



Weightlifter with Distal Biceps Tendon Impingement

Ikenna Obiakwata, MD¹, Ziva Petrin, MD²

¹ Internal Medicine, PGY-1 Resident, Rutgers New Jersey Medical School

² Department of Physical Medicine & Rehabilitation, Rutgers New Jersey Medical School

INTRODUCTION

- The Distal Biceps tendon is an uncommon area for tendinopathy.
- Typically occurs in athletes such as overhead throwers, gymnasts, rock climbers and weightlifters.
- Wide differential dependent on presentation and imaging.

THE CASE

- 48-year-old male weightlifter presented with 8-month exacerbation of sharp, episodic right forearm pain. Pain was located under the medial border of the brachioradialis in the anterior elbow and recurred after focused arm training with Frenchie pull-ups and reverse grip bicep curls.
- On physical exam, pain was reproduced with specific movement of elbow flexion, maximal pronation and wrist flexion with heavy resistance.
- Radiography of the elbow was unremarkable.
- Dynamic Ultrasonographic evaluation showed thickening at the distal bicipital insertion, which was seen impinging between the radius and ulna on maximal pronation.
- As can be seen in Image (a): Demonstration of Reverse Bicep Curl: At the end of the movement, the elbow is maximally pronated and flexed, compressing the anterior elbow structures such as the bicipitoradial bursa (see illustration below), and the biceps tendon attachment moves to the dorsal forearm as the radial head rotates during maximal pronation, causing tensile and compressive forces on the distal tendon.

TREATMENT AND FOLLOW UP

- The patient was advised on a progressive overload training program with avoidance of weight-lifting grips that result in impingement.
- Unfortunately, the patient was lost to follow-up and MRI of the distal bicep tendon could not be done.

