

Intra-orbital foreign corps: when intervenes the neurosurgeon

Olory-Togbe R, Oudrhiri M.Y, Arkha Y, Derraz S, Ouahabi A and Khamlichi.A

Rabat Medical school Ibn Sina Hôpital de spécialités, Medecine Faculty of Rabat Morocco.

ARTICLE INFO

Article history:

Received: 19 May 2014;

Received in revised form:

19 June 2014;

Accepted: 1 July 2014;

Keywords

Intra-orbital

Foreign corps

Sub-conjunctival

Approach infection

Panophthalmitis, cellulitis,

Brain abscess

Ophtalmoplegia.

ABSTRACT

Intra-orbital foreign corps is relatively rare cause of consultation in neurosurgical and ophthalmologic emergencies. Anatomical contiguity between the orbit and the middle cranial fossa is the reason why a neurosurgical approach could be necessary, for the extraction of a foreign body. This case report is about a 6 years old girl, admitted to ophthalmologic emergencies, for intra-orbital foreign body, through a wound located at the inner corner of the left eye. The extraction, of a pencil of 06 cm, has been carried out jointly by neurosurgeons and ophthalmologists by a sub-conjunctival approach. The medium-term follow up is 12 months, a surgical wound healed, but no functional recovery of vision or eye movement. Foreign intra-orbital corps are rare in neuro-ophthalmological emergencies, require vigilance in clinical diagnosis as they may go unnoticed. Adequate imaging, and relevant therapeutic approach aimed at “surgical” extraction, are necessary, because, foreign corps are exposed to the infection, panophthalmitis, brain abscess, or even very serious complications).

© 2014 Elixir All rights reserved

Introduction

A little girl of 6 years old, presented to ophthalmologic emergencies with a wound in the inner corner of the left eye, in the context of a domestic accident fig 1.

Clinical examination found a wound about 1cm, with some wood debris without palpable foreign body, but especially ophthalmoplegia with blindness of the left eye.



Fig 1: picture of the 06 years old girl wounded in the inner corner of left eye by a pencil



(a)



(b)



(c)



(d)

CT scan was performed in emergency fig2 (a,b,c,d) and Showed the presence of an intra-orbital foreign body approximately 6 cm in length, passing through the superior orbital fissure, crossing the optic nerve and entering the temporal fossa .

The removal of the foreign body (pencil) was made by sub-conjunctival medial approach. The exploring of the eyelid wound shows some wood debris, which were removed. Medial canthal avulsion was done, medial rectus muscle was held without damaging the orbital septum. the proximal end of the pencil was seen which was incarcerated in the medial rectus muscle , 01 cm behind its insertion. The end of the pencil is drawn outward and kept in a box. Fig 3 below



There was no CSF or blood leak through the extraction wound. Conjunctiva was closed by sutures g with 8/0vycril. The postoperative course was uneventful. The child was followed up for 12 months. The wound was healed, but visual acuity and the movement did not improve.

Discussion :

Intra-orbital foreign corps, are uncommon, and They occur most often in children. The diagnosis if delayed, often leads to infectious complications. The intra-orbital foreign body may be associated with serious injuries of orbital walls and the eyeball, the optic nerve injury, and cavernous sinus and sometimes intracranial infections. (6) Intracranial complications can include intracerebral hematoma, cerebral contusion, intraventricular hemorrhage, pneumocephalus, brain stem injury, and carotid cavernous sinus fistula. Infection is a later complication that has to be kept in mind.

