

IMAGES IN EMERGENCY MEDICINE

Imaging

13-year-old with left heel injury

Eric S. Chu MD¹ | Rahul Shah MD^{1,2} | Henry Chicaiza MD^{1,2}

¹ University of Connecticut School of Medicine, Farmington, Connecticut, USA

² Connecticut Children's Medical Center, Hartford, Connecticut, USA

Correspondence

Eric S. Chu, MD, University of Connecticut, School of Medicine, 263 Farmington Ave, Farmington, CT 06030, USA.

Email: echu@uchc.edu

1 | CASE PRESENTATION

A 13-year-old female presented to a pediatric emergency department after the back of her left heel was struck with a sharp metal object. She had a 1.5 cm horizontal laceration with protrusion of tissue 2 cm from the calcaneus.

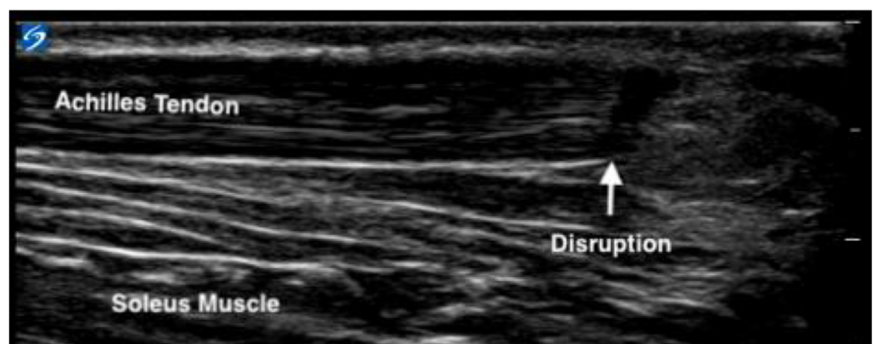
Informed consent was obtained from the responsible party.

2 | DIAGNOSIS

2.1 | Traumatic Achilles Tendon Laceration

Point-of-care ultrasound (POCUS) showed a complete disruption of the left Achilles tendon (AT) with loss of fibrillar appearance (Figure 1). The unaffected right side was scanned for comparison (Figure 2). Distally, the tendon was retracted with surrounding fluid suggestive of inflammation (Figure 3). Dynamic Thompson testing with POCUS showed no tendon movement.

FIGURE 1 Long-axis view of affected Achilles tendon



Magnetic resonance imaging (MRI) revealed a laceration of the AT with retraction of the proximal stump. The patient was diagnosed with a full AT laceration, splinted, and discharged with outpatient follow-up for surgical repair.

Literature on AT lacerations is sparse, particularly in the pediatric population.^{1,2} Other AT injuries, such as AT ruptures, commonly are seen in middle-aged men involved in sports with an incidence of roughly 18 per 100,000 people.³ In contrast, AT lacerations most commonly are caused by bicycle spoke injuries⁴, non-lethal weapons⁵, and lawn mowers.^{6,7} Physical exams for AT injuries often are limited because of pain or swelling; acute AT injuries can be missed in as many as 20% of cases.⁸ Ultrasound has a comparable sensitivity and specificity to MRI⁹ and is a viable alternative for pediatric patients in the ED.

To our knowledge, this is the first case report of POCUS diagnosing an acute AT laceration in the pediatric population. The addition of POCUS to routine care can lead to improved accuracy in acute AT laceration diagnosis, timely management, and appropriate referrals.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2021 The Authors. *JACEP Open* published by Wiley Periodicals LLC on behalf of American College of Emergency Physicians

