Acromioclavicular Joint Cyst: The Geyser Phenomenon

Quisto da Articulação Acromioclavicular: O Fenómeno Géiser

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A 62-year-old male, right-hand dominant factory worker, presented to the physical medicine and rehabilitation consultation of our institution, with a slowly growing shoulder lump, no history of trauma and exacerbation of chronic shoulder pain. Physical examination revealed a tender ovoid mass, with normal overlying skin, in the superior aspect of the right shoulder (Fig. 1). The range of motion of the shoulder was decreased in all axes and slightly painful.

Radiography depicted a mass cranial to the acromioclavicular joint, signs of osteoarthritis as well as indirect signs of rotator cuff tear (Fig. 2).

Massive rotator cuff tear with muscle atrophy and fatty infiltration, suggesting chronicity, was found on ultrasound (Fig. 3). Furthermore, synovial fluid was seen erupting across the acromioclavicular joint space into the subcutaneous tissue, leading to a fluid collection.

The entirety of clinical and imaging findings was suggestive of a type 2 acromioclavicular joint cyst.

Our patient underwent aspiration of the cyst and corticosteroid injection, with immediate pain relief, and was referred for orthopedic consultation. After this consultation, he was

Figure 1. Right shoulder anterior view photograph shows an ovoid mass in the superior aspect of the shoulder.

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submitted to a reverse total shoulder arthroplasty, achieving excellent shoulder overall mobility, except for mild limitation in internal rotation. At 1-year follow-up, no recurrence was observed, and the patient referred significant shoulder pain reduction with no functional limitations.

There are two types of acromioclavicular joint cyst: type 1 is caused by a degenerative process of the acromioclavicular joint with an intact rotator cuff and type 2 is secondary to a degenerated acromioclavicular joint with an associated massive rotator cuff tear.[1] Full-thickness rotator cuff tearing leads to articular instability with cranial migration of the humeral head. Rarely, these mechanical changes cause acromioclavicular capsule disruption, allowing glenohumeral joint fluid to flow across the acromioclavicular joint (geyser phenomenon) and form a subcutaneous cyst.

This infrequent mass presentation of long-standing rotator cuff tendinopathy is commonly misdiagnosed as an abscess or a tumor.[2] The diagnosis may be supported by radiography, ultrasonography or magnetic resonance imaging.

Firstly, a trial of conservative treatment (aspiration of the cyst, corticosteroid injection and a rehabilitation program considering the rotator cuff status) is recommended.[3,4] However, surgical management is generally the treatment of choice since the conservative management is followed by a high rate of recurrency.[4]

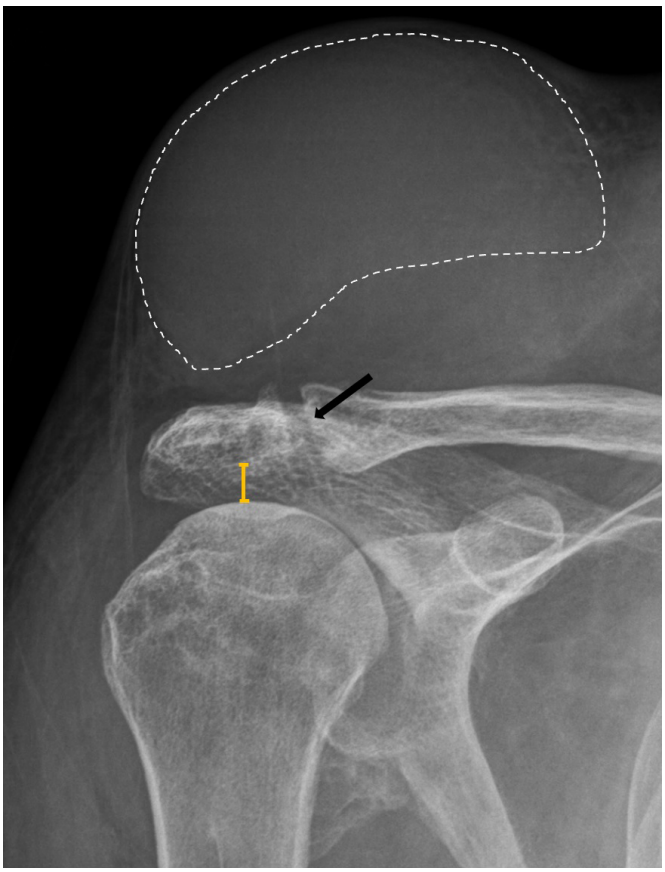

Figure 2. Posteroanterior shoulder radiograph depicts an ovoid mass in the subcutaneous tissue (white dashed line). Osteoarthritis signs of the acromioclavicular (black arrow) and the glenohumeral joints are seen. Cranial migration of the humeral head (yellow bracket) suggests massive rotator cuff tear.

Figure 3. Coronal plane ultrasound view of the shoulder shows complex synovial fluid (white arrow) erupting from the glenohumeral joint, through the acromioclavicular joint (yellow line) and forming a subcutaneous cyst (asterisk).

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References

1. De Maio F, Di Marcantonio A, De Luna V, Caterini A, Tresoldi I, Farsetti P. Synovial cyst of the acromioclavicular joint with and without rotator cuff tear: A case series of two patients. Int J Surg Case Rep. 2020;75:390-3. doi:10.1016/j.ijscr.2020.09.084.
2. Seet D, Manohara R, Hallinan JT, Tay SH. Geyser sign: biomechanics and clinical implications. Ann Acad Med Singap. 2020;49:621-5.
3. Singh RA, Hay BA, Hay SM. Management of a massive acromioclavicular joint cyst: the geyser sign revisited. Shoulder Elbow. 2013;5:62–4.
4. Tshering Vogel DW, Steinbach LS, Hertel R, Bernhard J, Stauffer E, Anderson SE. Acromioclavicular joint cyst: nine cases of a pseudotumor of the shoulder. Skeletal Radiol. 2005;34:260-5. doi: 10.1007/s00256-004-0883-6.