

Sonography in the Management of Painful Shoulder in Ambulatory Practice – Case Report

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ABSTRACT

We present the case of an old patient with a painful shoulder, diagnosed in the ambulatory practice with an impingement syndrome and supraspinatus tendinopathy, with no response to appropriate therapeutically approach. As the MRI and diagnostic arthroscopy were not suitable for this patient, the sonographic examination changes the diagnosis to a supraspinatus complete tear with glenohumeral reaction and oriented the therapy, which proved to be successful.

Keywords: supraspinatus tendon, sonography, shoulder pain

INTRODUCTION

Shoulder pain is a frequent complaint in the ambulatory practice and in old patients. The diagnosis is made upon clinic examination and, in most cases, on the MRI (Magnetic Resonance Imaging). MRI proved to be a very accurate method of investigation, but is expensive and sometimes is contraindicated because of claustrophobia, metal implants etc. Another imagistic investigation, with increasing acceptance, is sonography, which offers the benefits of low costs, repeatability, dynamic imaging and surveillance. It has also a good accuracy, with high rates sensibility and specificity and it deserves a place in clinic evaluation. □

CASE REPORT

Patient MS, female, aged 70, retired, describes left shoulder pain and functional loss. The actual episode started prior one month, with moderate pain, progressive aggravation and with mechanic and inflammatory feature. There was no trauma, no infection and no other preceding event. Pain was obvious at over-the-head abduction, making some activities, like hair washing and combing, difficult. The patient was referred to local rehabilitation service. She underwent x-scan and laboratory analysis, which proved to be normal and refused MRI, due to its cost and claustrophobia. She receives the following diagnosis: impingement syndrome and supraspinatus tendinopa-

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thy. The differential diagnosis was made with brachial plexus injury, cervical and superior thoracic spinal causes, acromioclavicular and glenohumeral pathology. She received oral anti-inflammatory therapy (COX-2 selective non-steroidal anti-inflammatory drugs) and analgesic therapy (acetaminophen) in appropriate doses, with PPI protection. The rehabilitation therapy consisted in local procedures (ultrasound, laser, transcutaneous electrical nervous stimulation TENS), massage and kinetotherapy (Codman's exercises, stretching and strengthening of shoulder muscles). After 10 days of therapy, pain and functional status did not show any improvement. The patient was referred to our clinic for further evaluation.

We examined an overweight patient (BMI 28 kg/m²), with well-controlled essential hypertension (130/75 mmHg and 78 bpm). Shoulder exam revealed an apparent normal and symmetric profile, tenderness with deep palpation of anterior-lateral aspect of the left shoulder and no referred pain. Passive and active movements were possible on the all directions, but were painful for over-the-head abduction. There were crackles on glenohumeral mobilization. Manual muscle testing showed no abnormalities. We noticed a positive "empty can test". There was no positive drop arm test, no sign of acromioclavicular involvement and no neurological signs in the upper leg. As the patient refused MRI and exploratory arthroscopy, we proceed to a shoulder sonography. This was performed with Samsung Medison SonoAce 8000 device, with a linear probe, range 5-9 MHz. The examination position was with the patient sitting on a chair, the arm next to the trunk, the forearm on the thigh, the thumb to zenith. Thus, the examination was static; we performed a dynamic exam for the subscapularis and supraspinatus tendons. Every tendon was scanned in both longitudinal and transversal views.

Sonographic exam revealed effusion in the synovial sheath of the tendon of caput longus biceps brachialis (Figure 1), with a normal aspect of the tendon (both in longitudinal and transversal view) and a complete tear of supraspinatus tendon (Figure 2). For comparison, we insert a contralateral supraspinatus tendon image (Figure 3). The documentation of the torn supraspinatus was made with direct signs (tendon missing) and indirect sign (irregularities of great tubercle) (1). The effusions in the synovial sheath together with normal aspect of the ten-

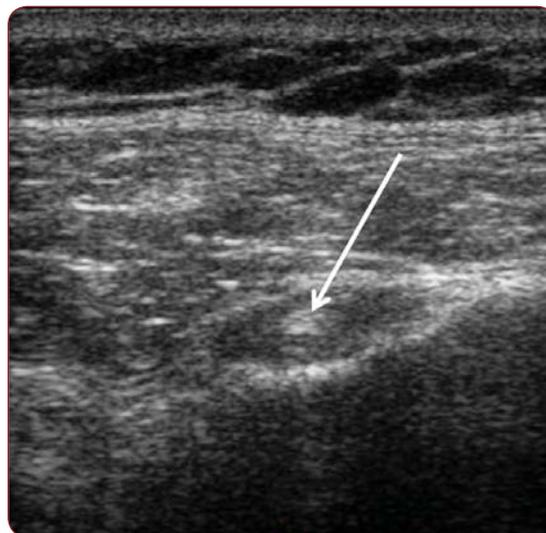


FIGURE 1. Sinovial effusion in long head biceps tendon ("bull's eye" image)

