

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

Tree branch through the orbit into the skull: A case report ☆☆☆★★★

Julien Flament^{a,1,*}, Astrid Moraine^{a,2}^aEmergency Department CHU UCL, Mont-Godinne, Namur, 1, rue Dr G. Therasse, 5530 Yvoir, Belgium

ARTICLE INFO

Article history:

Received 27 November 2020

Revised 13 January 2021

Accepted 15 January 2021

Keywords:

Computed tomography

Orbital trauma

Intracranial foreign body

ABSTRACT

A 78-year-old woman presented to the Emergency Department with a tree branch through the orbit. Her condition was rated 15/15 on the Glasgow coma scale. Computed tomography showed that the distal extremity of the branch was located between the intracavernous segment of the internal carotid artery and the temporal lobe. The foreign body pushed aside without penetrating the medial rectus, the optic nerve, the internal carotid artery, and the temporal lobe. No intracranial bleeding or pneumocephaly was observed. The surgical option was confirmed and the patient transferred for extraction of the foreign body by traction in the axis.

© 2021 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Introduction

The management of a transorbital penetrating trauma can appear to be challenging. We present the case of a woman with a tree branch through the orbit into the skull. This type of trauma is rarely lethal and the prognosis mainly functional.

Case report

A 78-year-old woman accidentally slipped while going down the exterior stairs and fell head first into a hedge. She was admitted to the Emergency Department with a tree branch entering through the orbit (Fig. 1). She presented with left eye ophthalmoplegia, nausea, and average pain. Her condition was

☆ All authors listed meet the authorship criteria according to the latest guidelines of the International Committee of Medical Journal Editors, and all authors are in agreement with the manuscript.

☆☆ The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

* Funding: This publication did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

★★ Declarations of interest: None.

* Corresponding author.

E-mail address: julien.flament@uclouvain.be (J. Flament).

¹ Write the clinical and diagnosis part of the text, and was the emergency clinician in charge of the patient.

² Write the radiological part of the text, and was the radiologist in charge of the patient.

<https://doi.org/10.1016/j.radcr.2021.01.037>

1930-0433/© 2021 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)



Fig. 1 – Picture of the patient's face at presentation in the Emergency Department.

rated 15/15 on the Glasgow coma scale. The ocular globe had preserved tonicity.

Computed tomography (Fig. 2) showed a 7×0.8 cm foreign body located in the medial part of the orbit passing through the superior orbital fissure. The distal extremity of the branch was located between the intracavernous segment of the internal carotid artery and the temporal lobe. Due to the close contact between the carotid artery and the foreign body, angiography was performed after discussion with the neurosur-

geon in order more precisely identify the suspected contact between the carotid artery and the foreign body.

The foreign body seemed to be wrapped up in the intracavernous part of the internal carotid artery. Moreover, the foreign body had close contact with but pushed aside without damaging a number of important structures: the medial rectus, the optic nerve, and the temporal lobe. No intracranial bleeding, pneumocephaly, or bone damage was observed.

The patient received tetanus vaccination, intravenous antibiotics, analgesics, and antiemetics. After discussion between the neurosurgical team and the ophthalmologists, careful extraction was decided on because of the close contact with the carotid artery. No immediate complications or bleeding were observed immediately. However, the patient has vision loss, total ptosis, loss of corneal sensitivity, and total ophthalmoplegia of the left eye.

Discussion

When caused by a low velocity trauma, such as in this case, the prognosis of a transorbital penetrating trauma is rarely lethal [1] and most often functional [2]. Prognosis mainly depends on the possible infectious complications and existing vascular lesions during the penetrating trauma and/or extraction [3]. The most frequent site of foreign body penetration of the orbit is through the orbital roof. Transorbital penetrating trauma caused by a fall from a person's own height occurs predominantly in the male and pediatric populations [1]. A wide

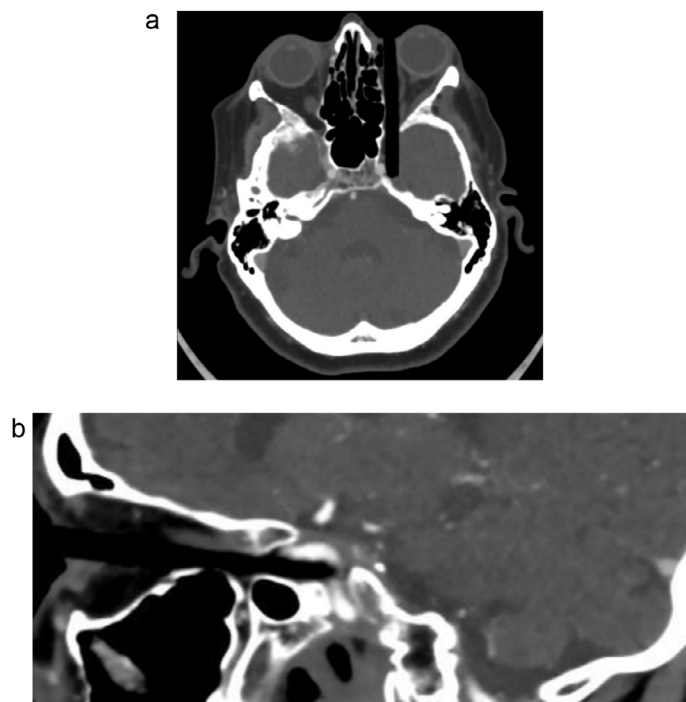


Fig. 2 – (A) Transversal computed tomography of the patient's skull with the tree branch penetrating the orbit. (B) Longitudinal image.

range of treatment options are possible, from simple extraction to a neurosurgical approach, but depend on the lesions observed and always require antibiotic treatment [4,5].

Patient Consent

The patient provided consent to the publication of all the material referenced here.

REFERENCES

- [1] Godar E, Farrugia A, Charton J, Raul JS. Transorbital penetrating trauma caused by a fall on the antenna of a radio receiver: case report and review. *J Medleg*, 2019;10:113–17. doi:[10.1016/j.medleg.2019.04.0012](https://doi.org/10.1016/j.medleg.2019.04.0012).
- [2] Turbin RR, Maxwell DN, Langer PD, Frohman LP, Hubbi B, Wolansky L. et al. Patterns of transorbital intracranial injury: a review and comparison of occult and non-occult cases. *Surv Ophthalmol*, 51(5), pp. 449–460. doi:[10.1016/j.survophthal.2006.06.0083](https://doi.org/10.1016/j.survophthal.2006.06.0083).
- [3] Pereira KD, Wang BS, Webb BD. Impalement injuries of the pediatric craniofacial skeleton with retained foreign bodies. *Arch Otolaryngol Neck Surg* 2005;131(2):158. doi:[10.1001/archotol.131.2.158](https://doi.org/10.1001/archotol.131.2.158).
- [4] Arslan M, Eseoğlu M, Gülü BO, et al. Transorbital orbitocranial penetrating injury caused by a metal bar. *J Neurosci Rural Pract* 2012;3(2):178–81. doi:[10.4103/0976-3147.98228](https://doi.org/10.4103/0976-3147.98228).
- [5] Walid MS, Yelverton JC, Robinson JS Jr. Penetrating orbital trauma with internal carotid injury. *South Med J* 2009;102(1):116–17. doi:[10.1097/SMJ.0b013e31818987e8](https://doi.org/10.1097/SMJ.0b013e31818987e8).