

Reconstruction of Complex Scapula Body and Process Fractures with a Locking Mesh Plate Technique

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Purpose: Operative fixation in certain scapula variants can be challenging due to factors such as bone loss, comminution, and deforming forces commonly associated with acromion nonunion. We present a novel surgical technique utilizing a variable angle, locking mesh plate (Fig. 1) for complex variants in which the mesh plate is applied to a flat, bony surface. Secondly, we report functional outcomes, complications, and union rate.

Methods: We retrospectively reviewed consecutive patients from a prospectively collected scapula registry at a Level-I trauma center between 2011 and 2017. 14 of 248 (6.0%) operatively managed patients received mesh plate fixation in which other fixation strategies were thought to have a high risk for failure. Shoulder strength, range of motion (ROM), and Disabilities of the Arm, Shoulder and Hand (DASH) scores were analyzed through descriptive measures.

Results: Nine of 14 patients (64%) patients achieved 1-year follow-up (mean = 13). Two geriatric patients were included in this series. There was a 100% union rate, although 1 patient achieved union after revision of failed fixation. There were no perioperative complications. At final follow-up, mean DASH was 34, mean ROM measures for the injured shoulder versus noninjured shoulder were 77% for forward flexion (FF), 82% for abduction (ABD), and 69% for external rotation (ER). Mean strength measures for the injured shoulder versus noninjured shoulder were 70% for FF, 68% for ABD, and 56% for ER.

Conclusion: Mesh plate fixation can be used safely and effectively to achieve union in complex scapula fractures, even in a geriatric population. In this series, union rate and perioperative complications were acceptable in extreme variants in which other methods of fixation may have been associated with high failure rates.

