



Visual Case Discussion

Hemarthrosis detected by Emergency Department Point of Care Ultrasound (POCUS) in a patient with an anterior dislocation of the humeral head

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ARTICLE INFO

Keywords:

Ultrasound
Hemarthrosis
Joint effusion
Shoulder dislocation
Point of Care Ultrasound (POCUS)

An 88-year-old female was brought to the emergency department for a 3-day history of progressive right shoulder pain and swelling. She reported the pain began after lifting her arm. She denied any recent trauma or falls but had a right shoulder dislocation several months prior. On physical examination she had normal vital signs, a large right shoulder effusion, soft tissue swelling, crepitus, and painful range of motion. A plain radiograph of the shoulder showed anterior dislocation of the humeral head and bedside ultrasound showed a heterogenous

right shoulder joint effusion, concerning for hemarthrosis (Fig. 1). Later, a shoulder CT study revealed an anteroinferior subluxation of the humeral head with subacromial, subdeltoid and subcoracoid bursal fluid. During procedural sedation, her shoulder was successfully reduced. Arthrocentesis was eventually performed by orthopedic surgery, confirming hemarthrosis.¹⁻³

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.visj.2018.08.012](https://doi.org/10.1016/j.visj.2018.08.012).

References

1. Baker CL. *Acute hemarthrosis of the knee*. *Advances in Pediatrics*. U.S. National Library of Medicine; 1992 www.ncbi.nlm.nih.gov/pubmed?term=1607844.
2. Maffulli N, et al. *Acute haemarthrosis of the knee in athletes. A prospective study of 106 cases*. *Advances in Pediatrics*. U.S. National Library of Medicine; 1993 www.ncbi.nlm.nih.gov/pubmed?term=8245089.
3. Visuri T, et al. *Hemarthrosis of the clinically stable knee due to sports and military training in young recruits: an arthroscopic analysis*. *Advances in Pediatrics*. U.S. National Library of Medicine; 1993 www.ncbi.nlm.nih.gov/pubmed?term=8361594.

Questions

1. What is the most common cause of hemarthrosis?
 - a. Bleeding disorders
 - b. Trauma
 - c. Neoplasm

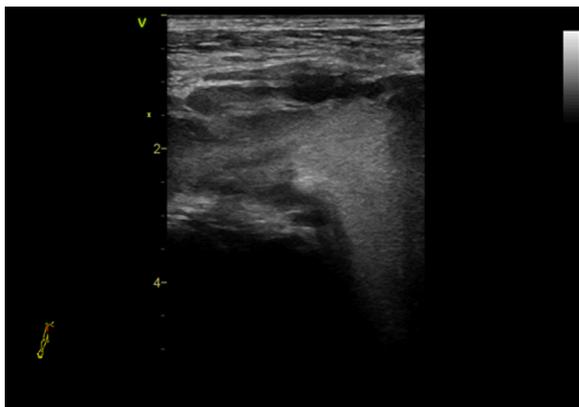


Fig. 1. Point of care ultrasound image of heterogenous right shoulder joint effusion, coronal view.

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- d. Vascular damage
 - e. Arthritis
2. Hemarthrosis is said to be the most common musculoskeletal indicator of hemophilia; which of the following is the most common joint involved?
 - a. Shoulder
 - b. Hip
 - c. Ankle
 - d. Knee
 - e. Elbow
 3. It is likely the patient discussed in this case had suffered prior rotator cuff injuries leading to eventual shoulder effusion. Which tendon is most commonly injured in rotator cuff injuries initially?
 - a. Supraspinatus
 - b. Infraspinatus
 - c. Subscapularis
 - d. Teres Minor
 - e. Biceps

Answers

1. Trauma. Explanation: The mechanism is usually remembered as the pain is often very severe during and after. In this case, the patient's shoulder pain was progressive as swelling increased. References: Baker, C L. "Acute Hemarthrosis of the Knee." *Advances in Pediatrics.*, U.S. National Library of Medicine, June 1992, www.ncbi.nlm.nih.gov/pubmed?term=1607844. Maffulli, N, et al. "Acute Haemarthrosis of the Knee in Athletes. A Prospective Study of 106 Cases." *Advances in Pediatrics.*, U.S. National Library of Medicine.
2. Knee. Explanation: The knee is the most commonly affected joint; followed by elbow, ankle, hip, and shoulder. Reference: Baker, C L. "Acute Hemarthrosis of the Knee." *Advances in Pediatrics* Maffulli, N, et al. "Acute Haemarthrosis of the Knee in Athletes." *Advances in Pediatrics* Visuri, T, et al. "Hemarthrosis of the Clinically Stable Knee Due to Sports and Military Training in Young Recruits: an Arthroscopic Analysis" *Advances in Pediatrics*.
3. Supraspinatus. Explanation: Rotator cuff injuries more often begin as partial tears of the supraspinatus tendon, specifically the articular/undersurface region. These further develop into full-thickness injuries which can extend to the infraspinatus, subscapularis, and biceps tendons. Reference: Oh, L S, et al. "Indications for Rotator Cuff Repair: a Systematic Review." *Advances in Pediatrics.*, U.S. National Library of Medicine, Feb. 2007, www.ncbi.nlm.nih.gov/pubmed?term=17179786.

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