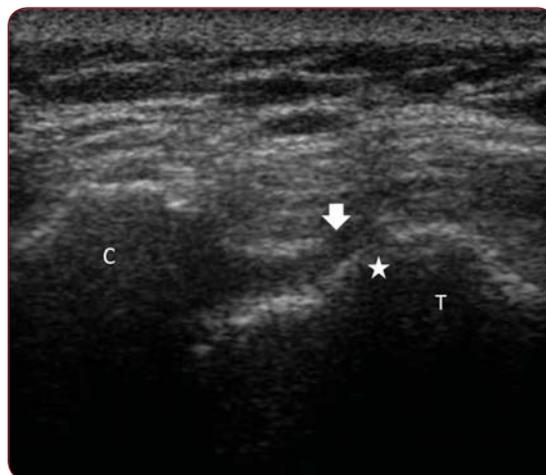


FIGURE 2. Sonographic image of a torn supraspinatus tendon. C acromion, T great tubercle, arrow- torn supraspinatus tendon, asterix- cortical irregularities of great tubercle

don are the mirror of glenohumeral joint, as the tendon is intraarticular and extrasynovial. In this way, we appreciate that there is some effusion in the glenohumeral joint. It may be a reaction effusion to the ruptured supraspinatus tendon or to minimal inflammatory activation of glenohumeral osteoarthritis.

The sonographic appearance completed the diagnosis and modified the therapeutic approach: the shoulder was immobilized in an arm sling for 2 weeks. The relatively short period of immobilization is a compromise between the necessary rest of the torn tendon and the negative effects of prolonged immobilization in the old patient. During these two weeks the patient continued oral therapy and

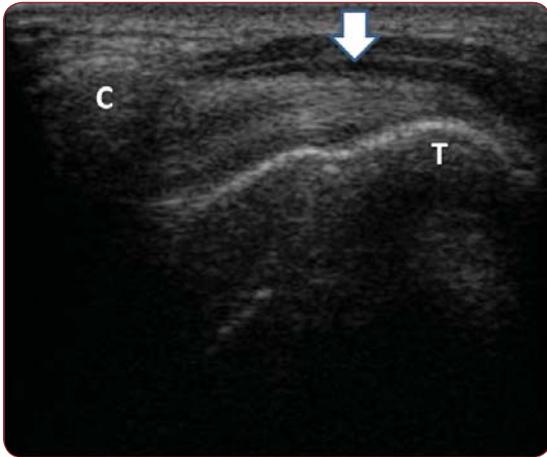


FIGURE 3. Sonographic view of contralateral normal supraspinatus tendon, marks are the same

local application of ultrasound, laser and TENS. The sling was worn during daytime and taken off only at night and during therapy. The patient was instructed to protect her shoulder in day time and during the night. After this interval the pain decreased (from a VAS score 8 to 4) and we proceed to kinetotherapy. □

DISCUSSION

Shoulder pain is often seen in the rehabilitation office practice. A lot of morphologic abnormalities present as pain and loss of function. Clinic maneuvers tend not to be specific, especially when there are concomitant lesions. In the meantime, sonography is able to identify the every structure and its alteration (2). Sonography proved its value in typing and grading the impingement syndrome (3), tendon lesions (4) and in guiding diagnostic and therapeutic injections (5). Shoulder sonography has accuracy for partial tendon tear of 80% and for total tendon tear of 90%; as for the size of the tear, it can correctly estimate in 70%, it overestimates it in 2% and underestimates it in 9%. (4) Together with its low costs, repeatability, dynamic observation, these advantages place sonography in an early position in protocol of shoulder management.

The case here is not at all rare in the ambulatory practice. Time is important for older people, pain alleviation is a first demand and pain killing pills may have different contraindications or adverse effects. We faced an old female patient, with no previous trauma or other event, with a sudden shoulder pain and with moderate functional limitation. Clinic examination, corroborated with laboratory and x-scans, oriented the diagnosis to an impingement syndrome and supraspinatus tendinopathy. The therapeutic protocols for this diagnostic were thoroughly respected, but with no improvement. Further evaluation would have implied MRI and/or diagnostic arthroscopy, but they were not available, due to different reasons. Sonographic evaluation changed the diagnostic and offered a new perspective for the therapeutic approach. Supraspinatus full-thickness rupture was evident, with some glenohumeral reaction, as seen through biceps long head synovial effusion. Immobilization was advocated for a short period (two weeks), as it has both beneficial effect on wound healing and negative effects on joint and muscles. Immobilization was followed by rehabilitation program, including physical exercise. This new perspective proved to be correct, as the patient's course improved. □

CONCLUSION

With this case report we point out the place of sonography in the management of painful shoulder in older patients in the ambulatory practice. Time and money consuming investigation should be avoided. Along with clinic examination, quick access to sonography will point out the diagnosis and will evaluate the necessity for further investigation. Sonography advantages are numerous: low cost, repeatability, dynamic examination, reliability. We consider that a specialist in physical medicine and rehabilitation must have access to sonography as a step that follows clinical examination.

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