

University of Groningen

A traumatic superficial temporal artery aneurysm after a bicycle accident

Veen, Egbert J D; Poelmann, Floris B; Ijpma, Frank F A

Published in:
Journal of surgical case reports

DOI:
[10.1093/jscr/rju112](https://doi.org/10.1093/jscr/rju112)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2014

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Veen, E. J. D., Poelmann, F. B., & Ijpma, F. F. A. (2014). A traumatic superficial temporal artery aneurysm after a bicycle accident. *Journal of surgical case reports*, 2014(10), Article rju112. <https://doi.org/10.1093/jscr/rju112>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Case Report

A traumatic superficial temporal artery aneurysm after a bicycle accident

Egbert J.D. Veen*, Floris B. Poelmann and Frank F.A. IJpma

Surgery and Traumatology, Isala Clinics, Zwolle, The Netherlands

*Correspondence address. Surgery and Traumatology, Isala Clinics, PO Box 10400, 8000 GK Zwolle, The Netherlands. Tel: +31-38-424-62-99; Fax: +31-38-424-77-20; E-mail: ejdveen@gmail.com

Received 8 August 2014; revised 5 October 2014; accepted 6 October 2014

A male cyclist presented with a swelling on the forehead. Six weeks before, he fell of his bike and smashed his head on the ground while wearing a helmet. A smooth lump of 1 cm had evolved on the temporal side of his forehead in a few weeks. Duplex ultrasonography demonstrated a dilated vessel with a minor defect in the luminal wall. Surgical exploration revealed an aneurysm of the superficial temporal artery (STA). The aneurysm was surgically removed and the patient recovered uneventfully. Owing to its superficial course, the STA is vulnerable to blunt head trauma. Traumatic aneurysms of the STA should be a differential diagnostic consideration in patients with a history of trauma and a swelling on their head.

INTRODUCTION

Traumatic aneurysm of the superficial temporal artery (STA) was first described in the 17th century, after a blunt head trauma [1]. Since then approximately 200 cases have been reported. This has been thoroughly described by van Uden *et al.* in 2011 [2]. The STA is one of the terminal branches of the external carotid artery, which supplies blood to the scalp [1–3]. Owing to its superficial and anatomical course, the STA is vulnerable to blunt head trauma, which can eventually result in traumatic aneurysms of the STA after a few weeks [4–7]. At the daily routine, physicians are often encountered with patients with swellings on the scalp. Most often these were diagnosed as simple sebaceous cysts, epidermoid cysts, pilar cysts, lipomas and in case of a history of trauma as hematomas. Traumatic aneurysms of the STA should be a differential diagnostic consideration in patients with a history of trauma and a swelling on their scalp as is prompted in this report.

CASE REPORT

A 50-year-old healthy man presented with a lump on the temporal side of his head. Six weeks before, he fell off his mountain bike, hitting the ground with the left side of his head while wearing a helmet. Initially, there were no signs of

injury, but after a few weeks a progressive painless lump has appeared at the place where his head smashed into the helmet at the time of the accident. Physical examination revealed a smooth lump, measuring 1 cm with no signs of inflammation or tenderness (Fig. 1). Ultrasonography showed a dilated vessel with a minor defect of the luminal wall. Our patient was treated by excision of the swelling, which turned out to be an aneurysm of the STA (Fig. 2). The diagnosis was reconfirmed in the pathological report. The patient recovered uneventfully.

DISCUSSION

About 95% of the aneurysms of the STA have a traumatic cause, mostly as a result of blunt head trauma. The remaining 5% of the cases are considered spontaneous aneurysms from congenital or atherosclerotic origin [3]. An aneurysm of the STA may be present as painless, pulsatile masses at the site of the injured arterial branch and could be associated with a palpable thrill [8]. Our case demonstrates that signs of injury can be absent at the time of the accident, but STA aneurysms may still develop a few weeks after the trauma has occurred. Duplex ultrasonography is a reliable and safe method to confirm the diagnosis [4]. In cases where STA aneurysms are left untreated, cosmetic concerns, headaches and more importantly ruptures of the aneurysm have been reported [2, 9].



