

Surgical Stabilization of Costoclavicular Injuries - A Combination of Flail Chest Injuries and a Clavicula Fracture

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Abstract

Background: Flail chest injuries (FCI) are associated with a high morbidity and mortality rate. As a concomitant clavicle fracture in FCI even worsens the outcome, the question is how can those costoclavicular injuries (CCI) be managed surgically.

Methods: 11 patients with CCI were surgically treated by a locked plate osteosynthesis of the Clavicle and the underlying ribs through limited surgical approaches under general anesthesia. Patients were followed up after 2, 6, 12, 26 and 52 weeks.

Results: All patients showed severe chest wall deformity due to severely displaced fractures of the ribs and the clavicle. They were suffering from pain and restriction of respiratory movements. The chest wall could be restored to normal shape in all cases with uneventful bone healing and a high patient convenience. Fractures of the clavicle and the second rib were managed through an innovative clavipectoral approach, the others through standard approaches to the anterolateral and the posterolateral chest wall. Two patients complained about numbness around the lateral approach and lasting periscapular pain.

Conclusions: Surgical stabilization might be the appropriate therapy in CCI with dislocated fractures since they would cause severe deformity and loss of function of the chest wall and the shoulder.

Key words: costoclavicular injury, clavicle, rib fracture, flail chest, rib plating, chest wall deformity