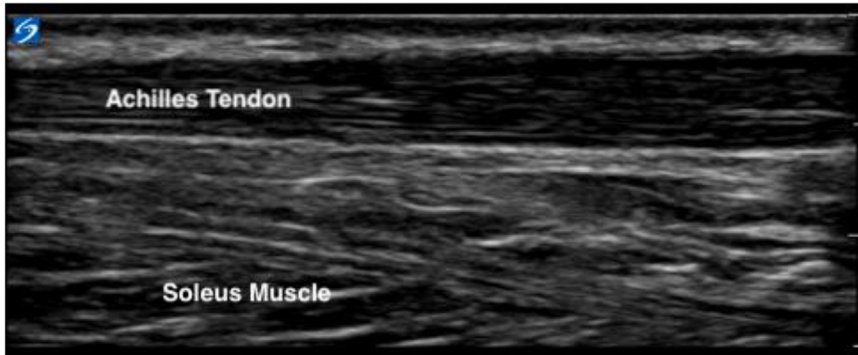


FIGURE 2 Long-axis view of the unaffected Achilles tendon

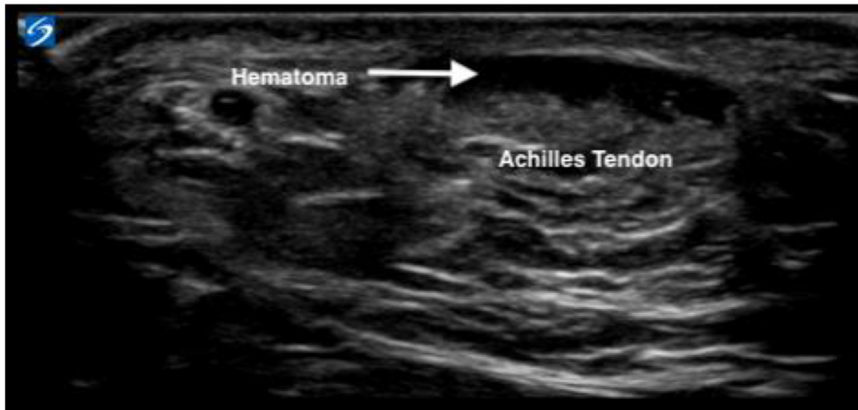


FIGURE 3 Short-axis view of affected Achilles tendon

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

1. Said MN, Ateeq Al Dosari M, Al Subaii N. Open Achilles tendon lacerations. *Eur J Orthop Surg Traumatol*. 2015;25(3):591-593.
2. Vasileff WK, Moutzouros V. Unrecognized pediatric partial Achilles tendon injury followed by traumatic completion: a case report and literature review. *J Foot Ankle Surg*. 2014;53(4):485-488.
3. Raikin SM, Garras DN, Krapchev PV. Achilles tendon injuries in a United States population. *Foot Ankle Int*. 2013;34(4):475-480.
4. Mine R, Fukui M, Nishimura G. Bicycle spoke injuries in the lower extremity. *Plast Reconstruct Surg*. 2000;106:1501-1506.
5. Suyama J, Panagos PD, Sztajnkrzyer MD. Injury patterns related to use of less-lethal weapons during a period of civil unrest. *J Emerg Med*. 2003;25:219-227.
6. Thurston AJ. Foot injuries caused by power lawn mowers. *N Z Med J*. 1980;91:131-133.
7. Alhammoud A, Arbash MA, Miras F. Clinical series of three hundred and twenty two cases of Achilles tendon section with laceration. *Int Orthop*. 2017;41(2):309-313.
8. Hartgerink P, Fessell DP, Jacobson JA. Full- versus partial-thickness Achilles tendon tears: sonographic accuracy and characterization in 26 cases with surgical correlation. *Radiology*. 2001;220(2):406-412.
9. Dams OC, Reininga IH, Gielen JL, van den Akker-Scheek I, Zwerver J. Imaging modalities in the diagnosis and monitoring of Achilles tendon ruptures: a systematic review. *Injury*. 2017;48(11):2383-2399.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

How to cite this article: Chu ES, Shah R, Chicaiza H. 13-year-old with left heel injury. *JACEP Open*. 2021;2:e12506. <https://doi.org/10.1002/emp2.12506>