portal circulation. The larvae may gain access to the eye via choroidal, ciliary, and central retinal arteries. In the cornea, the larvae may elicit an immune response, resulting in migration of neutrophils and eosinophils from limbal vessels. These eventually invade the corneal stroma with disruption of corneal clarity. [3, 4]

A definitive diagnosis is dependent on the detection of toxocara larvae in tissue sections.[2] In this case, a section of the nematode was found in several slides.

ELISA is the most definitive serologic test for the detection of toxocara infection. Pollard et al. showed a specificity of 91% and sensitivity of 90% in 41 patients.[5] Shields showed 82% sensitivity and 100% specificity in 22 patients.[6]

The treatment for toxocara keratitis has not been reported. This case illustrates that penetrating keratoplasty may be effective since it removes the inflammatory foci from the body.

Prevention is still the key. This may be done by frequent handwashing and avoiding ingestion of or contact with eggs or larvae. It is also advised that dogs be treated with antihelminthics.

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Chopstick splinter: A rare cause of bilateral frozen orbits

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ABSTRACT

Objective

To report an unusual case of frozen orbit caused by an unsuspected intraorbital foreign body.

Method

This is a case report.

Results

A 31-year-old Chinese man presented with a 6-month history of painless progressive right caruncular growth with mucoid discharge. He also had bilateral progressive reduction in ocular movements. His best-corrected vision was 6/9 bilaterally. A conjunctival granuloma arising from the right caruncle and extending to the cornea and associated with ophthalmoplegia was also present. Orbital computed tomography showed a dense rod-like structure traversing the nasal area, extending from the superomedial wall of the right orbit to the apex of the left orbit with surrounding inflammatory reaction but sparing the optic nerve. The intraorbital foreign body, a 6 cm chopstick splinter, was successfully removed via right lateral rhinotomy.

Conclusion

Intraorbital foreign bodies are not uncommonly seen and, generally, the diagnosis is straightforward. Nevertheless, diagnosis could be missed if it is not suspected.

A MENTALLY challenged Chinese male presented with a 6-month history of painless progressive caruncular growth in his right eye associated with mucoid discharge. He was previously treated for conjunctivitis. His family members also noted progressive inability to move his eyes. He initially denied any history of trauma to his eyes, but later disclosed an alleged assault 5 years prior with supposedly no eye injury, ocular pain, or bleeding from the incident.

His best-corrected visual acuity was 6/9 bilaterally. Slit-lamp examination revealed a 4 x 5 mm pedunculated granulation tissue arising from the right caruncle and extending 3 to 4 o'clock of the right corneal limbus. The granulation tissue was mobile with areas of early keratinization. There was bilateral marked restriction of gaze in all directions. No ptosis, proptosis, or orbital cellulitis was present in either eye. The pupillary reflexes, intraocular pressures, and fundi of both eyes were normal.

Conjunctival swab failed to detect any organism. A nasal endoscopy revealed presence of granulation tissue in the right middle meatus with no obvious foreign body. Orbital and brain computed tomography (CT) revealed the presence of a hyperdense rod-like structure traversing the nasal area, extending from the superomedial wall of the right orbit to the apex of the left orbit with surrounding inflammatory reaction. The optic nerves were spared. The sinuses and nasopharyngeal spaces were clear (Figures 1 and 2).

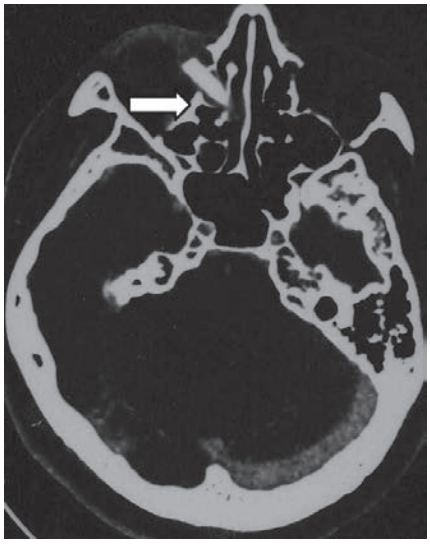

Figure 1. CT shows a radio-opaque rod-like foreign body (arrow) extending from the medial wall of the right orbit, traversing the ethmoidal sinuses to the apex of the left orbit.

