

New Technique Of Anatomical Reconstruction For Stabilization Of High Grade Acromioclavicular Joint Injury

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INTRODUCTION:

Acromioclavicular (AC) joint injury is a common cause of pain and disability. The injury is most commonly a result of a direct impact to the AC joint. The horizontal stability of the AC joint is mediated by the AC ligaments while vertical stability is mediated by the coracoclavicular (CC) ligaments. The diagnosis of AC joint injury is made based on clinical evaluation and imaging studies. This case reports a new technique of AC joint reconstruction using combination of Arthrex Pec Button, Dog Bone Button, fiber wire and anchor suture to reconstruct both AC ligament and CC ligament.

MATERIALS & METHODS:

44 years old male presented with right shoulder pain after fall on to his right shoulder during motor vehicular accident. Physical examination noted a deformity over right AC joint with limited movement of right shoulder.

AP view of right shoulder x-ray showed right AC joint dislocation, with increased CC distance 17.27mm (unaffected side 9.65mm). The inferior border of the clavicle was 100% displaced superiorly, beyond the superior border of acromion.

The reconstruction was performed by Dr. Peter Campbell². A 5cm incision was made along the AC joint. Intraoperative the right AC joint was dislocated posteriorly into trapezius muscle (Rockwood grade IV).

The CC ligament was reconstructed during the first stage of surgery, using two pieces of Dog Bone Button, Pec Button and fiber wire to restore the vertical stability of AC joint. Both cortices of clavicle and the near cortex of coracoid process was drilled. Then the Pec Button with attached fiber wire was inserted and flipped intramedullary within the coracoid process, while the Dog Bone Button was secured on the surface of the clavicle. Then then fiber wire was tightened and AC joint was

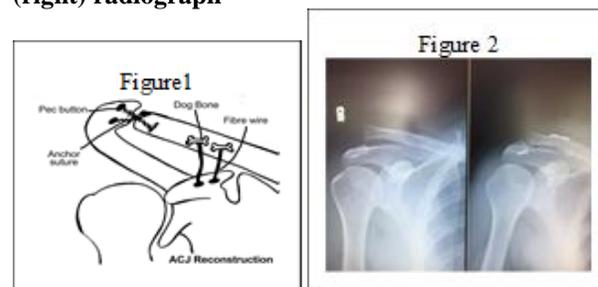
reduced. Reduction of acromioclavicular joint was reinforced with second stage of surgery. The acromion was drilled and the Pec Button with attached anchor suture was inserted and flipped intramedullary. Next the lateral end of clavicle was drilled and two suture anchor was inserted through the drilled hole in the cross manner, before the Pec Button was tightened up. This procedure restored the horizontal stability.

RESULTS:

Post reconstruction acromioclavicular joint was stable vertically and horizontally and was allowed for full motion of shoulder once pain subsided. At 3months post- operative, patient has significant reduction of pain. With concomitant consistent and regular physical therapy, patient is able to achieve almost full range of motion of shoulder and already return to pre injury status.

Figure 1: Illustration of AC joint reconstruction

Figure 2: Pre-operative (left) and post- operative (right) radiograph



DISCUSSIONS:

General consensus agreed that CC fixation is adequate in AC joint dislocation with superior results and lower complication rate.¹ However, missed or non- treated horizontal AC joint instability will lead to chronic pain and disability and higher risk of secondary AC arthritis. Therefore, an anatomic reconstruction of both AC and CC ligaments are need to be considered.

CONCLUSION:

This recent technique of AC joint reconstruction gives early significant reduction of pain and good functional outcome for this patient.