Journal of Chiropractic Medicine (2013) 12, 26–29

ELSEVIER

JOURNAL of CHIROPRACTIC MEDICINE

www.journalchiromed.com

Topics in diagnostic imaging

Treatment of supraspinatus tendinopathy with ultrasound guided dry needling

Roy Settergren DC, MS, MS, RMSK*

Lecturer, National University of Health Science, Lombard, IL
Team Chiropractic Physician, University of Illinois at Chicago Athletic Program, Chicago, IL

Received 14 August 2012; received in revised form 25 November 2012; accepted 30 November 2012

Key indexing terms:
Tendinopathy;
Acupuncture;
Ultrasonography;
Rotator cuff

Abstract

Objective: The purpose of this case study is to describe the treatment of a patient with tendinopathy using sonographically guided dry needling. Tendinopathies are a highly prevalent problem in musculoskeletal medicine, and no one form of treatment has gained universal acceptance as being superior to another.

Clinical Features: A 30-year-old woman with a 4-month history of anterolateral right shoulder pain was diagnosed with supraspinatus tendinopathy upon physical examination, which was confirmed with diagnostic sonography.

Intervention and Outcome: Sonography was used to guide an acupuncture needle into the pathologic tissue to induce a humoral healing response. Therapeutic exercise was also prescribed. At 10-day follow-up, increased echogenicity was found in the previously heterogenous hypoechoic areas. The patient also experienced a subjective resolution of her shoulder pain, which did not return with increased physical activity.

Conclusions: Sonographically guided dry needling was shown to be beneficial for this patient as evident by sonographic changes pre- and postprocedure.

Introduction

Tendinopathies are a highly prevalent problem in musculoskeletal medicine.[1] Conventional conservative treatments consist of the passive modalities such as rest, cryotherapy, nonsteroidal anti-inflammatory drugs, and bracing.[2,3] These treatments aim at relieving the patient's pain with a passive modality, not by stimulating regeneration or repair.[4] Therapeutic ultrasound (US) is a passive modality aimed at inducing tendon remodeling; however, it has little evidence for support. The only therapy found to repeatedly remodel and strengthen the degenerated tendon is therapeutic exercise, which continues to be the mainstay form of active conservative treatment. However, no one form of treatment has gained universal acceptance.[5]

* Corresponding author. 730 N Franklin Suite 602, Chicago, IL 60654. Tel.: +1 312 756 7839; fax: +1 312 253 4453.
E-mail address: rdsettergren@gmail.com.

1556-3707/$ – see front matter © 2013 National University of Health Sciences.
http://dx.doi.org/10.1016/j.jcm.2012.11.002

Until recently, magnetic resonance imaging has been the imaging modality of choice for rotator cuff pathology. This imaging is not performed in most private practices. However, high-frequency US has recently become a widely accepted to investigate rotator cuff abnormalities and is capable of providing real-time imaging with a sensitivity and specificity equal to those of magnetic resonance imaging.[6] Ultrasonography offers a live image that is able to be correlated on site with physical examination findings.[7] Furthermore, US guidance for the purpose of the procedure also allows for ease in locating the pathologic tissue[8] for diagnostic purposes and may also be used to pinpoint that same tissue for treatment, minimizing disruption or trauma to healthy tissues.[2,5,9] At present, there are no published reports on the use of US-guided dry needling for tendinopathy in a chiropractic setting. Therefore, the purpose of this case study is to describe the treatment of sonographically guided dry needling to a tendinopathy.

Case report

A 30-year-old woman presented with a 4-month history of constant right anterior lateral shoulder pain. The patient described her pain as being 6/10 (0 = no pain, 10 = extreme pain) on a visual analog scale and achy in nature when at rest, but sharp with motion overhead. The patient stated that she regularly participates in intense Olympic lifting and plyometric exercise with a CrossFit organization. She expressed that overhead motions exacerbated her pain, whereas resting the arm at her side for prolonged periods without using it would reduce the pain slightly. The patient had no tenderness to palpation of the shoulder and no visible signs of trauma or surgical scaring. Range of motion in the right shoulder was normal with the following exceptions: abduction was limited by pain at 90°; flexion was limited by pain at 110°; external rotation at 90° of abduction was painful at end range but not limited; internal rotation at 90° of abduction was only 60°; however, it was not painful. Impingement sign, Hawkin test, and Speed test all reproduced the patient's sharp anterior lateral shoulder pain. Sonographic images were obtained with a GE Logiq portable diagnostic US unit (GE Healthcare, Milwaukee, WI) using a multifrequency 7- to 13-MHz linear transducer. A heterogeneous hypoechoic area was visible on both the longitudinal and transverse image (Figs 1 and 2). The transducer was rocked to confirm that this finding was not an anisotropic effect. This finding is consistent with a tendinosis of the supraspinatus tendon.[10-12]

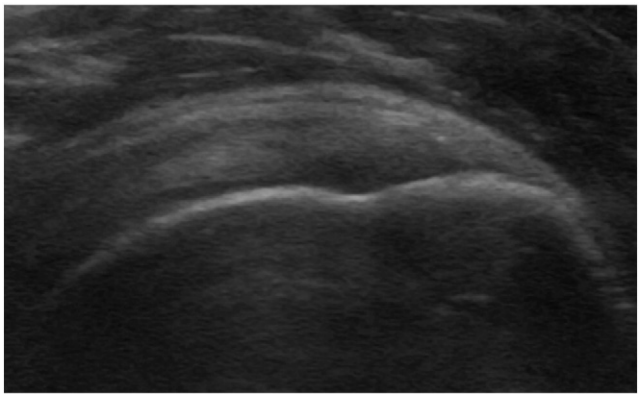

Fig 1. Sagittal view of the supraspinatus tendon prior to dry needling. Heterogeneous hypoechoic area is present within the tendon.

The procedure began with the patient seated with her arm in the modified Crass position. This position pulls the supraspinatus tendon anteriorly and out from under the acromioclavicular joint. The area to be treated was then prepared with isopropyl alcohol, and universal precautions were maintained. A sterile transducer cover was placed over the transducer head, and a generous amount of sterile transmission gel was applied. The transducer was then placed over the area of interest, and the image was optimized prior to the intervention being performed. Under US guidance, a 0.50 × 75–mm HL Seo Won sterile acupuncture needle (Gyeonggi-do, Korea) was guided percutaneously into the pathologic tissue with care taken to not penetrate down to the articular cartilage. Once the needle was within the

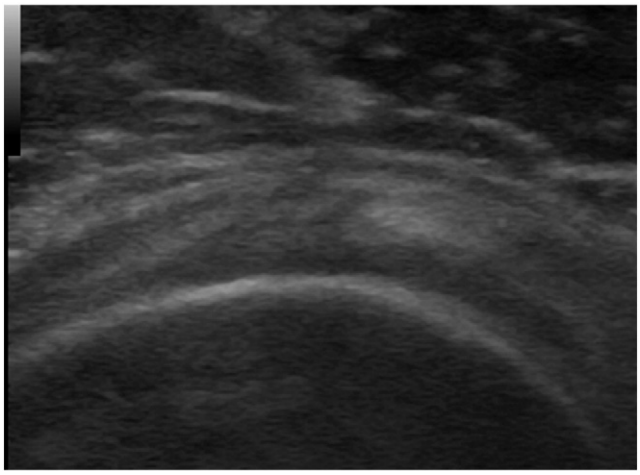

Fig 2. Transverse view of the supraspinatus tendon prior to dry needling. Heterogeneous hypoechoic area is present within the tendon.