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## Biceps enthesophyte: a rare complication following biceps tenodesis

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## Case report

A 37-year-old right hand–dominant gentleman who works in auto part delivery was evaluated in clinic for anterior shoulder pain. He states that several years prior to his presentation in clinic he was having insidious-onset atraumatic right shoulder pain. A magnetic resonance image (MRI) at that time demonstrated some long head of biceps tendonopathy at which point he underwent an arthroscopic rotator cuff débridement with mini-open subpectoral biceps tenodesis in 2011. After surgery, he completed extensive physical therapy but continued to have pain in the anterior axillary fold down through the medial aspect of the biceps muscle belly.

He presented in 2017, 6 years after his initial operation, with severe debilitating pain starting at the subpectoral axillary fold incision site with radiation going down the arm. The pain was well localized and made worse with activity, especially resisted supination or lifting away from his body. He rated the pain approximately 5–6 of 10 and stated that his arm pain was much worse than it was before his original surgery in 2011. The pain now caused him limitations in everyday activities, which affected his work and lifestyle. He denied any numbness, tingling, motor or sensory deficits. On examination, there were well-healed portal sites and he denied any history of infection or postoperative wound healing complications.

On examination, visual inspection of his bilateral shoulders demonstrated normal scapular posture. No asymmetry or gross muscle atrophy could be visualized. On the right, he had well-healed portal sites. He had approximately 150° of forward elevation on the right compared to 160° on the left. He had 55°–65° of

adducted external rotation with no external rotation lag sign bilaterally and symmetric internal rotation to the thoracolumbar junction bilaterally. There was pain and point tenderness over a palpable protuberance in the axilla and next to his subpectoral incision with radiating pain into the biceps on the right side. He had no palpable tendon in the bicipital groove. There was some pain with resisted supination, but otherwise he had no strength deficits. He had a negative abdominal compression test.

An MRI was obtained in an attempt to better understand the etiology of his pain and look at the position of the long head of the biceps as well as an electromyography to look for any entrapment of the musculocutaneous nerve. The MRI showed intact rotator cuff tendons without any muscular atrophy as well as what appeared to be a screw with some fluid surrounding the biceps tendon distally at the tenodesis site. Electromyography of the right arm was completely normal. At this time, the patient was offered exploration with open biceps tenotomy and removal of the enthesophyte vs. revision biceps tenodesis. The patient obtained an additional MRI that showed an enthesophyte emerging from the bone at the tenodesis site (Fig. 1).

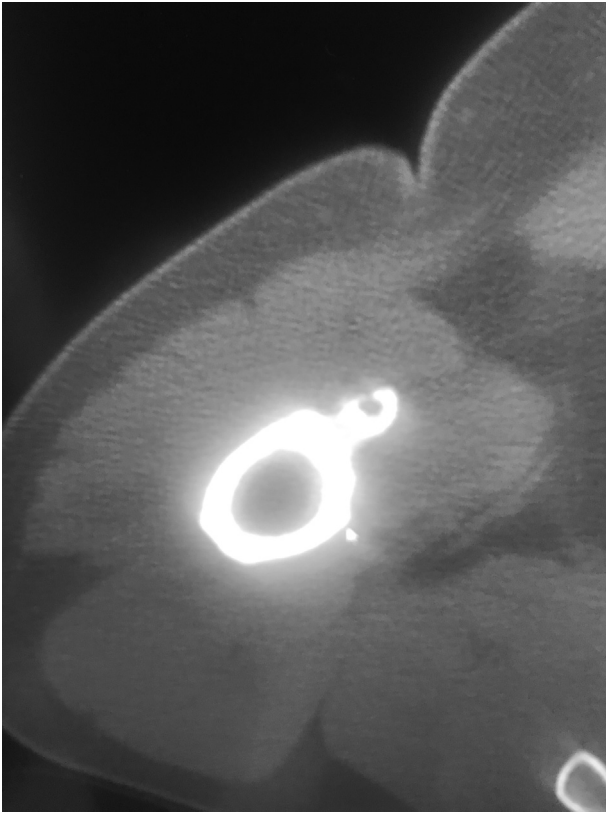
## Discussion

This case report details the formation of an enthesophyte at the site of subpectoral biceps tenodesis as a complication of the aforementioned surgery. We believe that the etiology of the described enthesophyte was similar to enthesophyte formation at other parts of the body, most likely a combination of traction, periosteal reaction, and trauma to the region. To our knowledge, this complication has not been documented in the literature.

This patient developed pain and weakness postoperatively and presented 6 years after his original open subpectoral tenodesis. Common indications for revision tenodesis or tenotomy include persistent biceps pathology and biceps rupture<sup>1–3</sup>; however, more

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**Figure 1** Magnetic resonance imaging of the humerus showing an enthesophyte protruding from the bone at the biceps tenodesis site.

rare complications including musculocutaneous nerve entrapment and humeral fractures involving the subpectoral humeral drill hole have been documented.<sup>4,7</sup> Most commonly, patients present with persistent pain and weakness as our patient did.<sup>5,6,8</sup>

## Conclusion

Our recommendation is that enthesophyte formation should be considered on the differential for a patient with persistent pain and weakness after subpectoral biceps tenodesis. Postoperative imaging should be considered including either computed tomography low enough to visualize the tenodesis site or multiple views on plain radiography.

## Disclaimer

The authors, their immediate families, and any research foundations with which they are affiliated have not received any financial payments or other benefits from any commercial entity related to the subject of this article.

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