

The geyser sign: an unusual presentation of a rotator cuff tear

Martins P^{1,2}, Teixeira V^{1,2}, Saraiva F¹, Ponte C^{1,2}

ACTA REUMATOL PORT. 2019;44:155-157

INTRODUCTION

Acromioclavicular joint (ACJ) cysts are an uncommon clinical entity that may occur as consequence of full-thickness rotator cuff tears and degenerative ACJ changes. The “Geyser sign” is an unusual imaging sign that derives its name from its geyser-like appearance.^{1,2} It occurs when synovial fluid from the glenohumeral (GH) joint extravasates through a full-thickness tear of the rotator cuff into the subacromial subdeltoid (SASD) bursa. Subsequently, the synovial fluid “erupts” through a degenerated ACJ causing distension of its superior capsule and formation of a cystic mass. Two types of ACJ cysts have been described: type 1 limited to the ACJ and characterized by no communication with the GH joint, and type 2 defined by a rotator cuff tear which allows for a fluid communication to be established between the ACJ and GH joint.³ Treatment can be managed nonoperatively or operatively, depending on the patient’s symptoms, age, medical comorbidities, and the presence of rotator cuff tear.³⁻⁵

CASE PRESENTATION

A 76-year-old male presented to the emergency department with a 1-week history of pain and swelling over the superior aspect of the right shoulder. In addition, in the year preceding presentation, he had been complaining of limitation of motion and gradual pain of the GH joint. He denied constitutional symptoms, such as fever or weight loss, or history of recent trauma. On inspection, he was found to have an important mass over the ACJ with local ecchymosis (Figure 1). Palpation of the area was consistent with a non-mobile elastic soft mass, slightly tender on deeper palpation.

1. Serviço de Reumatologia e Doenças Ósseas Metabólicas, Hospital de Santa Maria, CHULN, Centro Académico de Medicina de Lisboa, Portugal

2. Unidade de Investigação em Reumatologia, Instituto de Medicina Molecular, Faculdade de Medicina, Universidade de Lisboa, Centro Académico de Medicina de Lisboa, Portugal



FIGURE 1. Presence of a mass over the right shoulder (arrow) with surrounding ecchymosis

Active and passive shoulder range of motion showed limited abduction (30° and 60°, respectively) and Jobe’s test was positive. Blood tests were unremarkable, showing a C-reactive protein of 0.56 mg/dL and erythrocyte sedimentation rate of 17 mm. Plain radiography revealed soft tissue swelling above the ACJ and elevation of the humeral head with GH joint space narrowing and reduction of the subacromial space (Figure 2). Ultrasound showed a loculated hypo-anechoic mass overlying the ACJ with degenerative changes of the joint (Figures 3A and 3B), complete supraspinatus tear (Figure 3C), and GH synovitis and osteoarthritis (Figure 3D); no SASD bursitis was depicted. Aspiration of the ACJ was performed revealing 5 cc of yellow translucent gelatinous fluid with sparse hematic content; on polarized light microscopy no crystals were found and bacterial cultures were negative. The diagnosis of supraspinatus tear, complicated by the formation of an ACJ cyst with “Geyser sign”, was made. The patient was

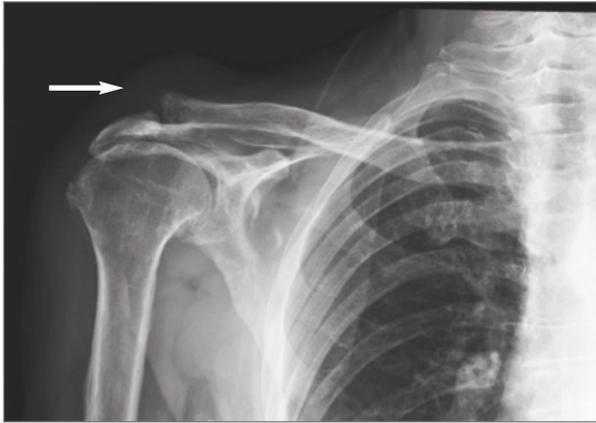


FIGURE 2. Anteroposterior radiography of right shoulder revealing soft tissue swelling above the ACJ (arrow), elevation of the humeral head with reduction of the subacromial space, and osteoarthritic changes of the GH joint.