In our case, brain CT-scan discovered the presence of a foreign body about 6cm length intra-orbitally going through the superior orbital fissure , crossing the optic nerve, penetrating the temporal fossa ; as illustrated by this observation, the left eye was blind with total ophthalmoplegia; but there is no damage of the eyeball which stayed intact . This may be due to several mechanisms: direct damage of the optic nerve or its compression by the foreign body or inflammatory phenomena caused by the penetration of foreign body; or foreign body itself. In addition, the presence of foreign body in orbit is exposed to a risk of infection including orbital cellulitis or abscess [1] which can involve in the eyeball (panophthalmitis) and sometimes extend endocranial, causing a brain abscess , which needs neurosurgical intervention [2]. The neurosurgeon also intervenes, when there is a cavernous sinus The time for onset of these complications is variable. Fortunately, our patient was operated in a relatively short period of 03 hours after the accident, and did not develop table any abscesses or cellulitis. It is important not to ignore the presence of an intra orbital foreign body, after an eye traumatism. In our case, there was presence of orbital debris of timber, clinical examination showed sudden blindness due to trauma with total ophthalmoplegia of the left eye. As Kasamo et al. demonstrated, (7) a “pull and see” method as treatment policy has favorable outcomes. If the object is completely intracranial or lodged such that it cannot be removed easily, frontal craniotomy is an effective surgical approach.(8) According to a report by Farhadi et al. a surgical treatment standard has not yet been determined; however, a rational

treatment strategy should focus on preventing further brain damage. (9) Transorbital penetrating brain injuries are treated best utilizing all up-to-date technical developments, including intra-operative CT-scanning, to increase the safety if there is a risk of immediate life-threatening intracranial bleeding.

Orbital CT scan leads to the diagnosis in our patient. CT scan however has limitations for the detection of some foreign bodies which can mimic the air in the orbit (3). Some windows are proposed to optimize the visibility (above HU 1000) [4] . MRI is indicated especially in cases of strong suspicion of foreign body like intra-orbital wood, with a negative CT scan , it also seems to be more efficient for small size intra-ocular foreign bodies [5] . Angiography is essential, to show the path of the foreign body in the superior orbital fissure, close to the carotid artery and the cavernous sinus (reports of the foreign body with in the internal carotid artery). We did not perform in our case any angiography, due to logistic problems in our context. The indication for removal of the foreign body was taken due to the clinico - radiological description above. The antibiotic coverage was given during surgery by parenteral way, with a gentle extraction without significant intra-operative incidents. The surgery was carried out conjointly by neurosurgeons and ophthalmologists. This had no neuro-ophthalmological repercussions in the short and medium term.

Conclusion:

This observation illustrates the severity of Intra-orbital foreign body like wood, and associated orbital, ocular and intracranial lesions. The major infectious risk, should prompt an urgent management of this condition was necessary. Neurosurgical intervention is necessary when the foreign body is found in intracranial and / or intraparenchymal site; and also, in case of brain abscess complication, when it it close to carotid artery or cavernous sinus, or when the extraction is not easy through endo –orbital route.

References

- 1-Van Thong H, James F, McGuckin Jr, Eleanor M. Intraorbital Wooden Foreign Body: CT and MR Appearance. *AJNR*, 1996;17:134-6.
- 2-Johnson TE. Intraorbital branch. *Arch ophthalmol*, 2000;118:590-1.
- 3-Roberts CF, Leehey PJ. Intraorbital wood foreign body mimicking air at CT. *Radiology*, 1992;185:507-8.
- 4-Wilson WB, Dreisbach JN, Lattin DE, Stears JC. Magnetic resonance imaging of nonmetallic orbital foreign bodies. *Am J Ophthalmol*,1988;105:612-7.
- 5-Ducasse A. Corps étrangers intra-orbitaires. *J Fr Ophtalmol*, 2001;24:758-6
- 6-Valerie Sams, Khanjan H Nagarsheth, and Todd A Nickloes Transorbital Penetrating Intracranial Injury Caused by Sheppard's Hook *J Surg Case Rep*. Sep 2010; 2010(7): 3. published online Sep 1, 2010
- 7- Kasamo S, Asakura T, Kusumoto K, Nakayama M, Kadota K, Atsuchi M, Yamamoto Y. Transorbital penetrating brain injury. *No Shinkei Geka* 1992;20:433–438
- 8- Rahman NU, Jamjoom A, Jamjoom ZA, Abu el-Asrar A. Orbito-cranial injury caused by penetrating metallic foreign bodies: report of two cases. *Int Ophthalmology* 1997;21:13–17
- 9- Farhadi MR, Becker M, Stippich C, Unterberg AW, Kiening KL. Transorbital penetrating head injury by a toilet brush handle. *Acta Neurochir* 2009;151:685–687