractures are common in young adults. Therefore proper care should be taken to avoid fracture of clavicle.

Keywords: clavicle, fracture, middle third

INTRODUCTION

Clavica means "key" and is the diminutive of clavis in Latin. Clavicle fractures are very common injuries in adults (2-5%) and children (10-15%) and represent the 44-66% of all shoulder fractures.¹ Its prevalence of fracture is highest among the young population. Males are affected approximately twice as often as females. Females show higher prevalence in the sixth decade of life as a result of osteoporosis.²

The clavicle is the first bone in the human body to begin intramembranous ossification during the fifth week of fetal life. The clavicle has both a medial and lateral epiphysis.³ It has S-shaped double curve. This contouring allows the clavicle to serve as a strut for the upper extremity, while also protecting and allowing the passage of the axillary vessels and brachial plexus medially. The growth plates of the medial and lateral clavicular epiphyses do not fuse until the age of 25 years. Hence young adults are more prone to developed fractures. This change of contour, which is most acute at the junction of the middle and outer thirds, may explain the frequency of fractures seen in this area.⁴

With the exception of the rare pathologic fracture due to clavicle fractures are typically due to trauma, however metastatic or metabolic diseases can also lead to pathological fracture. Moderate to high-energy mechanisms such as motor vehicle accidents or sports injuries in younger individuals and sequelae of a low-energy fall in elder individual leads to clavicle fracture.⁵ Although a fall onto an outstretched hand was traditionally considered the common mechanism, it has been found that the clavicle most often fails in direct compression from force applied directly to the shoulder. In a study of 122 consecutive patients, clavicle injuries resulted from a fall onto the shoulder (87%), from a direct blow (7%), and from a fall onto an outstretched hand (6%).⁶ This study was conducted to investigate and analyze the epidemiology of clavicle fractures.

MATERIAL AND METHODS

This study was conducted in department Orthopedics from June 2015 to May 2016. Records of 60 clavicle fractures were retrieved from department.

To classify clavicle fractures Allman classification was used.⁷

Allman Classification

Group I-middle 1/3
Group II-lateral 1/3 (acromial)
Group III-medial 1/3 (sternal)

Neer made a significant revision to the Allman classification scheme. Group II (distal clavicle) fractures were further divided into 3 types based on the location of the clavicle fracture in relation to the coraco-clavicular ligaments. These are

Type I Fractures: Minimally displaced and occur lateral to an intact coraco-clavicular ligament complex; these fractures may be treated non-operatively and symptomatically

Type II Fractures: Occur when the medial fragment is separated from the coraco-clavicular ligament complex; the medial fragment is displaced cephalic by the pull of the sternocleidomastoid muscle, and the distal fragment is displaced caudally by the weight of the upper extremity, with the intact coraco-clavicular ligament complex; these fractures may be treated non-operatively and symptomatically

Type III Injuries: Minimally displaced or non-displaced and extend into the acromioclavicular (AC) joint; as with type I fractures, these injuries can be treated symptomatically; the development of late AC degenerative changes can be treated with distal clavicular excision.

STATISTICAL ANALYSIS

The results thus obtained were subjected to statistical analysis. Descriptive statistics like mean and percentages were used to interpret results. Chi square was used to interpret the difference.

¹Department of Orthopedics, Career Institute of Medical Sciences and Hospital Lucknow, ²Department of Orthopedics, Mayo Institute of Medical Sciences, Barabanki, Uttar Pradesh, India

Corresponding author: Saurabh Agarwal, Department of Orthopedics, Career Institute of Medical Sciences and Hospital Lucknow, Uttar Pradesh, India

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Total- 60

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<thead>
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Table-1: Distribution of fracture on the basis of gender

Location

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<th>Lateral 1/3rd</th>
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<td>12</td>
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<td>5</td>
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<tr>
<td>Percentage</td>
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<td>20%</td>
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Table-2: Distribution of fracture on the basis of site (based on allman classification)

Side

<table>
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<tr>
<th>Side</th>
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<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>60%</td>
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Table-3: Distribution of cases on the basis of side

Etiology

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<th>Fall</th>
<th>Work place injury</th>
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<tbody>
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Table-4: Distribution of cases on the basis of etiology

RESULTS

Table 1 shows that out of 60 clavicle fractures, 48 (80%) were seen in males and 12 (20%) were seen in females. The difference was statistical significant. Table 2 shows that distribution of fracture on the basis of location. Fractures were seen in middle 1/3rd (60%), middle (20%), lateral 1/3rd (11.6%) and compound (8.4%). Maximum cases were involving middle third of clavicle and least cases were seen involving compound fractures (8.4%). Table 3 shows distribution of clavicle fracture on the basis of side. 24 (40%) cases were seen in right side and 36 (60%) cases were seen in left side. The difference was not significant. Table 4 shows distribution of cases depending upon etiology. 36 cases were due to road traffic accident, 21 cases were of fall and 15 cases occurred due to work place injury.

DISCUSSION

Clavicle fractures are most commonly seen in young adults. It the most common of all pediatric fractures, can present even in the newborn period, especially following a difficult delivery.8 Most common sign is ecchymosis and a prominence over the fracture site. Skin breaks or skin tenting must be seen. Palpation along the subcutaneous border of the bone should reveal an area of tenderness and potential step-off of the normally smooth contour.9 Other obvious signs are pain and even palpable crepitus and attempted range or motion of the shoulder will be limited. A neurovascular examination is essential. Motor and sensory function of the radial, ulnar, median, and axillary nerves should be confirmed.10 Out of 60 clavicle fractures, 48 (80%) were seen in males and 12 (20%) were seen in females. The difference was statistical significant. Robinson et al11 found the male: female ratio to be 2.6:1.

REFERENCES


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Background: Clavicular fracture is the most common birth bony injury in neonates. The goals of this retrospective study are to determine the incidence of clavicular fracture in our department during the past five years and to identify the associated perinatal factors. Methods: From December 1996 to November 2001, 128 deliveries with clavicular fracture were retrospectively reviewed. The time period 1.1.1980 to 12.31.1984 was studied with the finding of 60 cases of fractured clavicle (1% of total vaginal births no. 5,847). An extensive neonatal and maternal chart review found birth weight, gestational age, and prolonged 2nd stage in primiparous patients as predisposing factors. The level of obstetrical experience and difficulty of delivery were also statistically significant. A retrospective cohort study, also called a historic cohort study, is a longitudinal cohort study used in medical and psychological research. A cohort of individuals that share a common exposure factor is compared with another group of equivalent individuals not exposed to that factor, to determine the factor's influence on the incidence of a condition such as disease or death. Retroeptive cohort studies have existed for approximately as long as prospective cohort studies. Start studying Clavicular fractures. Learn vocabulary, terms and more with flashcards, games and other study tools. 30/60 cases per 100,000. What are the demographic features of clavicular fractures? Clavicle fractures most commonly occur in people under the age of 25 and those over the age of 70. One third of clavicle fractures in males occur between the ages 12-20. What are the risk factors of clavicular fractures? Usually caused by a fall onto the point of the shoulder or outstretched arm and direct contact with an opponents in sports. What are the pathological changes of a clavicular fracture? A break in the bone. What is the typical presentation of a clavicular fracture?