



Proximal rupture of the long head of the biceps brachii tendon caused by a surgical neck fracture of the humerus: a case report

Humerus proksimal kırığına bağlı gelişen biceps tendonu uzun başının kopması: Olgu sunumu

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A proximal rupture of the long head of the biceps brachii tendon was detected in a 36-year-old male patient who had an outdoor automobile accident. The rupture was caused by a surgical neck fracture of the left humerus. After fixation of the fracture, the tendon was primarily repaired. Six months after surgery, functional results were very good. To our knowledge, this is the first report of such an injury in any age group.

Key words: Accidents, traffic; fracture fixation, internal; humeral fractures/surgery; rupture/diagnosis/surgery; shoulder/injuries; tendons, para-articular/injuries.

Otuz altı yaşındaki bir erkek hastada, araç dışı trafik kazası sonrasında sol humerus cerrahi boyun kırığına bağlı olarak biceps tendonu uzun başının kopması görüldü. Kırık tespit edildikten sonra, tendona primer tamir uygulandı. Ameliyat sonrası altıncı ayda hastanın fonksiyonel sonuçları çok iyi bulundu. Bildiğimiz kadarıyla, bu şekilde bir yaralanma ilk kez bildirilmektedir.

Anahtar sözcükler: Trafik kazası; kırık fiksasyonu, internal; humerus kırığı; yırtılma/tanı/cerrahi; omuz/yaralanma; tendon, para-artiküler/yaralanma.

The biceps brachii is the strongest supinator of the forearm and serves an important role as a flexor of the elbow. It has two heads, which blend together distally, forming a tendinous band, which inserts into the bicipital tuberosity of the radius. The short head of the biceps muscle arises from the coracoid process along with the conjoined tendon of coracobrachialis. The long head originates from the supraglenoid tubercle of the scapula and the glenoid labrum.^[1,2] Proximal ruptures of the long head of the biceps are far more common than distal ruptures, at a rate of greater than 30:1, and often encountered in the coexisting rotator cuff pathologies and chronic impingement; but traumatic rupture may occasionally be seen.^[3-7] To our knowledge, rupture of the long head of the biceps tendon due to a proximal humeral fracture has hitherto been unreported in any age group.

CASE REPORT

A 36-year-old male auto mechanic had a proximal rupture of the long head of the biceps brachii tendon due to a surgical neck fracture of the left humerus. The etiology was an outdoor automobile accident. Coexisting pathologies were ipsilateral clavicular and nondisplaced scapular body fractures and grade I pubic symphysis separation (Fig. 1). We immobilized the left shoulder with a Velpeau sling. Four days later, on physical examination in the operating theater, we noted a significant ecchymosis along the biceps brachii muscle. During the operation using the anterolateral shoulder approach, we observed the ruptured long head of the biceps brachii tendon due to a surgical neck fracture of the humerus (Fig. 2a, b). After reduction of the humeral fracture and fixation by Kirschner wires, the long head of the biceps brachii tendon

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Fig. 1. A posteroanterior radiograph demonstrating the proximal humerus fracture, proximal 1/3 of clavicular fracture, and nondisplaced scapular body fracture.

was repaired through the same incision (Fig. 2c). The clavicle was treated by open reduction and plate and screw fixation (Fig. 3). The nondisplaced scapular fracture and pubic symphysis separation were treated conservatively. Following surgery, the shoulder and the arm were immobilized in a shoulder-arm sling for six weeks. At the end of the third week, pendular shoulder exercises were allowed and, in the postoperative sixth week, Kirschner wires were removed and controlled active shoulder and elbow movements were begun.

At the end of the fifth month, the patient had full range of motion with a normal manual muscle strength and was allowed to return to his work. He was pleased with the outcome. He was pain-free and could perform all activities including heavy lifting without difficulty.

DISCUSSION

The long head of the biceps originates from the supraglenoid tubercle of the scapula and the glenoid labrum and runs through the bicipital groove of the humerus.^[5] The tendon glides over the humeral head. It not only stabilizes the proximal portion of this muscle, but also has an important function as a stabilizer of the anterior shoulder joint capsule.^[8,9] It has been emphasized that the long head of the biceps is at risk for injury and degenerative changes because of its mechanical function and due to its proximity to the rotator cuff, bicipital groove, and the acromion.^[10] In our case, the ruptured segment was just distal to the bicipital groove and at the same level with the fracture location. In such cases, signs and symptoms

do not always suggest the diagnosis and magnetic resonance (MR) imaging and MR arthrography can be useful.^[3,11-15]

If ruptures of the biceps tendon are not repaired because of late or missed diagnosis, or