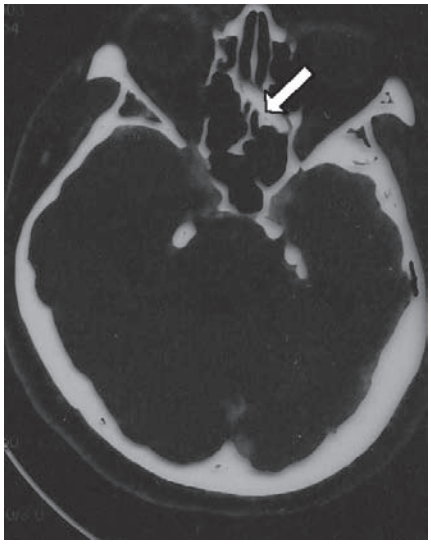

Figure 2. The foreign body is shown (arrow) on coronal CT extending from the floor of the right orbit to the apex of the left orbit. The ethmoidal sinuses were clear.

An elective surgery under general anesthesia was performed to remove the foreign body. A right lateral rhinotomy approach was employed and the right anterior and nasal bridge was removed. Intraoperatively, the foreign body, a 6-centimeter splinter of a plastic chopstick, was noted extending from the right orbital floor and traversing the ethmoidal sinuses posteriorly to the left orbit. No pus was noted in the ethmoidal sinuses or in the orbit. The chopstick splinter was removed and the wound meticulously explored and irrigated.

Postoperatively, the patient was started on intravenous co-amoxiclav (Augmentin, GlaxoSmithKline, Middlesex, UK) and dexamethasone. He was discharged on the third post-operative day with oral co-amoxiclav. At discharge, visual acuity remained and eye movements were still restrictive. Patient failed to return for follow-up evaluation.

Intraorbital foreign bodies are usually diagnosed with ease in the presence of obvious penetrating injuries.[1, 6] In less obvious history of trauma, especially in special patients or children, intraorbital foreign bodies are frequently missed.[2, 4] A high index of suspicion is important to identify such cases.

In the case of our patient, the presence of the intraorbital plastic chopstick splinter remained undetected for 5 years because of his lack of recollection of any ocular injury. The absence of visual deterioration and presence of bilateral frozen orbit further confused the situation.

Retained organic material may lead to infection and eventual abscess formation. This may affect the optic nerve directly or spread to the adjacent structures, leading to sinus abscess, cavernous sinus thrombosis, or intracranial abscess.[2, 3, 5] In our patient, there was no active infection despite presence of the splinter for 5 years possibly because the chopstick was inert or he was partially treated with systemic antibiotics. The presence of a persistent intraorbital foreign body, nonetheless, induced a chronic inflammation that resulted in fibrosis of his extraocular muscles, leading to bilateral frozen orbits. The restrictive ophthalmoplegia may be permanent even after the removal of the splinter.

Intraorbital foreign bodies can be detected by plain radiographs, ultrasonography, CT, and magnetic resonance imaging (MRI).[4] Although CT is very sensitive in detecting high-density material such as metal, it is less effective in detecting low-density objects like organic foreign bodies.[5] MRI is a better method of investigation in such cases.[7] Nevertheless, MRI is contraindicated in cases where metallic foreign bodies are suspected.

In summary, intraorbital foreign bodies should always be suspected in the presence of a mass in the eye, especially when the history is unreliable and clinical presentations are atypical. An imaging investigation should be carried out in such cases as it is potentially life saving.

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