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BRIEF REPORT

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An unusual case of a retained metallic arrowhead in the orbit and sphenoidal sinus**Himadri Datta, Krishnendu Sarkar, Pradeep R Chatterjee, Alope Kundu**

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A case of retained metallic arrowhead in orbit and sphenoidal sinus through an unusual route is reported. The eyeball was removed because of a possible risk of sympathetic ophthalmia.

The eyeball may be injured by various penetrating objects which may enter the orbital wall and reach the structures beyond the orbit. Usually, double puncture of the eyeball occurs and the deeper structures may also be injured, depending on the force of penetration. Radio-opaque foreign bodies causing such injuries may be easily located by routine X-rays. We report an unusual case of a retained metallic arrowhead which entered the eyeball from the temporal side causing double perforation and then penetrated the medial wall of the orbit reaching the sphenoidal sinus.

Case report

A 35-year-old male from a remote rural area sustained an arrow injury in his left eye. After the injury, he developed pain, redness, bleeding from the injured eye and loss of vision. He was examined in the nearby rural health center and then referred to Bankura Sammilani Medical College Hospital nearly 36 hours after being injured.

On examination, the unaided visual acuity in his right eye was 6/6 (Snellen's chart) and other examinations were normal. He had no light perception in left eye. On further examination, the left eye had a tear in the upper eyelid and a penetrating injury of the sclera, a few millimeters away from the limbus extending from the 12 o'clock to 3 o'clock position, and uveal tissue prolapse. About 4 cm of

the arrowhead was visible from the outside. On manipulation the arrow did not show any movement and appeared to be fixed to deeper structures. The cornea was normal and there was no hyphaema. The pupil was round, mid-dilated and did not respond to light. The digitally recorded intraocular pressure was low. Nasal examination revealed no abnormality. There was no systemic involvement.

X-ray of orbit showed an arrowhead penetrating the medial wall of the orbit and the tip was up to the sphenoidal sinus.[Figure:1], [Figure:2]. It was decided to explore the wound. On exploration under general anaesthesia the arrowhead was found fixed to the medial wall of the orbit. The arrowhead was pulled out by firmly gripping it and dislodging it from the medial wall of the orbit. Rotatory or twisting movements were avoided as they could have resulted in extensive fracture of the orbital wall. The rear portion of the arrowhead (the widest part) was gently negotiated through the scleral wound and finally the entire arrowhead was removed.

As there was no perception of light and there was a possible risk of sympathetic ophthalmia, a frill excision of the eyeball was done leaving 4 mm of scleral rim around the optic nerve head. The lid injury was also repaired. The arrowhead measured 12 cm in length, 8 cm of which was inside the point of entry. The breadth of the arrowhead in the sphenoid was 7 mm. (widest part) and that inside the orbit was 22 mm (widest part)[Figure:3]. The patient was treated with systemic (500 mg twice daily) and topical ciprofloxacin for 10 days and analgesic (Ibuprofen 400 mg thrice daily) for 3 days. The postoperative period was uneventful. Follow-up X-rays did not show abnormality. The follow-up period (6 months) was uneventful.

Discussion

Rarely, foreign bodies traverse the orbit into the cranium or to the adjacent paranasal sinuses causing extensive damage to the surrounding structures.[1] The orbit measures about 3.5 cm vertically and 4cm. horizontally.[2]Occasionally a sharp thin foreign body traverses the globe to reach the recesses of the orbit, particularly if it enters with sufficient force and is of sufficient size to gain great momentum. In these circumstances it may cause damage beyond the confines of the orbit. The orbital walls could get fractured - usually the greater wing of sphenoid, the petrous portion of the temporal bone and the sella turcica are affected. After traction of the orbital walls the foreign body may enter the frontal sinus, the sphenoid bone or the nose.

Metallic arrowheads have been described in the literature by Hirschberg (3.2 cm long) and by Steindorff (2.5cm long).[3] In our case nearly 8 cm of the arrowhead was inside the point of penetration and about 4 cm. of it penetrated the medial wall of the orbit. The X-ray of the orbit demonstrated that it had reached the sphenoidal sinus. While retained foreign bodies in the sphenoidal sinus are not in themselves unusual, the route which this foreign body traversed makes it an interesting case study. Based on the wound location and extent of injury it was inferred that the arrow punctured the eyeball at 7 o'clock to 9 o'clock positions anterior to the equator and through the medial wall of the orbit (sphenoid bone) to reach the sphenoidal sinus. It narrowly missed the pituitary fossa.

Conservative treatment was not considered as there were comprehensive effects on the eyeball and communication was established with the sphenoidal sinus.[4] As the patient had no light perception in the injured eye and there was possible risk of sympathetic ophthalmia, a frill excision of the eyeball was done with only 4 mm scleral rim around the optic nerve head. However, in such cases pyogenic infection is always a risk, leading to the onset of periostitis and fistula formation. There may also be a risk of gas gangrene formation, development of tetanus, chronic sinusitis (when a sinus is involved), meningeal infection or cerebral abscess formation (if cranial cavity is involved).[5]In this case, the 6 months follow-up period was uneventful.

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