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Effectiveness of plate osteosynthesis in accomplishing the union of middle third clavicle fracture

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Abstract

Clavicle fractures are common in adults now a days. Middle 3rd clavicle fracture is most common. There are many complications related with conservative management of middle third clavicle fracture. Non-union, malunion, patients with higher activity level and rigorous daily routine work suffers a lot with conservative management. In order to achieve good union and early routine activity the patient should be treated with rigid fixation. To conclude, plate osteosynthesis is an effective management for middle 3rd clavicle fracture which gives good union rate and early mobilisation to the patient

Keywords: Clavicle, Plate Osteosynthesis, Non union

Introduction

Clavicle fractures are common in adults now days. Middle 3rd clavicle fracture is most common. Clavicle fractures accounting for about 2.6% of total body fractures and 34% to 45% of total shoulder girdle injuries in adults [1]. There are many complications related with conservative management of middle third clavicle fracture. Among all long bones clavicle is the only bone placed horizontally and has membranous ossification. There are many complications related with conservative management of middle third clavicle fracture. Non-union, malunion, patients with higher activity level and rigorous daily routine work suffers a lot with conservative management. In order to achieve good union and early routine activity the patient should be treated with rigid fixation. Plate osteosynthesis should be considered as the management of choice in middle 3rd clavicle so that desired outcomes should be achieved

Comparison of union achieved through surgical and conservative management

After considering the recent studies done regarding achieving the union through various management of middle 3rd clavicle fracture. Most of the studies including our study shows that union and early activities are mostly achieved by surgical intervention [1-3]. The union was assessed through radiographic assessment and functional outcomes were assessed by Constant and Murley Scoring. Fractures of middle 3rd clavicle are mostly treated conservatively. But there are specific indications like comminuted, displaced middle third clavicle fractures which need surgical intervention. Primary rigid fixation with plate osteosynthesis of clavicle fractures gives stable fixation and patient doesn't have to suffer for immobilisation for a prolonged period. Constant & Murley score also favours that functional outcome of middle third clavicle fracture treated with plate osteosynthesis are remarkably better [2, 3]. Study conducted to analyse the results of conservative treatment by Hill *et al.* Nordqvist *et al.* and Robinson *et al.* found poor results following conservative treatment of displaced middle third clavicle fracture [4]. The advantage of rigid internal fixation and early mobilization of displaced clavicle fracture is that it gives immediate pain relief and prevents the development of shoulder stiffness, symptomatic mal-union, and nonunion, thus, resulting in better functional outcome. To assess the patient in better way proper follow up of the patient should be taken. Participants should be followed for 2, 4, 6 months.

Assessment of patient

Proper radiographic evaluation is to be done for middle 3rd clavicle fracture. Various radiographic views to be taken for proper evaluation of displacement, comminuted fragments in clavicle fracture. Clinical examination is also important in assessment of patient as factors open fracture, fracture associated with acromioclavicular joint disruption time of union varies

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in these conditions. Clinically length of the clavicle is used to assess the shortening and overriding, Tenting of the skin is seen clinically. Views taken for radiographic evaluation Antero posterior view and a cephalic tilt view. Cephalic tilt view best assess the displacement fracture [4, 5]. Axillary view slightly cephalad can also help in determining fracture displacement and also in assessing non-union. Radiographic views plays an important role in assessing the fracture pattern two views right angles at each other 45 degree inferiorly and 45 superiorly to accurately assess the displacement of fracture and extent of the clavicle. Exact estimation of displacement and shortening in middle 3rd clavicle fracture is to be done as it plays an important role in providing the exact management to the participants. Two views for the exact estimation of fragment Antero-posterior view, 45-degree cephalic tilt view. Displacement and comminution to clavicle plays a important role in deciding the management of middle 3rd clavicle fractures. Moderate to high-velocity trauma such as motor vehicle accidents or sports injuries leads to these injuries in younger patients. High-velocity trauma in the younger population can produce associated rib, scapula, or ipsilateral upper extremity fractures which needs proper assessment. Additionally, pneumothorax, hemothorax, nerve and vascular injury have all been in association with clavicle fractures [4, 5]. Normal range of motion of the shoulder will be limited and produce pain and often have palpable crepitus. In middle 3rd clavicle fracture patients neurovascular assessment is must. Also Motor and sensory function of the axial, radial, median, and ulnar nerves should be test. In upper limb radial pulse must be palpated and capillary refill compared with the contralateral side [3, 4].

Conclusion

Plate osteosynthesis is an effective management for middle 3rd clavicle fracture which gives good union rate and early mobilisation to the patient.

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