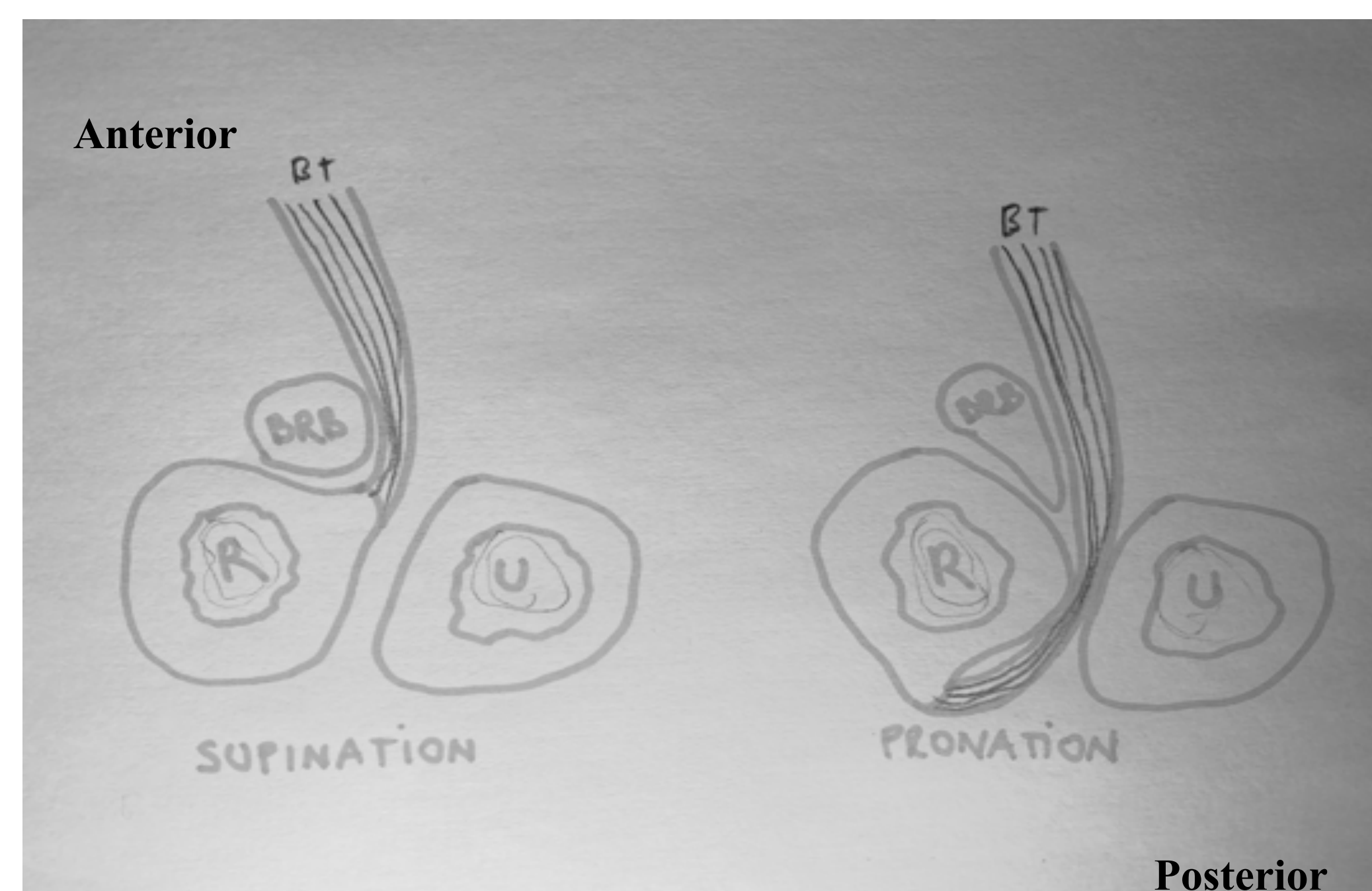
ANATOMY/MOVEMENTS



(a) Demonstration of Reverse Bicep Curl



(b) Demonstration of Frenchie Pull-up



(c) Illustration of transverse distal bicipital tendon insertion: (Left) Radial Tuberosity, biceps insertion site in full supination. (Right) Radial Tuberosity, biceps insertion at the full pronation position. *BT-Biceps tendon; BRB- Bicipitoradial Bursa; R-Radius; U-Ulna.

