

Case Reports / Olgu Sunumu

Biceps brachii long head calcific tendinitis can be treated quickly and effectively with radial shockwave therapy: a case report

Biceps uzun başı kalsifikasyonu radial şokdalgası tedavisi ile hızlı ve efektif olarak tedavi edilebilmektedir: bir olgu sunumu

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ABSTRACT

Calcific tendinitis, which mostly involves the supraspinatus and rotator cuff tendons, may very rarely involve the long head of the biceps brachii (LHBB). Arthroscopy is the first choice in cases of calcific tendinitis accompanied by a rotator cuff tear but in cases where the rotator cuff is intact, there are different treatment methods, such as non-steroidal anti-inflammatory drugs (NSAID), steroid injection, Extracorporeal Shock Wave Therapy (ESWT), and Radial Shock Wave Therapy (RSWT).

A 28-year-old male presented at the outpatient clinic with right shoulder pain which had been ongoing for 6 months. The patient, who was a licensed table tennis player and amateur bodybuilder, had no systemic diseases. After clinical and radiological evaluation, ultrasonography showed calcification at the level of the greater tuberculum of the right humerus. The patient was diagnosed with calcific tendinitis of the bicipital tendon. Magnetic resonance imaging (MRI) was then performed to investigate any rotator cuff pathology or glenohumeral joint pathology. No additional pathology was observed. The patient was managed with the standard RSWT protocol of four sessions. 0.25 mJ/mm² 3 bar 2000 beats administered with an electromagnetic lithotripter. Before RSWT, the VAS score was 9 over 10 and Constant score was 37, and after the first session of RSWT, the VAS score of the patient had decreased to 6. After the 4th session, treatment was terminated as the patient was completely pain-free.

At the 1-year follow-up examination, the patient was still pain-free during daily activities and sports activities, and had full range of motion. In this case report, RSWT is presented as an effective treatment option for LHBB calcific tendinitis. RSWT may be a priority option over ultrasound-guided or arthroscopic barbotage in patients without tendon rupture.

Keywords: *Biceps brachii, shoulder, shockwave therapy, calcium deposit*

ÖZ

Çoğunlukla supraspinatus ve rotator manşet tendonlarını tutan kalsifik tendinit, nadiren biceps brakinin uzun başını (BBUB) tutabilir. Rotator manşet yırtığının eşlik ettiği kalsifik tendinitte ilk tercih artroskopik cerrahidir ancak rotator manşetin sağlam olduğu durumlarda steroid olmayan antiinflatuar ilaçlar (NSAID), steroid enjeksiyonu, ekstrakorporal şok dalga tedavisi (ESWT) ve radyal şok dalga tedavisi (RSWT) gibi farklı tedavi yöntemleri kullanılır.

28 yaşında erkek hasta 6 aydır devam eden sağ omuz ağrısı ile polikliniğimize başvurdu. Lisanslı masa tenisi sporcusu ve amatör vücut geliştirici olan hastanın bilinen sistemik hastalığı yoktu. Klinik ve radyolojik değerlendirme sonrasında yapılan ultrasonografide sağ humerus büyük tüberkülüm seviyesinde kalsifikasyon görüldü. Hastaya ultrasonografi ile bicipital tendonun kalsifik tendiniti tanısı kondu. Hastada eşlik edebilecek rotator manşet veya glenohumeral eklem patolojisi varlığını saptamak için manyetik rezonans görüntüleme (MRG) uygulandı, ek patoloji izlenmedi. Hastaya dört seans 0.25 mJ/mm² 3 bar 2000 atım Radial Şok Dalga Tedavisi (RŞDT) elektromanyetik litotriptör ile uygulandı. RŞDT öncesi hastanın VAS skoru 9, Constant skoru 37 iken ilk seanstan sonra VAS skoru 6'ya geriledi. 4. seanstan sonra hasta tamamen ağrısız olduğu için tedavi sonlandırıldı.

