



USE ULTRASOUND, DON'T MISS THE RUPTURE

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<p>Article Info Received 15/06/2015 Revised 27/06/2015 Accepted 02/07/2015</p> <p>Key words: Achilles Tendon, Ultrasound, Rupture, Sports Injury, Emergency.</p>	<p>ABSTRACT In emergency clinical practice, foot and ankle trauma are usually seen. Achilles tendon injury is one of the most common sport-related injuries frequently observed in athletes who are participating in activities such as running and jumping. A 32-year-old man presented to ED with acute onset of severe left leg pain started an hour ago while playing football. Pain was located at the posterior aspect of the ankle. Ultrasound was performed with linear probe (10 Mhz). First USG of right ankle examined and normal findings seen. Bed-side USG of left ankle revealed a hypoechoic gap as a complete disruption of the fibrillar appearance of the tendon approximately 6 cm from calcaneal insertion site with retraction of the torn ends consistent with full-thickness rupture of the Achilles tendon. The patient was discharged with splint and crutches. This case illustrates the use of ultrasonography in the evaluation of suspected tendon rupture especially with limited physical examination. Point-of-care ultrasound can potentially avoid misdiagnosis.</p>
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INTRODUCTION

In emergency clinical practice, foot and ankle trauma are usually seen. Achilles tendon injury is one of the most common sport-related injuries frequently observed in athletes who are participating in activities such as running and jumping [1,2]. It occurs typically in young men who have no prior injury reported in the affected leg [3]. Ruptures occur mostly 3 to 6 cm proximal to the calcaneal insertion of the tendon due to the small cross-sectional area, large eccentric loads and hypovascularity [1]. Achilles tendon rupture has been reported as missed in more than 20% of cases, most likely because of pain and swelling limiting the physical examination [4]. Ultrasound (USG) imaging is cheap, acute tendon injuries are easily detected via bedside USG, so nowadays it has growing importance in emergency departments (ED) and is used as a stethoscope by emergency physicians in every field.

CASE REPORT

A 32-year-old man presented to ED with acute onset of severe left leg pain started an hour ago while playing football. Pain was located at the posterior aspect of the ankle. Swelling was noted but overall ankle

examination was limited because of severe pain. X-Rays didn't reveal any acute abnormality. Ultrasound was performed with linear probe (10 Mhz). First USG of right ankle examined and normal findings seen (Figure 1). Bed-side USG of left ankle revealed a hypoechoic gap as a complete disruption of the fibrillar appearance of the tendon approximately 6 cm from calcaneal insertion site with retraction of the torn ends consistent with full-thickness rupture of the Achilles tendon (Figure 2). The gap between the ruptured ends was filled with hematoma and debris. With dynamic testing (slight passive dorsiflexion to plantar flexion), separation of the distal tendon edge was well visualized. The patient was discharged with splint and crutches.

DISCUSSION AND CONCLUSION

Although achilles tendon is the strongest tendon in the human body, acute injuries from sport related activities are common in ED. Most of the patients are men in young ages who have sedentary occupations and do sports occasionally [1]. Etiologic reasons other than trauma are; long term usage of steroids, local steroid injection,



Figure 1. Longitudinal view of intact right Achilles tendon (red arrow).

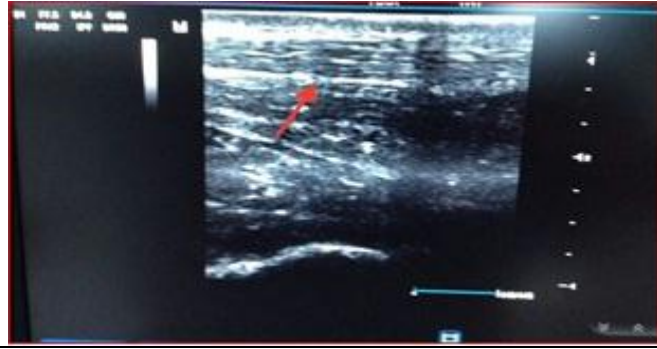


Figure 2. Longitudinal view of a full thickness tear of left Achilles tendon (red arrow).



fluoroquinolone antibiotics, hyperthermia, rheumatic diseases [5,6]. 25% of achilles tendon ruptures are known to go unnoticed on first examination [7]. Missed diagnosis may result in patient morbidity. This tendon is responsible of the plantar flexion. When a tendon is ruptured or injured, physical examination may reveal local sensitivity, edema, ecchymosis. Diagnosis is usually with MRI. But it is also possible with USG. During the ultrasound, laying the patient prone with the foot hanging over the edge of the table is comfortable. Mild dorsiflexion of the ankle and use of thick transmission gel help to optimize imaging. A high-frequency transducer of at least 10 MHz is typically used for the superficial location of the structures. The Achilles tendon can be easily seen when the transducer is placed in the sagittal plane, longitudinal to the tendon fibers [8]. The transducer is moved proximally from the insertion site at the calcaneal tuberosity to the myotendinous junction. The transducer is turned 90 degrees for evaluation in the

transverse plane. In the rupture, a hypoechoic defect is seen within the tendon fibers on USG; also the disruption of the continuity of the tendon, accumulation of hematoma can be observed with ultrasonography [9]. Dynamic imaging is important in evaluation of Achilles tendon tears since hemorrhage, fluid, debris, or scar tissue may fill the gap between torn tendon ends. With passive movement of the foot or by gently squeezing the calf muscles (Thompson test), the gap between the torn tendon ends becomes more obvious as one tendon end moves without translation of movement to the other tendon end. Comparison with normal side and dynamic imaging is recommended.

This case illustrates the use of ultrasonography in the evaluation of suspected tendon rupture especially with limited physical examination. Point-of-care ultrasound can potentially avoid misdiagnosis.

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