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Original Article

Retrospective study of superior anterior plate as a treatment for unstable (Neer type 2) distal clavicle fractures☆

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ABSTRACT

Objective: To analyze the sequelae of Neer type 2 distal end clavicle fractures treated with superior anterior locking plate.
Methods: From June 2012 to February 2015 a study was conducted with 14 male patients; 12 with unilateral and two with bilateral distal clavicle fractures treated with superior anterior plate. They were evaluated at intervals, with mean follow up of 16 months (14–18 months). All patients were evaluated clinically by both the Oxford Shoulder Score and the QuickDASH score.
Results: Union was seen in all fractures within 7–9 weeks (mean time: 8.2 weeks). All patients had good shoulder range-of-motion. The average Oxford Shoulder Score and QuickDASH score were 45.6 and 7.1, respectively. All patients returned to work within 3–4 months of the postoperative period.
Conclusion: Displaced distal clavicle fractures treated with superior anterior plates accomplished superlative results in terms of bony union, with rarely any complications.

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Estudo retrospectivo da placa anterior superior como tratamento para fraturas instáveis da clavícula distal (tipo 2 de Neer)

Palavras-chave:
Clavícula
Placas ósseas
Artrite
Fraturas ósseas

RESUMO

Objetivo: Analisar as sequelas de fraturas da clavícula distal do tipo 2 de Neer tratadas com placa bloqueada anterior superior.
Métodos: Realizou-se um estudo com 14 pacientes do sexo masculino entre junho de 2012 e fevereiro de 2015; 12 pacientes apresentaram fraturas unilaterais e dois, fraturas distal bilaterais da clavícula, tratadas com placa anterior superior. Os pacientes foram avaliados em intervalos, com seguimento médio de 16 meses (14-18 meses). Todos os pacientes foram avaliados clinicamente tanto pelo Oxford Shoulder Score quanto pelo QuickDASH.

☆ Work performed in the Vinayaka Missions Medical College and Hospital, Department of Orthopaedics, Pondy, India.

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Resultados: Após sete a nove semanas (tempo médio: 8,2 semanas), todas as fraturas apresentaram união. Todos os pacientes tinham boa amplitude de movimento no ombro. A média dos escores Oxford Shoulder Score e QuickDASH foram 45,6 e 7,1, respectivamente. Todos os pacientes retornaram ao trabalho dentro de três a quatro meses após a cirurgia.
Conclusão: As fraturas de clavícula distal deslocadas tratadas com placas superiores anteriores apresentaram resultados superlativos em termos de união óssea, com raras complicações.
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Introduction

Due to its superficial location and alignment, clavicle is one of the bone that is most frequently fractured in the upper body due to direct or indirect trauma. As of the presence of numerous muscular and ligamentous attachment along with weight of upper limb, the clavicle is able to carry significant force.

Fracture of clavicle is most common due to its subcutaneous location. It accounts for 3–5% of all fractures in adults and 10–15% of all fractures in paediatric age group.[1,2] Roughly a Quarter of every clavicle fractures seems to be at the distal end.[2] Neer has classified these lateral end fractures into three types (Fig. 1) according to their relation to the coracoclavicular ligaments[3] and Rockwood in 1982, subclassified Type II fractures as Type IIA and Type IIB fractures.[4]

Neer observed that the type II fractures carries a higher risk of non union (as high as 25–50%) for conservatively managed fractures.[3,4] As trapezius displaces the proximal fragment superiorly and the weight of the arm draws the distal fragment inferiorly results in major displacement which leads to higher incidence of non union.[5]

Among this, 15% non union is symptomatic and painful, which have made many to suggest early surgical management of this fractures.[6] The delayed conservative management results in bone resorption, prominent deformity and an altered surgical field that further complicates any subsequent surgical intervention.[6] Delay in surgical intervention results in elevated complication rate. Surgical management ranges from joint spanning to articulation sparing implants, distal clavicle excision, osteosynthesis by hook plate or a locking compression plate fixation, poor fixation still remains a challenge and no definitive solution has been identified, so none is widely accepted as a Gold standard, each has its own sets of advantages and disadvantages.[7–11] In our study, we evaluated the fractures which were treated by superior anterior locking plate (Fig. 2). We measured the following: a) union rates, b)

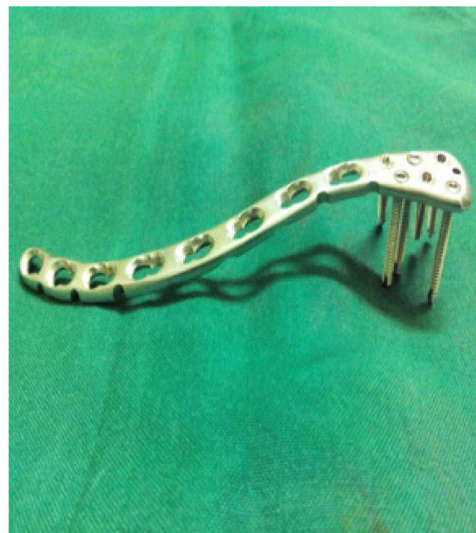

Fig. 2 – Superior anterior clavicle plate with polyaxial screw alignment.

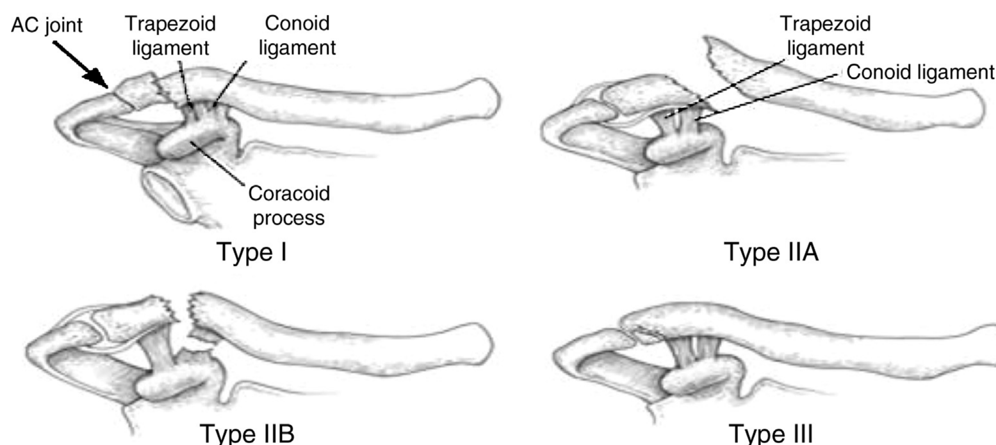

Fig. 1 – Neer's classification of distal end fracture (Courtesy: Kennet's & Koval's Handbook of Fracture, 4th ed, 2010).

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