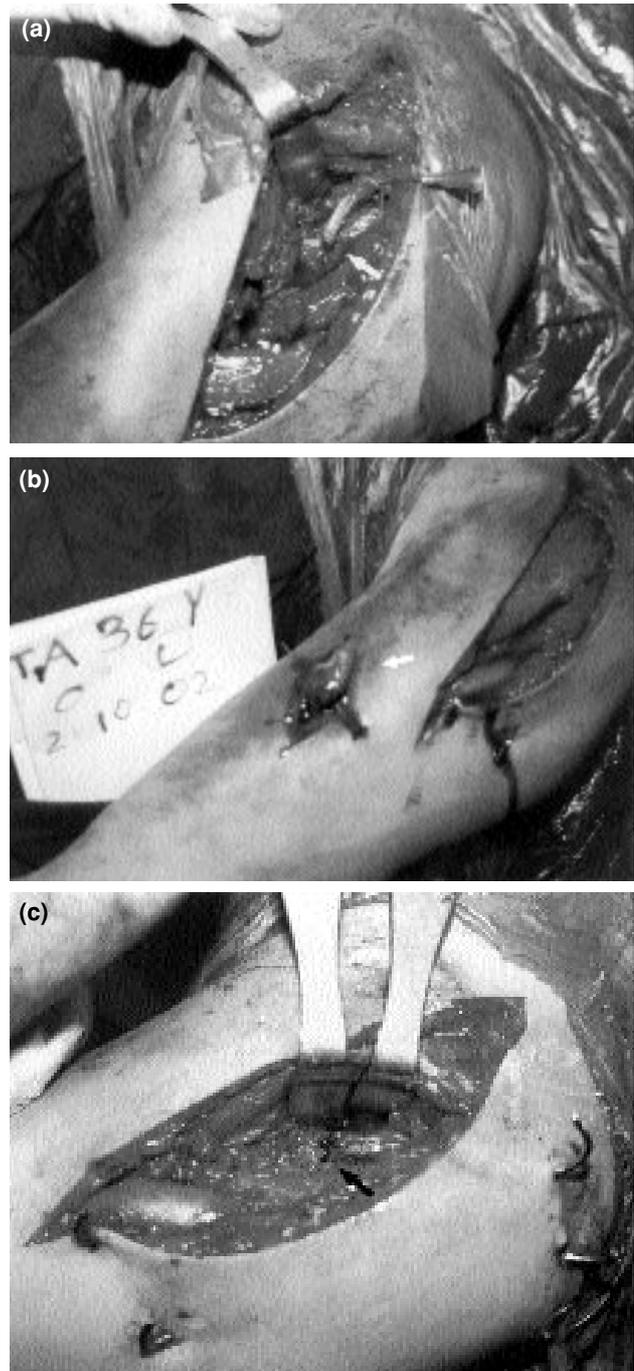


Fig. 2. Operation views. Arrows point (a) the proximal portion of the ruptured long head of the biceps brachii tendon caused by the surgical neck fracture of the humerus; (b) the distal portion of the ruptured tendon; (c) the repaired tendon.

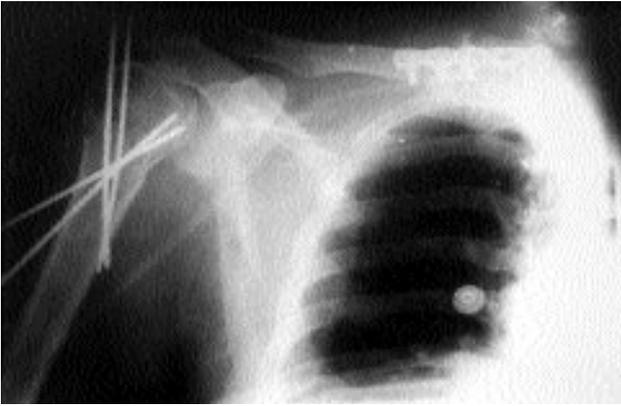


Fig. 3. A posteroanterior radiograph demonstrating the proximal humerus fracture fixed with K-wires and medial 1/3 of clavicular fracture with plate and screw.

fear of potential complications after primary repair, they may result in considerable functional deficits, especially in endurance in young active patients.^[2] Some authors recommend operative treatment in younger patients who need supinator strength in activities such as carpentry and auto mechanics.^[5,16,17] Functional results of the patient in the sixth month after the operation were satisfactory and he was dealing with his heavy work without difficulty.

In conclusion, acute traumatic rupture of the long head of the biceps brachii tendon caused by a proximal humerus fracture is a very uncommon entity, requiring particular attention during physical examination especially in patients with a proximal humerus fracture and concomitant ecchymosis along the biceps brachii muscle.

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