

# Combined long head of biceps anchor avulsion with anterior dislocation of the shoulder: an unusual presenting injury

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## DESCRIPTION

The shoulder joint is the most frequently dislocated joint of the body, formally stabilised by static and dynamic stabilisers around it. The rotator cuff group of muscles (the supraspinatus, infraspinatus, teres minor and subscapularis) and their tendons provide dynamic shoulder stability in conjunction with the joint capsule, glenohumeral ligaments and the glenohumeral complex.

The associated injuries of anterior shoulder dislocation include greater tuberosity fractures, rotator cuff tears and rarely neurovascular injuries.<sup>1 2</sup> Isolated injuries of long head of biceps (LHB) are well described in literature at both proximal and distal attachments. In the context of shoulder dislocations, LHB involvement has been reported following a failed closed reduction manoeuvre or as an intraoperative obstructing structure preventing congruent reduction.<sup>3</sup> Concurrent presentation of proximal LHB injury with anterior shoulder dislocation (reduced) has not been described before.

The biceps brachii muscle has two heads: a short head (arising from the coracoid process) and a long head (arising from the supraglenoid tubercle, superior labrum or a combination of the two). Though the function of biceps brachii as a strong supinator of the forearm and weak elbow flexor is well established, the effective role of LHB in dynamic stabilisation of the shoulder is controversial.

We report an unusual, rare presentation of LHB anchor avulsion with anterior dislocation of the shoulder. We highlight the necessity of a high index of suspicion, clinical findings and complementary imaging in accurate detection of this dual injury.

A young, right-handed man in his early 20s presented with left shoulder pain following a tackle injury, playing rugby, 5 days ago. During the tackle, his left arm was forced into abduction and

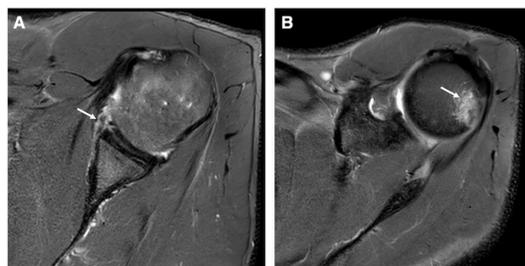


**Figure 2** STIR axial MRI sequences (A) PDFS (Proton Density Fat Suppressed) sagittal (B) and PDFS coronal (C, D) showing full thickness tear/avulsion of long head of biceps tendon with distal retraction (arrow).

external rotation at the shoulder with the elbow held in extension by the opponent. Consequently, he sustained a first episode of anterior dislocation of his left shoulder for which he had a close reduction on the playground but was left with residual pain. He had no comorbidities and was not on any regular medications.

On examination, the shoulder contour was well maintained with bruising and ecchymosis on the anterior part of the proximal left arm. Pain was exacerbated on active assisted flexion of the ipsilateral elbow and supination of forearm. The LHB could not be palpated in the bicipital groove. There was terminal restriction of active and passive shoulder range of movements with a positive apprehension sign. The rotator cuff was clinically intact. He was neurovascularly intact.

With a suspicion of shoulder instability due to either a capsular, ligamentous or labral injury, a non arthrographic high resolution 3 Tesla (3T)—MRI for further evaluation was organised. This



**Figure 1** STIR axial MRI sequences showing anteroinferior labral tear (A) (arrow) and small Hill Sach's lesion (B) (arrow).

## Learning points

- ▶ Long head of biceps anchor avulsion may be associated injury with an anterior shoulder dislocation rather than just being a structure preventing its congruent reduction.
- ▶ An initial functional range of movements without an obvious deformity on clinical examination may underestimate the injury.
- ▶ A high index of clinical suspicion and complementary investigation with MRI is helpful in identifying the injury to initiate targeted treatment.

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demonstrated a shallow Hill Sach's lesion with anteroinferior labral tear and stripping of the anterior periosteum at the shoulder joint. There was a full thickness avulsion of the LHB tendon from its origin at the supraglenoid tubercle with distal retraction by approximately 7 cm (figures 1 and 2). The short head of biceps tendon and muscle of biceps brachii was intact.

After seeking a specialist opinion the patient underwent an arthroscopic Bankart repair (for labral injury) and a subpectoral biceps tenodesis for the combined injury.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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