Biceps Brachii Rupture In An Elderly Male

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ABSTRACT:

The biceps is the supinator and secondary flexor muscle of the forearm. Injury to the long head of the biceps occurs in the middle aged and elderly; most commonly due to trauma and sudden eccentric contraction of the biceps whilst lifting a weight. It can be diagnosed clinically and further confirmed by sonography and Magnetic Resonance Imaging (MRI). Treatment is conservative in the majority of cases and involves activity modification, pain relief, range of motion and strengthening exercises, physical therapy and weight lifting precautions. Surgical management, which includes tenodesis and tendon transfer, is reserved for individuals who are active, involved in sport and for those preferring cosmesis. Conservative management has good results with little loss in supination and flexion power, complete independence in activities of daily living and complete resolution of symptoms. Clinical suspicion, early clinical diagnosis and conservative management can prevent morbidity/complications and assist in early recovery.

Keywords: Proximal biceps; Tendon rupture; Shoulder pain; Conservative management

INTRODUCTION:

The Biceps muscle crosses two joints, acts as secondary flexor at the elbow joint, and is a major supinator of the forearm. It has two proximal origins and one distal attachment. The proximal long head is intra capsular, arising from the supra glenoid tubercle, and passes through the bicipital groove, whilst the short head is extra capsular arising from the coracoid process. The two heads unite around mid-forearm and the distal combined tendon inserts into the radial tuberosity. Due to the proximal long heads' unique location, proximity of rotator cuff and glenoid labrum, along with mobility of the shoulder joint, it is considered to be one of the causes of pain around the shoulder. Injury to the biceps tendons occurs mostly in the proximal part (>90%) and rarely in the distal tendon (3%). The injury occurs most commonly in the middle aged and elderly, resulting from trauma or sudden eccentric contraction of biceps during weight lifting[3]. The patient usually feels a sudden 'pop' followed by pain and swelling in the middle of the upper arm on flexion, due to bunching together of the muscle belly, also called "Popeye sign". Complete rupture of the proximal head can be diagnosed clinically on inspection and by performing Yergason's test, speed test ,supination pronation tests and coil test[1]. Ultrasound can be used to confirm diagnosis and to differentiate between partial and complete tears. Magnetic resonance imaging (MRI) is rarely used in cases of complex injuries and suspicion of associated lesions to structures nearby. The treatment is conservative in the majority of cases and depends upon age, physical activity, and patient expectation. Conservative treatment involves non steroidal anti inflammatory drugs(NSAIDs), physical therapy, range of motion exercises, as well as precautions in weight lifting and performing overhead repetitive activities. Surgical repair is reserved for young patients, high activity athletes and those carrying out manual labour using their dominant hand and patient's preference. The authors report on a case relating to rupture of the long head of the biceps in an elderly male following heavy weight lifting, that was successfully managed conservatively. Verbal consent for the presentation and publication of the case was obtained from the patient.

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CASE PRESENTATION:

A 65 years old previously healthy male, presented with a three month history of a bulge on his left upper arm. There was no history of direct trauma and he was right hand dominant. He was not having diabetes or any other co-morbidity. He had attempted to lift a heavy bucket with his left hand and felt a "pop ", followed by severe pain, in his upper arm close to the left shoulder. He developed bruising and was unable to lift the bucket thereafter. The pain responded well to analgesics and the local application of a hot poultice as advised by his local GP however the bulge did not disappear and he complained of mild weakness of the left arm. Neurological and musculoskeletal examination was unremarkable except for mild weakness (MRC grade 4) in the left Biceps Brachii. Shoulder impingement signs were negative. On elbow flexion, a round swelling appeared in the upper arm (Fig 1). The swelling was firm, non –tender and became prominent on resisted elbow flexion (Fig 2). A diagnosis of proximal rupture of the long head of the biceps brachii was made and confirmed on musculoskeletal ultrasonog-

raphy (USG). On USG the long head biceps tendon was not seen within the bicipital groove and there was 'bull nosing' of the muscle belly fibers. As there was no evidence of shoulder impingement associated injury, MRI of rotator cuff was not deemed necessary. The patient was given the option of surgical repair however he opted for conservative treatment, as his symptoms were minimal at that stage .He was not troubled by the abnormal bulge and was happy with the functional status of the elbow. Respecting the patient's desire, he was advised regarding analgesics and given a home based exercise plan. Unfortunately he was lost to follow up, and the authors were unable to establish the longterm outcome of the conservative approach.

