

## OPERATIVE MANAGEMENT OF LATERAL THIRD CLAVICLE FRACTURES; A FIVE YEAR REVIEW IN A REGIONAL TRAUMA UNIT

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**Introduction:** Whilst only 10-28% of clavicle fractures occur in the lateral third, their underlying anatomy renders these injuries complex and patients at greater risk of complications. Whilst many are managed operatively, there is no consensus on which method of fixation should be employed. The aim of this study was to evaluate the operative management of lateral clavicle fractures in our regional trauma unit.

**Methodology:** We performed a retrospective review of patients admitted to undergo fixation of a lateral third clavicle fracture between 1st August 2014 and 31st July 2019. Electronic records were reviewed to obtain demographics, injury characteristics, re-operations and follow-up. Radiographic images were used to determine Neer classification, method of fixation, coracoclavicular distance (CCD), acromioclavicular joint (ACJ) integrity, and time to union.

**Discussion:** 44 patients were included. Mean age was 42 years and 28 (63.6%) patients were male. The majority sustained a high energy injury (65.9%), had a Neer II fracture (68.2%), and underwent primary fixation (84.1%) at a mean of 15 days. The method of fixation was as follows; hook plate 10 (22.7%), locking plate 16 (36.4%), locking plate and coracoclavicular ligament reconstruction 6 (13.6%), and coracoclavicular ligament reconstruction 12 (27.3%). The use of a locking plate alone was associated with a significantly larger post-operative CCD (7.6mm vs 13.5mm,  $p < 0.01$ ), and trends towards a lesser decrease in CCD (9.9mm vs 12.6mm,  $p = 0.37$ ) and incomplete ACJ reduction (50.0% vs 89.3%,  $p = 0.11$ ). There was a significantly higher re-operation rate for the hook plate (100% vs 23.5%,  $p < 0.01$ ).

**Conclusion:** There is no favoured method of fixation of lateral third clavicle fractures in our regional trauma unit. When a locking plate is used, there should be consideration of concomitant coracoclavicular ligament reconstruction. The high rate of re-operation after hook plate insertion is concordant with previous research.