

Sonography of Partial Tear of Distal Long Head of Biceps Tendon

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ABSTRACT

A 64-year-old female presents herself to the ED. Her chief complaint is left arm pain x 4 days, with hx of past injury. Ultrasound imaging confirmed a partial tear in the long head biceps tendon at the myotendinous junction.

Keywords

Sonography, MR imaging, Shoulder tear.

Introduction

Although MR imaging is the gold standard for the diagnosis of shoulder and other musculoskeletal related pathology. Sonography is less expensive and more rapidly performed with little or no preparation. However, it is not widely used in the US as compared to Europe, Australia and Canada where it is routinely used as the first line of diagnostic imaging

Rupture of the distal tendon of the biceps brachii muscle is rare, accounting for only 3% of all biceps tendon tears [1,2]. It is easily diagnosed on physical examination, which usually presents a defect in the antecubital fossa or a palpable mass in the anterior aspect of the arm due to retracted tendon. Clinically it may be more difficult to diagnose in case of partial tear or in cases of rupture that are not retracted because of an intact aponeurosis [3,4].

Case Report

Presentation

A 64 year old female presents herself to the ED. Her chief complaint is left arm pain x 4 days, with hx of an injury. Patient stated that she experienced a pop in the left upper arm while lifting heavy woods. Patient wants an X-ray to be done but she was referred to the radiology department for an ultrasound of her left shoulder.

Sonographic grey scale and color images were obtained on a Philips EPIQ 5G ultrasound machine using a high frequency L18-4 linear transducer

The transverse view of the bicep tendon is shown Figure 1. The long head of bicep tendon is in the bicipital groove, which confirms there is no subluxation and the origin of the long head is intact. The long view of the bicep tendon is shown in Figure 2, which shows the parallel internal fibrillar structure. There is effusion represented by dark hypoechoic area under the tendon. Subscapularis tendon is intact and show normal echo pattern Figure 3. Scanning further distal to the bicipital groove focal defect can be seen at the myotendinous junction, as shown in Figure 4. Further distal, a clear partial tear is seen with a clear hypoechoic line perpendicular to the long axis shown in Figure 5.



Figure 1: Sonographic image in the transverse plane of the long head bicep tendon in the bicipital groove.



Figure 2: Sagittal view of the bicep tendon at the bicipital groove. Notice the fibrillar pattern and hypoechoic line under the tendon indicating effusion.



Figure 4: Focal defect and fluid at the myotendinous junction.



Figure 3: Transverse view of the subscapularis tendon showing normal echotexture.



Figure 5: Focal defect showing hypoechoic line perpendicular to the long axis indicative of partial tear.

A complete rupture is manifested on sonography as the absence of the distal tendon from its insertion site, with various amounts of tendon retraction and fluid in the gap [4,5]. The amount of tendon retraction is best assessed on the sagittal image. Further a tendon retraction of less than 8 cm is correlated with an intact aponeurosis, whereas a retraction of more than 8 cm is indicative of torn aponeurosis [5]. In the present case a partial tear in the bicep tendon confirmed. The mechanism of injury of the distal biceps tendon is usually forced extension against a flexed elbow. MR imaging is a gold standard for assessing partial tear while sonography is greatly dependence on the experience and skill of the operator. The advantage of sonography is that it provides real time scanning to display tendon abnormality with less preparation time and cost.

In summary, the ultrasound exam shows a partial tear of the long head bicep tendon below the bicipital groove at the myotendinous junction.

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