1 yıllık takipte hasta günlük ve spor aktivitelerinde halen ağrısız ve tam eklem hareket açıklığına sahipti. RŞDT'nin BBUB kalsifik tendiniti için etkili bir tedavi seçeneği olduğu, tendon yırtığı olmayan hastalarda ultrason eşliğinde uygulandığında artroskopik barbotajdan daha öncelikli bir seçenek olabileceği gösterilmiştir.

Anahtar Sözcükler: *Biceps brakii, omuz, şok dalga tedavisi, kalsiyum deposu*

INTRODUCTION

Calcific tendinitis (CT) of the shoulder is a disease of unclear aetiology that may appear as painful lesions (1). Clinically, it is very important to distinguish calcified tendinitis from a rotator cuff tear, because the treatment options are different. Current treatment modalities for CT include non-

steroidal anti-inflammatory drugs (NSAID), ultrasound and laser (non-invasive physical therapy modalities), intra-bursal corticosteroid injections, extracorporeal shock wave therapy (ESWT) and radial shockwave therapy (RSWT), and finally arthroscopic barbotage (1-5).

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CT, which mostly involves the supraspinatus and rotator cuff tendons, may very occasionally involve the long head of the biceps brachii (LHBB) (1, 3, 6). There are case reports in the literature in which patients have been treated arthroscopically (7, 8). Some authors suggest that arthroscopy is the first choice because of unresponsive pain to non-steroidal or steroid injection which also harm tendon quality (8). To the best of our knowledge, it has not been previously reported that RSWT is effective in reducing pain and improving function in LHBB calcific tendinitis.

This case report is the first to present RSWT, which is a much less invasive technique and effective treatment option for LHBB calcific tendinitis.

CASE REPORTS

A 28-year-old male presented at the shoulder diseases outpatient clinic with right shoulder pain lasting for more than 6 months. The patient had been evaluated in the emergency department because of severe shoulder pain 1 month ago with a preliminary diagnosis of myocardial infarct. He was a licensed table tennis player and amateur bodybuilder, had no systemic disease and reported complaints of pain independent of position and movement 24 hours a day.

Inspection evaluation revealed no signs of inflammation such as redness and increased local temperature of the

right shoulder. The patient described a localized pain over the shoulder. A mobile mass has been detected with palpation in the anterolateral aspect of the shoulder.

Range of motion tests revealed active abduction of 100 degrees, passive abduction of 150 degrees, active flexion of 90 degrees, and passive flexion of 150 degrees of the right shoulder. Active shoulder movements of the patient were painful. However, the passive range of motion in flexion, abduction and rotation was found to be similar to the left shoulder. The Neer test was positive, the O'Brien test was negative, and the Yergason's test was especially painful. Belly press test was negative.

X-Ray showed calcification at the level of the greater tuberculum of the right humerus. No additional pathology was detected in the glenoid and humeral head (Figure 1). Calcific tendinitis was suspected and shoulder ultrasonography was planned. Musculoskeletal ultrasonography of the right shoulder revealed hyperechogenicity and acoustic shadowing below the biceps tendon at the level of bicipital groove. The left biceps tendon appeared normal (Figure 2). The patient was diagnosed with calcific tendinitis of the bicipital tendon based on the sonographic and direct X-Ray findings. Magnetic resonance imaging was performed in respect of any rotator cuff pathology or glenohumeral joint pathology but no additional pathology was detected (Figure 3).