Figure 1: Clinical presentation of a lump on the scalp with a diameter of 1 cm.

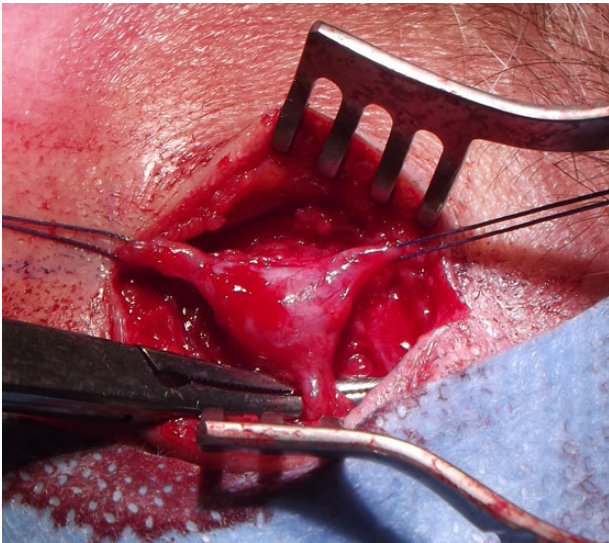


Figure 2: Operative image of a STA aneurysm.

Surgical resection of the aneurysm is the treatment of choice in most reports. Endovascular treatment modalities such as thrombin injection and catheter-based embolization have been described in a few cases [2]. These techniques can

be used in selected cases in which surgery is not possible or not preferred for cosmetic reasons. Thrombin injections show an average success rate of 80%. Possible disadvantages of the endovascular treatment options could be a persisting lump or embolic complications of the carotid artery. After failure of the thrombin injections, a second injection was needed or surgery in a second stage [2].

Although a scar comes along with surgery, exploration with ligation and excision is considered as a safe and definitive treatment of aneurysms of the STA [4]. In conclusion, physicians should be aware of traumatic aneurysms of the STA in patients with a history of trauma and a swelling on their head.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. DeSanti L. Aneurysms of the temporal region. *Arch Gen Med* 1884;**154**: 543–679.
2. van Uden DJ, Truijers M, Schipper EE, Zeebregts CJ, Reijnen MM. Superficial temporal artery aneurysm: diagnosis and treatment options. *Head Neck* 2013;**35**:608–14.
3. Grasso RF, Quattrocchi CC, Crucitti P, Carboni G, Coppola R, Zobel BB. Superficial temporal artery pseudoaneurysm: a conservative approach in a critically ill patient. *Cardiovasc Intervent Radiol* 2007;**30**:286–8.
4. Stapleton CJ, Fusco MR, Thomas AJ, Levy EI, Ogilvy CS. Traumatic pseudoaneurysms of the superficial temporal artery: case series, anatomy, and multidisciplinary treatment considerations. *J Clin Neurosci* 2014;**14**:1529–32.
5. Choo MJ, Yoo IS, Song HK. A traumatic pseudoaneurysm of the superficial temporal artery. *Yonsei Med J* 1998;**39**:180–3.
6. Conner WC, III, Rohrich RJ, Pollock RA. Traumatic aneurysms of the face and temple: a patient report and literature review, 1644 to 1998. *Ann Plast Surg* 1998;**41**:321–6.
7. Leal FS, Miranda CC, Guimaraes AC. Traumatic pseudoaneurysm of the superficial temporal artery: case report. *Arq Neuropsiquiatr* 2005;**63**: 859–61.
8. Kim SW, Jong Kim E, Sung KY, Kim JT, Kim YH. Treatment protocol of traumatic pseudoaneurysm of the superficial temporal artery. *J Craniofac Surg* 2013;**24**:295–8.
9. Lee HS, Jo KW, Lee SH, Eoh W. Traumatic pseudoaneurysm of the superficial temporal artery due to gardner traction. *J Korean Neurosurg Soc* 2010;**48**:291–3.