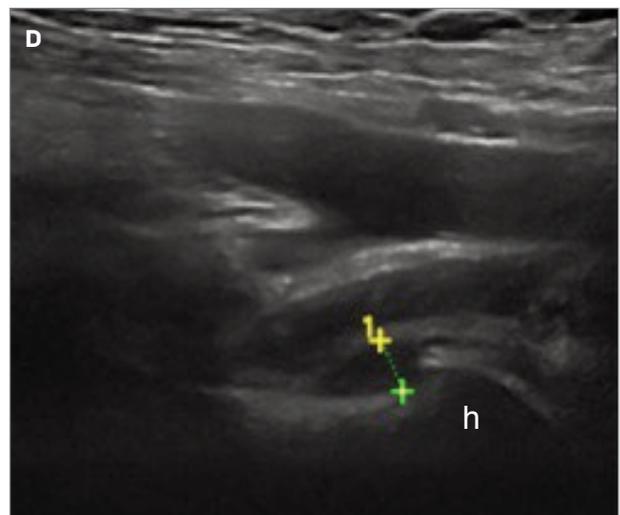
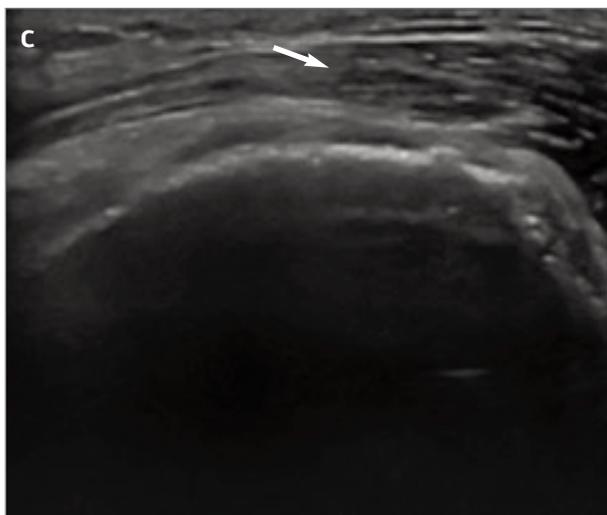
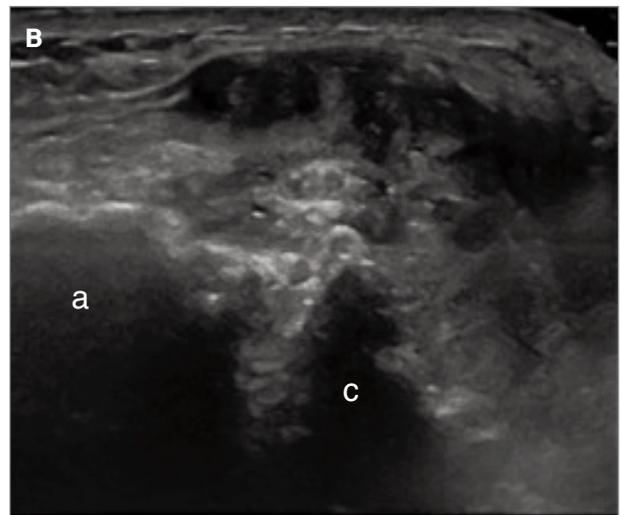
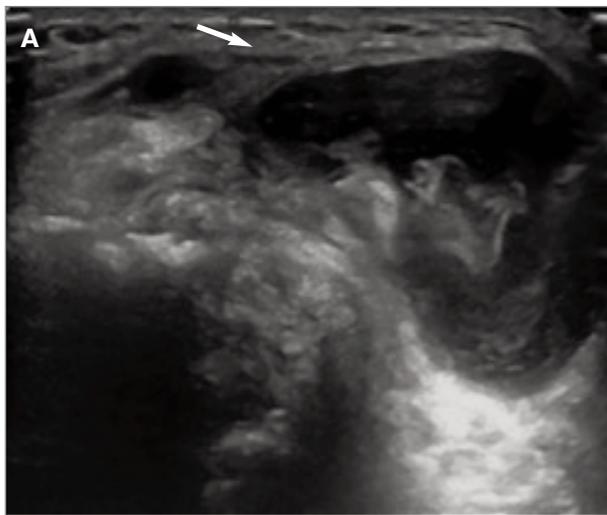


FIGURE 3. . Ultrasound of the right shoulder showing: A) a loculated hypo-anechoic mass/cyst overlying the ACJ (arrow); B) ACJ (A – acromion; C – clavicle) with marked degenerative changes and potential connection to the cyst; C) complete supraspinatus tear (arrow); D) synovitis of the GH joint (measurement of 4.3 mm) with an osteophyte in the humeral head (H).

treated with naproxen and referred to Orthopaedics for evaluation.

CONCLUSION

The “Geysler sign” is a rare event that may occur as a result of rotator cuff tears. In the present case, in addition to the ACJ cyst, this patient presented a full-thickness supraspinatus tear, synovitis of the GH joint and degenerative changes of the acromioclavicular and GH joints, therefore, compatible with type 2 ACJ cyst.

CORRESPONDENCE TO

Patrícia Godinho Bexiga Martins
Serviço de Reumatologia e Doenças Ósseas Metabólicas, Hospital de Santa Maria
Rua Professor Egas Moniz, Lisboa
E-mail: pat.martins.91@gmail.com

REFERENCES

1. Craig EV. The acromioclavicular joint cyst: an unusual presentation of a rotator cuff tear. *Clin Orthop Relat Res* 1986; 202:189-192.
2. Craig EV. The geysler sign and torn rotator cuff: clinical significance and pathomechanics. *Clin Orthop Relat Res* 1984; 191:213-215.
3. Luis Duarte M, Silva AQPD, Prado JLMA, Silva MQPD. [Geysler sign – an uncommon signal of rotator cuff tear]. *Acta Radiológica Portuguesa* 2016; 109:59-61.
4. Hiller AD, Miller JD, Zeller JL. Acromioclavicular joint cyst formation. *Clin Anat* 2010; 23:145-152.
5. Zhang Y, Old J. Massive Acromioclavicular Joint Cyst with Intramuscular Extension: Case Report and Review. *Case Rep Orthop* Published Online First: 10 June 2018. doi: 10.1155/2018/7602549.