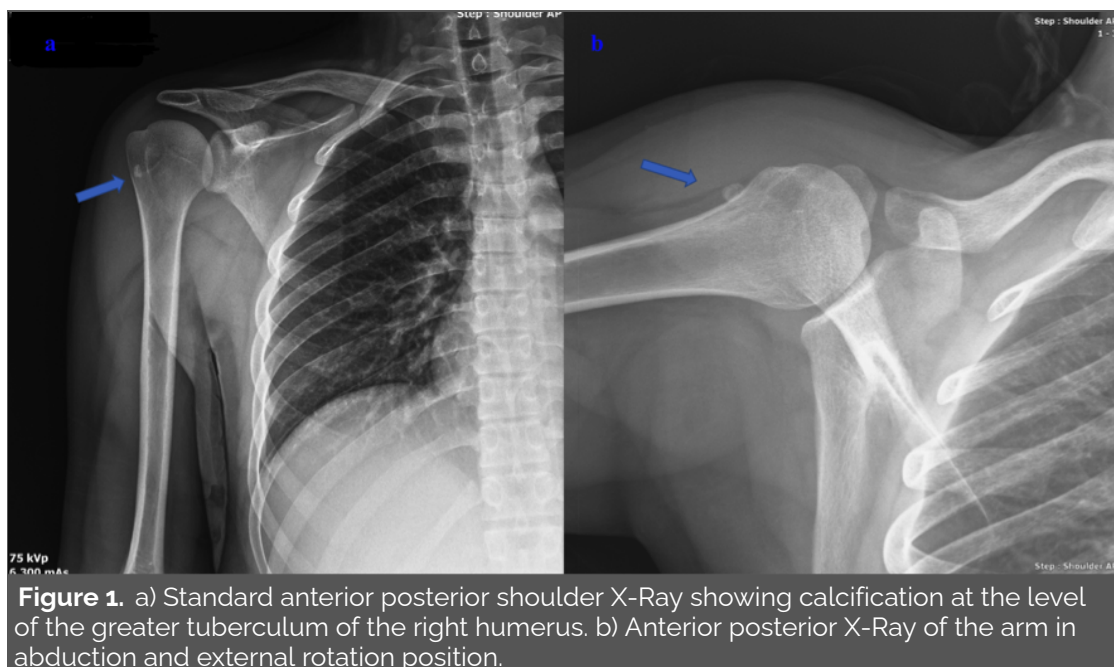


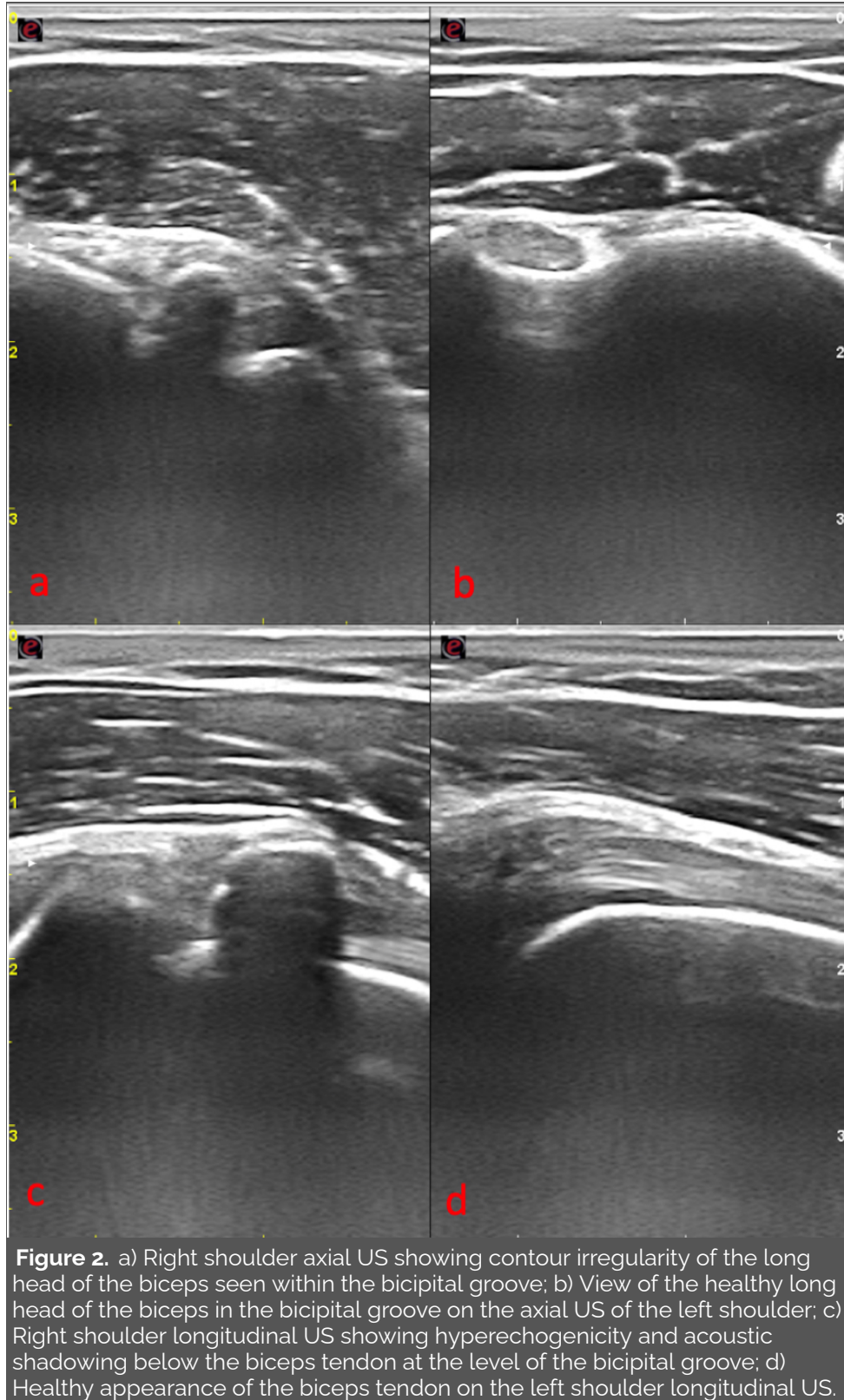
Figure 1. a) Standard anterior posterior shoulder X-Ray showing calcification at the level of the greater tuberculum of the right humerus. b) Anterior posterior X-Ray of the arm in abduction and external rotation position.

