

Superficial Temporal Artery Pseudoaneurysm Following Head Trauma from a Lacrosse Ball: A Case Report

Joshua Marwede¹, Nathan Fitton²

Learning Point of the Article:

A progressively enlarging pulsatile scalp mass following blunt head trauma should raise suspicion for superficial temporal artery pseudoaneurysm, even in helmeted athletes.

Abstract

Introduction: Superficial temporal artery pseudoaneurysm is a rare vascular complication of blunt head trauma and may be overlooked due to delayed presentation and minimal initial findings.

Case Report: A helmeted adolescent lacrosse player sustained blunt trauma to the right superolateral forehead after being struck by a lacrosse ball. He subsequently developed a progressively enlarging, pulsatile scalp mass. Point-of-care ultrasound demonstrated Doppler flow within the lesion, and further evaluation with ultrasound and computed tomography confirmed a pseudoaneurysm arising from the frontal branch of the superficial temporal artery. The patient underwent surgical excision and ligation of the affected vessel without complications.

Conclusion: Early recognition and appropriate imaging are essential for the diagnosis of superficial temporal artery pseudoaneurysm and allow timely surgical management with excellent clinical outcomes.

Keywords: Superficial temporal artery pseudoaneurysm, head trauma, lacrosse injury, pulsatile scalp mass.

Introduction

An adolescent male presented to Michigan State University's Primary Care Sports Medicine Clinic after experiencing head trauma from a lacrosse ball while wearing a helmet. Since the event, he had developed a gradually enlarging mass where he was struck.

Case Report

Two weeks following the trauma, the patient reported persistent swelling and pain in the right superolateral forehead, exacerbated by pressure. Physical examination revealed a soft, compressible, and pulsatile mass. Beyond this, there were no neurological deficits or other examination abnormalities. The point-of-care

ultrasound (POCUS) showed Doppler flow in the mass. As a result, a formal US was ordered and showed a 1.1 × 0.6 × 0.8-cm pseudoaneurysm in the superiorlateral right scalp at the trauma site, located in the deep subcutaneous fat layer. Due to the severity and location, a follow-up computed tomography (CT) was performed, which confirmed the pseudoaneurysm, which originated from the frontal branch of the superficial temporal artery, and ruled out skull fractures or intracranial involvement. Neurosurgery was consulted at this time.

Discussion

The superficial temporal artery is a terminal branch of the external carotid artery that supplies the anterior temporal and

Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2026.v16.i04.7102>

Author's Photo Gallery



Mr. Joshua Marwede

¹Department of Osteopathic Clinical Medicine, Michigan State University College of Osteopathic Medicine, East Lansing, Michigan, USA,
²Department of Orthopedics, Michigan State University College of Osteopathic Medicine, East Lansing, Michigan, USA.

Address of Correspondence:

Dr. Nathan Fitton,
Department of Orthopedics, Michigan State University College of Osteopathic Medicine, 4660 S Hagadorn Rd, Suite 420, East Lansing - 48823, Michigan, USA.
E-mail: fittonna@msu.edu

Submitted: 15/01/2026; Review: 18/02/2026; Accepted: March 2026; Published: April 2026

DOI: <https://doi.org/10.13107/jocr.2026.v16.i04.7102>

© The Author(s). 2026 Open Access. This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted use, distribution, and non-commercial reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated.

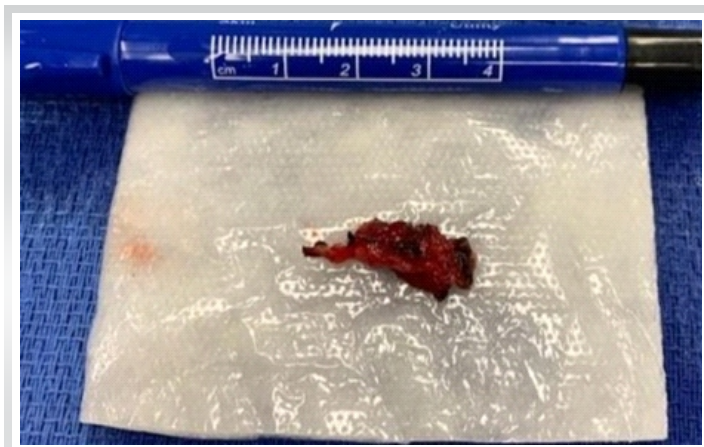


Figure 1: Resected superficial temporal artery pseudoaneurysm measuring approximately 3 cm in length.