IMAGING

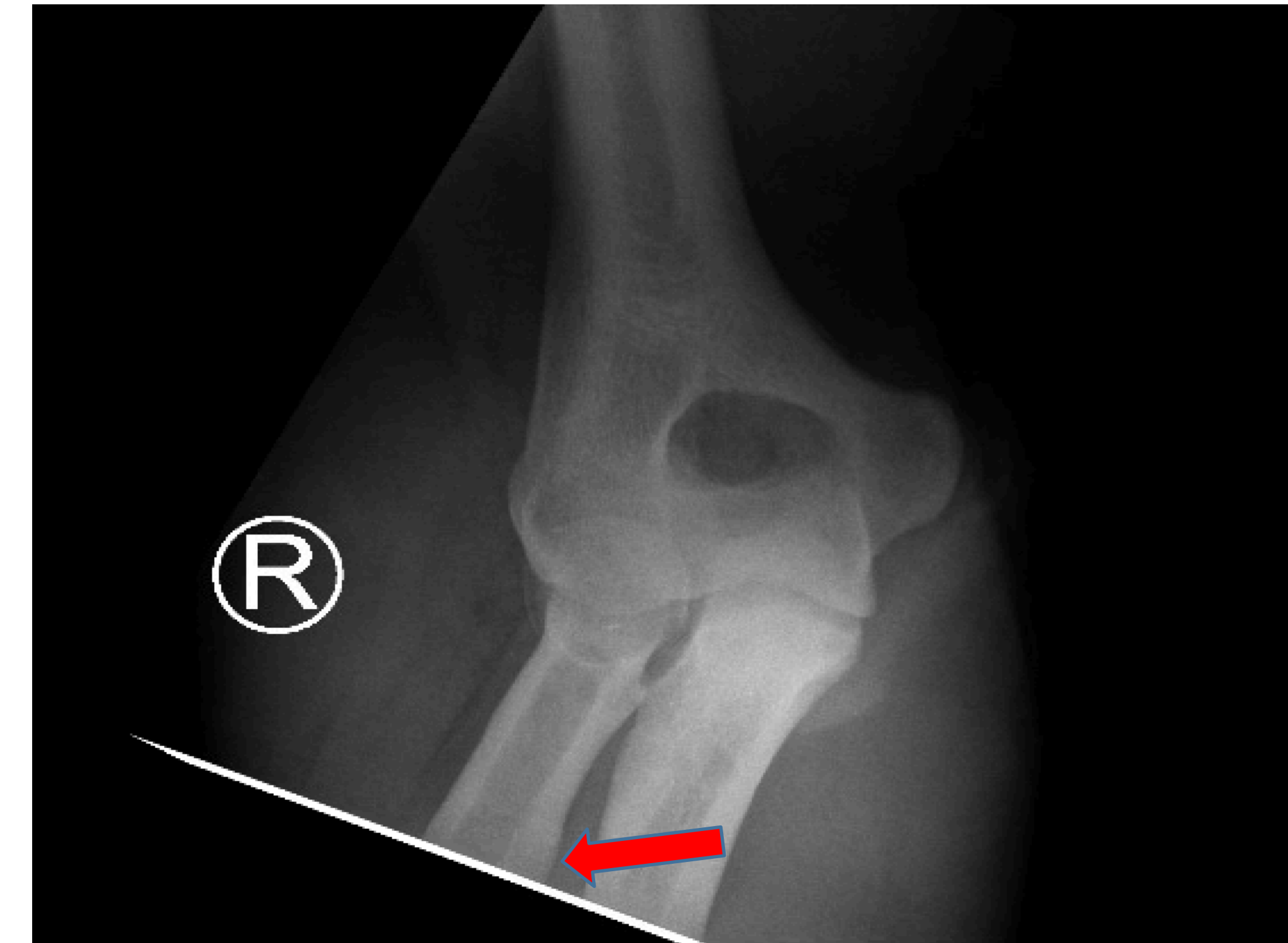


Figure 1: X-ray of Right Elbow, AP view, Red arrow- Radial Tuberosity

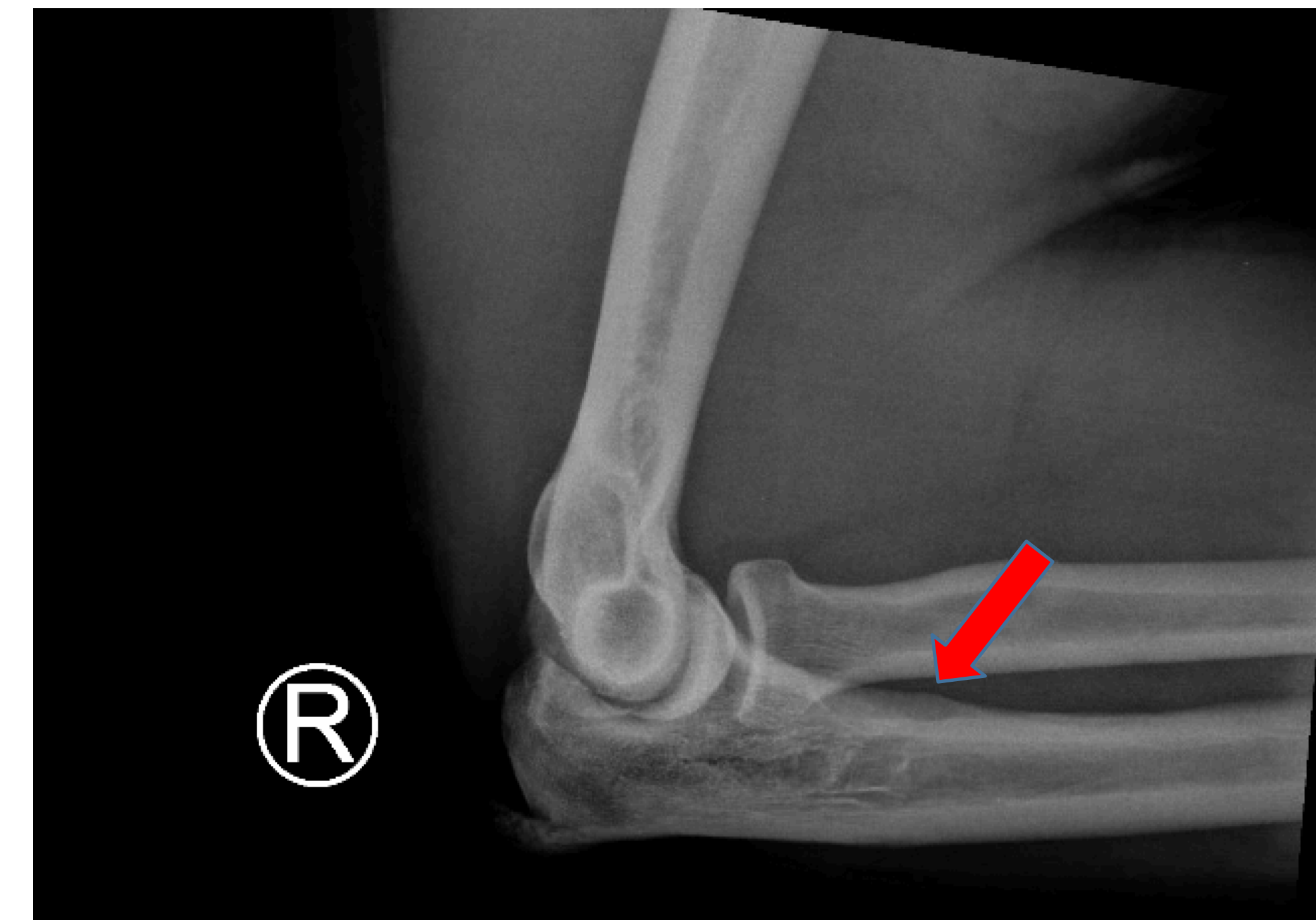


Figure 2: X-ray of Right Elbow, Lateral View Red arrow – Radial Tuberosity

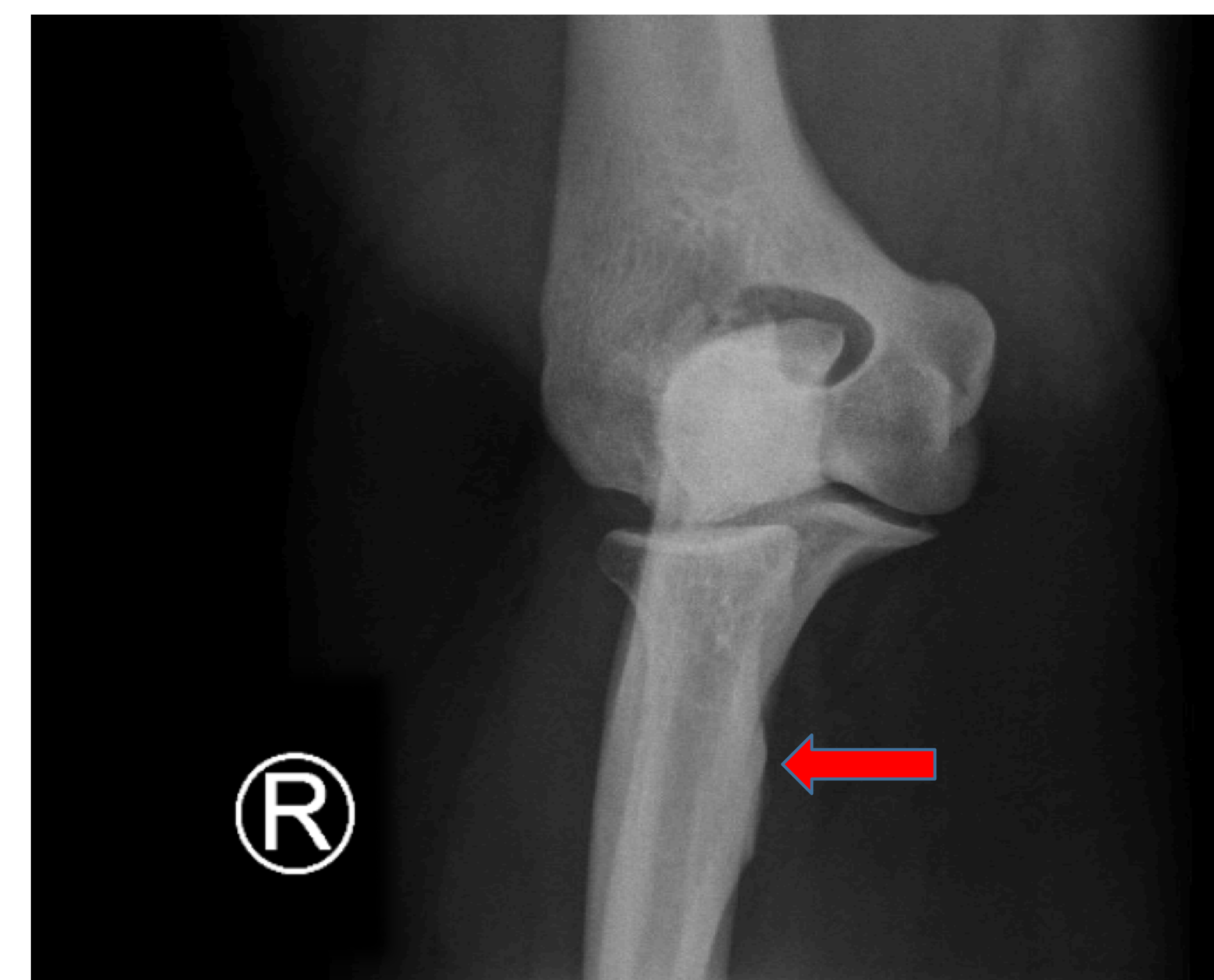


Figure 3: X-ray of Right Elbow, Lateral Oblique view Red arrow – Radial Tuberosity

DISCUSSION

- Differentials of anterior elbow pain in athletes includes nerve entrapments, distal biceps, or brachialis tendon pathology, annular ligament injury, bursitis and osteochondritis dissecans or osteoarthritis
- Our patient described symptoms only associated with a maximally pronated forearm and flexed elbow; otherwise, his physical exam was unremarkable
- Brachialis tendinopathy is another differential; however, the brachialis inserts on the coronoid process of the ulna. Pronation of the forearm is less likely to elicit focal symptoms.

CONCLUSION

- The anatomy of distal biceps insertion may play a role in development of mechanical impingement. Ultrasonography can demonstrate bursitis, tendinopathy or enthesophytes contributing to mechanical impingement.
- Best conservative treatment for unruptured tendon is unclear, however a progressive loading protocol and avoidance of maximal pronation and flexion to avoid compression at the insertion has been described as successful.

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