Standard RSWT protocol of four sessions per month, with 0.25 mJ/ mm² 3 bar 2000 beats administered with an electromagnetic lithotripter in each session. The patient was

instructed to avoid overhead activities including both contact and non-contact sports. No specific rehabilitation protocol was applied to the patient during and after this RSWT period. Before RSWT, the VAS score was 9 and Constant

score was 37, and after the first session of RSWT, the VAS score of the patient decreased to 6. After the 4th session, the treatment was terminated because the patient was completely pain-free. Following the RSWT protocol active shoulder abduction was found to be 120 degrees, passive

abduction was 150 degrees, active flexion was 150 degrees, and passive flexion was 160 degrees. The Neer test, the Yergason's test and the O'Brien test were negative after the treatment.



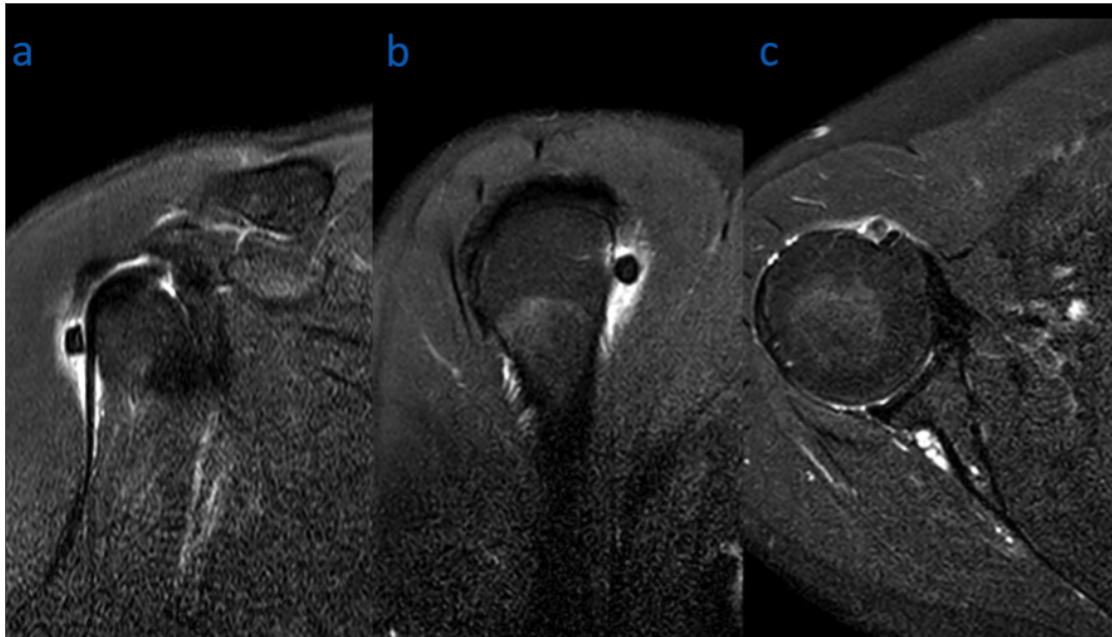


Figure 3. Calcific tendinitis findings on MRI. a) MRI coronal T2 sequence showing calcific tendinitis and intact biceps tendon; b) MRI sagittal T2 sequence showing calcific tendinitis; c) MRI axial T2 sequence showing calcific tendinitis and glenohumeral joint compliance.

At the 1-year follow-up examination, the patient was still pain-free. Active and passive movements of the right shoulder were observed to be the same as those of the healthy

DISCUSSION

To the best of our knowledge, this is the first report to have shown effective treatment of LHBB calcific tendinitis with RSWT therapy. With the development of technology, less invasive treatments are emerging. Less invasive treatments ensure patient comfort and reduce iatrogenic problems (5, 9). Xiang-he Xue et al. reported that arthroscopic treatment was effective in a LHBB CT with superior glenoid involvement (8). Cocco et al. treated biceps brachii calcification with NSAID and US-guided percutaneous aspiration (10). USG-guided aspiration could have been attempted in the current patient, but RSWT was selected as a non-invasive technique. There was no similar case reported with calcific tendinitis in shoulder region that RSWT had been utilized instead of barbotage.

CT is a painful pathology related to the deposition of hydroxyapatite crystals, which usually involves large joints, especially the tendons of the rotator cuff; the supraspinatus tendon, infraspinatus tendon, subscapularis tendon and their involvement together (6). It may occasionally involve the distal insertion of the biceps tendon (11-13). It is not always easy to diagnose the disease with X-Ray, but differentiation from a rotator cuff tear is important. The clinical findings of the current patient were not consistent with a rotator cuff

tear. The musculoskeletal ultrasonography of the right shoulder of the patient revealed no pathology (Figure 4), and the Constant score was 91.

As X-ray findings mimic avulsion fractures, the patient history is important because most tendon calcifications tend to cause chronic pain and pain occurs with movement (8). The treatment decision and post-treatment follow-up of the current patient was made based on the US examination. US is fast and reliable diagnostic tool as well as a guide to direct treatment procedures such as barbotage of calcific tendinitis (14).

RSWT treatment for supraspinatus and infraspinatus calcifications can provide effective pain palliation with negligible complications (4, 5, 15, 16). De Boer et al. reported that RSWT used for rotator cuff calcifications, provided almost complete recovery without any complications in patients (5). While there is such an effective treatment, arthroscopic treatment can be used for diagnostic purposes in undiagnosed patients or for repair in patients with rotator cuff tendon ruptures, as reported by Xing-he Xue et al. or in the treatment of glenohumeral pathologies accompanying SLAP lesion, as reported by Kim KC et al. (7, 8). In the case presented in this paper, LHBB tendon calcification was treated with RSWT, and full recovery has been accomplished ultrasonographically at the 1st year follow-up examination.