parietal regions of the scalp [1]. Most pseudoaneurysms involving this vessel result from direct blunt trauma and typically present as a painless, pulsatile mass that progressively enlarges over time [2]. Unlike true aneurysms, which often occur spontaneously, pseudoaneurysms arise from disruption of the arterial wall with formation of a contained hematoma [3]. Imaging plays a critical role in diagnosis, with ultrasound demonstrating characteristic turbulent flow and CT angiography confirming vascular origin and extent [4-6]. Several reports describe similar delayed presentation following blunt trauma, emphasizing progressive enlargement of a pulsatile mass [7-10].

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

1. Tajran J, Gosman AA. Anatomy, head and neck, scalp. In: StatPearls. Treasure Island, FL: StatPearls Publishing; 2024.
2. Sommer C, Braye E, Rotman S, Joseph JM. Superficial temporal artery pseudoaneurysm after head injury in a teenager. *J Pediatr Surg Case Rep* 2020;61:101592.
3. Isaacson G, Kochan PS, Kochan JP. Pseudoaneurysms of the superficial temporal artery: Treatment options. *Laryngoscope* 2004;114:1000-4.
4. Corvino A, Di Leo G, Grassi R, Sandomenico F, Setola SV, Catalano O, et al. Superficial temporal artery pseudoaneurysm: Radiological spectrum and role of imaging. *Ultrasound* 2016;24:221-7.
5. Saliba E, Apruzzi L, Bossi M, Cozzi D, Cavigli E, Pradella S, et al. Superficial temporal artery pseudoaneurysm: Report of two cases and review of the literature. *Int Arch Vasc Med* 2021;2021:8887692.
6. Younus SM, Imran M, Qazi R. Superficial temporal artery pseudoaneurysm: A case report. *Front Surg* 2015;2:51.
7. Rubio-Palau J, Ferrer-Fuertes A, García-Linares J, Martínez-Lage JL, Martorell-Calatayud A, Sahuquillo-Barris J, et al. Pseudoaneurysm of the superficial temporal artery after blunt trauma: Case report and literature review. *Australas Radiol*

In this case, the patient underwent surgical excision and coagulation of the affected 3-cm arterial segment under general anesthesia (Fig. 1). The post-operative course was uncomplicated, and the patient made a full recovery with return to athletic participation.

Conclusion

Superficial temporal artery pseudoaneurysm is an uncommon but important diagnosis following blunt head trauma, particularly in young athletes. Delayed presentation and subtle initial symptoms may contribute to missed or late diagnosis. This case highlights the utility of POCUS as an initial diagnostic tool, followed by confirmatory imaging with CT. Prompt surgical management resulted in excellent clinical outcomes and a safe return to sport. Clinicians should maintain a high index of suspicion for vascular injury when evaluating post-traumatic scalp masses.

Clinical Message

Persistent or enlarging pulsatile scalp masses after head trauma should be evaluated promptly with ultrasound and advanced imaging to rule out superficial temporal artery pseudoaneurysm and prevent delayed complications.

2014;58:45

8. Alkhaibary A, Alharbi A, Alnefaie N, Aloraidi A, Almutairi A, Alhassan A, et al. Traumatic superficial temporal artery pseudoaneurysm: Case report and literature review with outcomes. *J Craniofac Surg* 2021;32:e445-8.

9. Madhusudan HV, Reddy MK, Reddy KJ, Rao GV, Kumar SP,

Prasad VS, et al. Superficial temporal artery pseudoaneurysm presenting as a growing pulsatile and tender mass: A case report. *Surg Neurol Int* 2015;6:85.

10. Kang I, Mo YW, Jung GY, Shin HK. Pseudoaneurysm of the superficial temporal artery after blunt trauma: Case report and literature review. *Arch Craniofac Surg* 2022;23:130-3.

Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this article

How to Cite this Article

Marwede J, Fitton N. Superficial Temporal Artery Pseudoaneurysm Following Head Trauma from a Lacrosse Ball: A Case Report. *Journal of Orthopaedic Case Reports* 2026 April;16(04):235-237.

