

Musculoskeletal applications in the emergency department

DP Crain

Crain DP. Musculoskeletal applications in the emergency department. *Anesthesiol: Case Rep.* 2022; 5(2):1-2.

ABSTRACT

The musculoskeletal system is a very superficial anatomical feature that makes it an excellent candidate for ultrasound testing in emergen-

-cy rooms. When compared to traditional emergency applications including trauma, abdominal aortic aneurysm, and chest and cardiovascular systems, soft tissue and musculoskeletal ultrasound is underutilised.

Key Words: *soft tissue infection; joint effusions; ultrasonography*

INTRODUCTION

The reflection pulley is a ligamento-capsulotendinous sling that stabilises the long head of the biceps tendon as well as the glenohumeral joint. As a result of trauma, degenerative, and inflammatory alterations, the pulley is susceptible to a number of pathologic diseases. The reflection pulley is subject to a number of critical surgical issues as part of the rotator cuff interval. Furthermore, because the reflection pulley is closely linked to the long head of the biceps tendon, which is densely innervated with nociceptive fibres, the pulley and related biceps tendon can act as a nidus for shoulder pain. The "hidden lesions" of the shoulder are pathologic lesions of the biceps pulley mechanism that are notoriously difficult to detect on physical examination and magnetic resonance imaging (MRI). [1,2].

Inflammatory

The biceps tendon sheath's synovial lining is continuous with the glenohumeral joint, making it intimately tied to glenohumeral joint problems such as impingement and rotator cuff tendinopathy. Tenosynovitis of the biceps can also be seen [3]. Color power can easily reveal the presence of synovitis, pannus, and/or hyperemia.

Instability

Ultrasonographic evaluation of the biceps tendon reveals subluxation and dislocations. The tendon will typically sublux medially toward the subscapularis tendon. Dynamic ultrasonography evaluation of the afflicted shoulder with abduction and external rotation clearly depicts this motion [4,5].

Sonoanatomy

Three hyperechoic and continuous structures in the extremities can be used as sonoanatomy landmarks for soft tissue and musculoskeletal structures. The skin and dermis are on the surface, the fascia is on the middle layer, and the cortical surface of the bone is on the deepest layer. Rotating the transducer to create a hyperechoic surface with an acoustic shadow can further confirm the cortical surface. Between the skin and the fascia, the subcutaneous tissue is made up of anechoic fat and distinct hyperechoic connective tissues. This is where the majority of soft tissue infections occur.

The fascia hides the muscles beneath it. Muscle fibres are elongated structures encased in a hyperechoic epimysium on the outside. The hypoechoic muscle components are surrounded by echogenic connective tissue. In longitudinal scans, muscles appear as a spindle, while in transverse scans, they appear as speckles.

Soft tissue infection

The most frequent type of soft tissue infection is cellulitis, which is restricted to the subcutaneous compartment. Cellulitis is a medical condition. In addition to redness, swelling, local heat, and swelling on the infected locations, patients may have fever, chills, and leukocytosis. A hyperechoic, hyperemic pattern of inflammatory subcutaneous fat intersected by anechoic fluid along the connective tissue creates a sonographic cobblestone-like appearance. A cobblestone-like appearance, on the other hand, just suggests inflamed tissue and is unrelated to cellulitis. Ultrasound is useful for detecting occult abscesses. POCUS has been demonstrated to improve patient outcomes in up to half of abscess patients [6]. POCUS can also help paediatric patients diagnose soft tissue infections more accurately [7]. Abscess is a more severe type of soft tissue infection with a variety of internal echogenicity surrounding the inflamed and swollen subcutaneous tissue. In either a static or dynamic approach, POCUS can be utilised to identify occult abscess, determine the safe route for abscess incision or drainage, and avoid difficulties during abscess evacuation [8,9]. The squish sign is the movement of echogenic particles in reaction to compression, which can be utilised to distinguish between an abscess and a soft tissue mass. To distinguish a pseudoaneurysm from an anechoic abscess, Doppler functions must be used.

Joint effusion

In emergency rooms, tender and swollen joints are prevalent. Joint effusions can worsen many types of arthritis and traumas around joints. At first glance, it can be difficult to tell the difference between bursitis and arthritis with joint effusions. Bursitis is an inflammation of the bursa that is accompanied by fluid. On a dynamic examination, the joint effusion is positioned within the joint cavity and has a distinctive look.

Managing Editor, *Anesthesiology: Case Report*, Berkshire, UK

Correspondence: DP Crain, Managing Editor, *Anesthesiology: Case Report*, Berkshire, UK, E-mail: anesthesiology@scischolarsjournal.com

Received: 11 March, 2022, Manuscript No. *pulacr-22-4965*, Editor assigned: 14 March, 2022, Pre QC No. *pulacr-22-4965 (PQ)*, Reviewed: 21 March, 2022, QC No. *pulacr-22-4965 (QC)*, Revised: 24 March, 2022, Manuscript No. *pulacr-22-4965(R)*, Published: 28 March, 2022, DOI: 10.37532. *pulacr.22.5.2.1-2*.



This open-access article is distributed under the terms of the Creative Commons Attribution Non-Commercial License (CC BY-NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits reuse, distribution and reproduction of the article, provided that the original work is properly cited and the reuse is restricted to noncommercial purposes. For commercial reuse, contact reprints@pulsus.com

REFERENCES

1. Krupp RJ, Kevern MA, Gaines MD, et al. Long head of the biceps tendon pain: differential diagnosis and treatment. *J Orthop Sports Phys Ther.* 2009;39(2):55-70.
2. Altchek D, Wolf B. Disorders of the biceps tendon. *Shoulder Overhead Athl, Phila PA: Lippincott Williams Wilkins.* 2004:196-208.
3. Claessens H, Snoeck H. Tendinitis of the long head of the biceps brachii. *Acta orthop Belg.* 1972;38(1):124-8.
4. Petersson CJ. Spontaneous medial dislocation of the tendon of the long biceps brachii. An anatomic study of prevalence and pathomechanics. *Clin Orthop Relat Res.* 1986:224-7.
5. O'Donoghue DH. Subluxing biceps tendon in the athlete. *Clin Orthop Relat Res.* 1982:26-9.
6. Tayal VS, Hasan N, Norton HJ, et al. The effect of soft-tissue ultrasound on the management of cellulitis in the emergency department. *Acad Emerg Med.* 2006;13(4):384-8.
7. Iverson K, Haritos D, Thomas R, et al. The effect of bedside ultrasound on diagnosis and management of soft tissue infections in a pediatric ED. *Am J Emerg Med.* 2012;30(8):1347-51.
8. Adhikari S, Blaivas M. Sonography first for subcutaneous abscess and cellulitis evaluation. *J Ultrasound Med.* 2012;31(10):1509-12.
9. Alsaawi A, Alrajhi K, Alshehri A, et al. Ultrasonography for the diagnosis of patients with clinically suspected skin and soft tissue infections: a systematic review of the literature. *Eur J Emerg Med.* 2017;24(3):162-9.