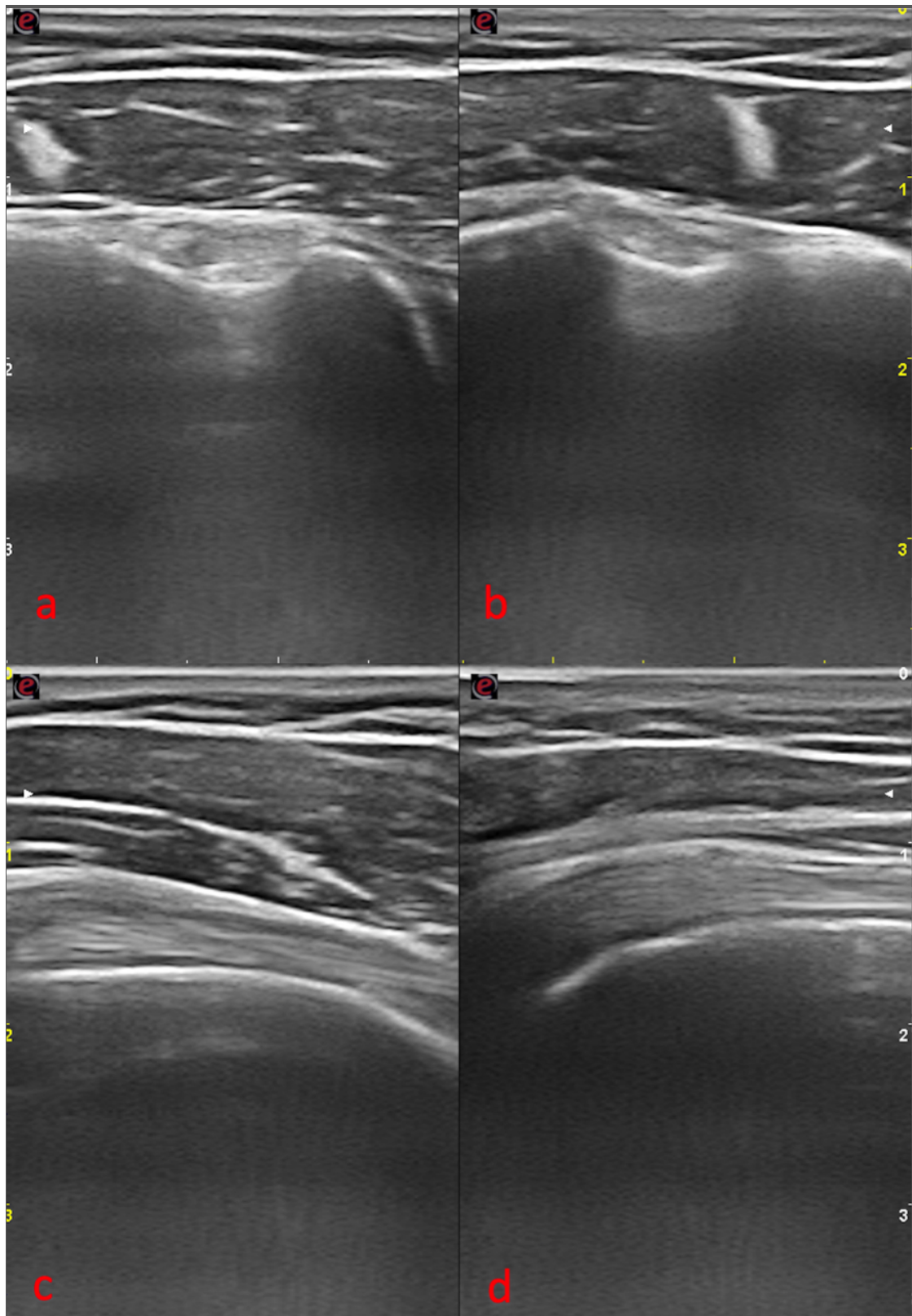


Figure 4. a) Healthy view of the long head of the biceps brachii in the bicipital groove on the axial US of the right shoulder; b) Healthy view of the long head of the biceps brachii in the bicipital groove on the axial US of the left shoulder; c) Right biceps tendon has been visualized as normal and acoustic shadowing seen at the former examination has been disappeared; d) Healthy appearance of the biceps tendon at the left shoulder longitudinal US.

CONCLUSION

Calcific tendinitis can be managed with ultrasound from diagnosis to treatment and RSWT is an effective treatment for LHBT calcific tendinitis. If there is no other pathology such as a tear that requires arthroscopic intervention, RSWT seems to be the priority option rather than barbotage.

Conflict of Interest / Çıkar Çatışması

The authors declared no conflicts of interest with respect to authorship and/or publication of the article.

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