Figure: 1

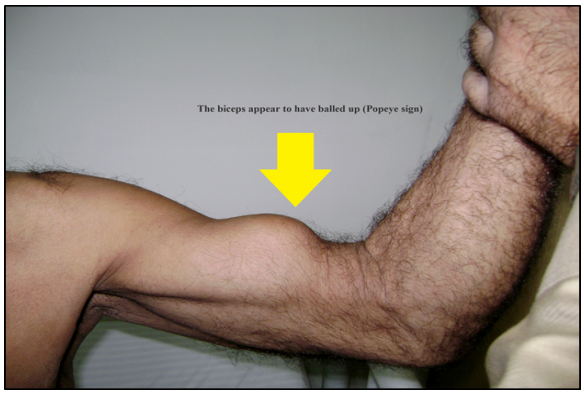

Figure: 2

DISCUSSION:

Rupture of the proximal biceps tendon comprises 90-97% of all biceps ruptures and almost exclusively involves the long head. The incidence of distal biceps tendon ruptures is 1.2 per 100,000 patients. It can be either partial or complete. Risk factors include old age, chronic inflammatory diseases, (for example rheumatoid arthritis), hypothyroidism, heavy overhead activities and repetitive overhead sports (such as swimming or tennis). In addition, impairment of physiologic repair mechanisms by medications (particularly statins) has been proposed as a potential risk factor for tendon rupture. It can also be secondary to age related degenerative processes around the shoulder, including calcification and tendinopathy of the biceps tendon, as well as associated previous injury to the shoulder rotator cuff mechanism. The most frequent precipitating factor is trauma. In the majority of cases the cause is related to lifting heavy weight and is described as a sudden pop followed by pain and weakness. It occurs mostly in the elderly as in the case described. Occasionally patients ignore symptoms, as there is no significant loss of function because the short head of the biceps remains attached to the coracoid process. Its diagnosis is mainly clinical and further confirmed and associated injuries can be ruled out by musculoskeletal ultrasound and MRI.

The reason to seek medical advice is either due to pain or the bulge that appears in the upper arm during flexion. The majority of the patients can be managed conservatively and this is preferable because patients can return to work earlier, avoiding cost and complications of surgery. Other considerations for this management is that there is only up to 20% loss of supination power and elbow flexion with no loss of grip strength, elbow extension and pronation and usually no major affect on activities of daily living.5 However operative treatment may be indicated for cosmetic reasons or if shoulder reconstruction is required for other reasons.

Surgical treatment involves transfer of the tendon to the coracoid process and involves extensive dissection. Other treatment options includes tenodesis with keyhole, screws and sutures.

It is interesting to note that in the majority of cases the injury is not an isolated rupture of the biceps tendon, but is associated with rotator cuff tears; particularly the subscapularis, Labral tears and osteophytes.3 In the case described, there was an isolated tear of the long head of the biceps only, and the authors were mindful that ignoring associated injuries can lead to continued pain and complications associated with increased morbidity and poor patient satisfaction.

Usually there are no gross complications related to this condition apart from weakness, loss of range of motion and appearance. There are few case reports in the literature relating to the development of compartment syndrome secondary to bicep tendon rupture. The rupture is usually unilateral however, although rare, bilateral simultaneous rupture of the long head of biceps has been reported in the literature.

CONCLUSION:

In majority of the cases, when diagnosed early and managed conservatively, rupture of the long head of the

biceps, has good functional outcomes and increased patient satisfaction. Associated injury to the rotator cuff and labrum should be ruled out and the treating physician should be aware of the need for surgical management in specific cases

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