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Case study

'Tricep tear instead of Tricep Curl': Management in the Emergency Department

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1. Introduction

Triceps tendon tears are considered a rare diagnosis within the Emergency Department (ED) with only a handful of case studies published within international medical and radiological literature. To date it has not featured within the nursing journals. Triceps tendon tears usually occur following a traumatic injury and are normally managed within the ED by the Registered Advanced Nurse Practitioners (RANP's) (Appendix 1). RANP are recognized as senior decision makers within the ED team [1]. They are embedded within the clinical environment where they provide and facilitate safe and effective patient care [2,3]. They are regarded as clinical experts within their own area of specialist practice due to the fact that they keep abreast of up to date research and evidence based knowledge. It is important for effective management of all traumatic injuries that the RANP undertake a detailed clinical assessment, make clinical decisions, and develop appropriate care pathways [4]. This article will present a case study; discuss the anatomy, etiology, mechanism of injury, clinical assessment, imaging findings and treatment options.

2. Initial patient presentation and relevant history

A 65 year old retired gentleman called James self presented to the ED having sustained an injury to his right arm five days previous. James was assessed using the Manchester triage system (MTS), and as he had moderate pain (5/10 on the numeric rating scale) he was assigned a category 3. Analgesia was administered (paracetamol/acetaminophen 1 g and ibuprofen 400 mg) at triage as per departmental protocol. James was then streamed directly to the Ambulatory Care Area (ACA) for RANP assessment and management.

A clinical history was obtained from James prior to the RANP preforming a clinical examination. Patients' histories are often vital to accurate diagnosis and practitioners should be alert when gathering information [5]. James stated that he was helping his son to dip sheep on the family farm five days previously. He slipped and fell into the dipping bath, fully stretched his right arm out to protect himself but it got left on the wall of the dip bath while the rest of him fell into the bath. James reported that he is experiencing continued pain and diffused increased swelling and bruising to the elbow. James denies any other injuries from the fall and denies hearing any 'popping or tearing' noises. James consulted his General Practitioner the day after the incident who prescribed Diclofenac Sodium 75 mgs, a Non-steroidal anti-inflammatory drug (NSAD) which he stopped one day ago due to ongoing nausea associated with the medication. James reported no significant past medical history except an arthroscopy that he had to his right knee over ten years ago. He is on no regular medications, has no known drug allergies to date except the nausea the past few days. Reported no previous injuries to that right upper limb prior to this fall.

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James also stated that he is right hand dominant and had worked as a civil servant and had only retired a few months previous. He lives at home with his wife and an adult daughter and son.

3. Relevant physical examination findings

The upper limb is key to human function and is subject to significant forces [6]. Upper limb injuries require a detailed musculoskeletal clinical examination following the look, feel, move framework for assessing musculoskeletal injuries [7–9].

Patients usually attend the ED after a musculoskeletal injury due to the pain, deformity and/or loss of function. Clinicians should understand the type, location and intensity of pain prior to making an accurate diagnoses [5]. The patient was able to remove his shirt unaided prior to the examination. He was examined both sitting and standing in the privacy of an ED cubical. It is vitally important for all clinicians to examine and observe the patient from both the front and the back therefore allowing for accurate comparison with the unaffected limb. This is usually one of the first and most crucial elements of the physical examination [10]. On examination there was a normal hand cascade with obvious extensive soft tissue swelling and bruising noted to the elbow joint (Figs. 1 and 2).

No wounds or erythema were present. The patient indicated that the site of pain was at the elbow but on palpation maximal tenderness was elucidated to the distal third of the humerus and the distal triceps. There was no palpable gap felt during examination. To avoid unnecessary pain during examination, clinicians should always ask patients to actively move the injured area before assessing their passive ranges of movement [11]. On examination James' active and passive range of movement were limited in all planes due to pain and obvious soft tissue swelling. The right elbow end-range of movement was 20 degrees in extension and 90 degrees of flexion. Pain intensity was increased when the patient actively extended the elbow. Decreased strength of the elbow in resisted extension was noted. It is important that strength testing examination is preformed on the upper limb muscles, especially the biceps and triceps muscles. However, caution needs be used when preforming strength testing and end of range motion to avoid worsening an incomplete tear [11]. Strength testing and end of range of movement was preformed with caution, however significant weakness was noted. Patient unable to extend against the clinicians resistance. Brachial pulse were present and normal and capillary refill was < 2 s distally. Normal sensory distribution noted to the radial, median and ulnar nerves.

Fig. 2. Extensive swelling and bruising.

4. Overview of applied anatomy and triceps tendon ruptures

The triceps brachii muscle originates from three heads and inserts onto the proximal olecranon as a common tendon [12]. It consists of the long, lateral, and medial heads and is the primary extensor muscle for the elbow. The three heads arise from different points but converge toward insertion points on the olecranon. The long head of the triceps originates from inferior glenohumeral capsule. The lateral head arises from the lateral and posterior surface of the proximal humerus while the medial

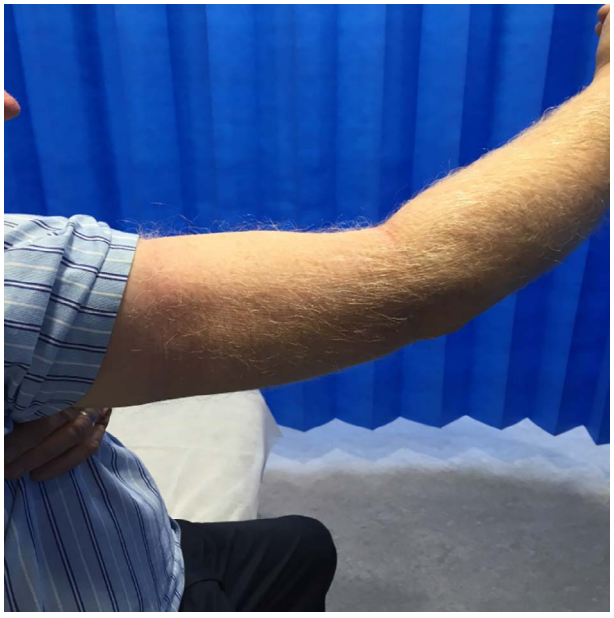

Fig. 1. Dorsal view of upper limb.

Fig. 3. Patients' AP X-ray view.