Case Report

# CONTRAST RADIOGRAPHY OF THE AVULSED HORN LODGED IN THE ORBIT OF A COW – FIRST CASE REPORT

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## ABSTRACT

*A cow was presented with an avulsed horn in the right orbit following fight with another cow. The plain radiography could not confirm the depth or shape of the lodged foreign body as the presence of bony orbit impaired the visualisation of the shape of less radiopaque horn shell. Contrast radiography was performed using 5 ml diluted iohexol. This helped in ascertaining the depth of the foreign body and shape of the end of the foreign body and the possible damage to the underlying tissues. The bony orbit was intact. The horn was removed under auriculopalpebral and retrobulbar nerve block. But there was irreparable damage to the eye, progressive shrinkage of extraocular muscles leading to enophthalmos and downward deviation of the eye ball. This is the first reported case of contrast radiography of an avulsed horn in the orbit of a cow.*

**Keywords:** Orbital foreign body, Horn shell, Contrast radiography, Enophthalmos

Received : 13.08.2024 Revised : 15.02.2025 Accepted : 21.02.2025

## INTRODUCTION

Orbital foreign bodies can gain entry to eyes following trauma, or after high velocity gunshot injury predisposing to irritation and infection. Penetrating eye injuries can result in blindness from direct injury or indirectly by secondary infection (Tran *et al.,* 2011). Optic atrophy and loss of vision was reported in a case of penetrating foreign body of the orbit in a human patient (Das *et al.,* 2020). The extraction of orbital foreign body is to be done after analyzing the shape, size, angle of penetration and location. Contrast radiography for ascertaining the same is rarely reported in literature.

## CASE HISTORY, CLINICAL OBSERVATIONS AND DIAGNOSIS

A cross bred Jersey cow was brought with a history of an avulsed horn in the right orbit following fight with another cow (Fig.1) two inch of the base of the avulsed horn was protruding out of the orbital fissure.

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The clinical examination revealed that all the vital parameters were normal. The ophthalmic examination revealed positive menace response and palpebral response in left eye. On right eye, the ocular structures could not be visualized. Plain radiography could not reveal the tip of the avulsed horn lodged deep in the orbital cavity. Contrast radiography was performed by infiltrating the avulsed horn shell with 5 ml of diluted iohexol(2:3) [Omnipaque– 300mgI/ml] and a lateral view of the skull was taken. From the contrast radiography, it was revealed that the horn shell tip was blunt, curved and intact and it was lodged in a manner such that the curved surface of the horn was facing the lower margin of the orbit without damaging the orbital bone (Fig. 3). The length of the horn was 7 inches long and 2.5 inches diameter at the widest part.

## TREATMENT AND DISCUSSION

Right eye and peri-ocular surface was prepared aseptically using 0.5% povidone iodine solution and auriculopalpebral nerve block was made by using 5ml of 2% lignocaine HCl. The horn shell was removed by minor traction and the surface of the fornix and sclera was flushed with normal saline. After removal of the horn shell, the conjunctiva was found to be inflamed and congested, anterior chamber hyphema was noticed along with the inflammation of the third eyelid. Injection chlorpheniramine maleate @ 0.5 mg/kg was given intramuscularly prior to contrast radiography. Injection enrofloxacin was given @ 5mg/ kg body weight intramuscularly and injection meloxicam was given @ of 0.5mg/kg body weight intramuscularly for 3 days post-removal of the foreign body. Eyedrops 0.3% gatifloxacin and eyedrops Hicool® each 4 drops three times a day were administered for 2 weeks with five minutes gap between the drug administrations. Eyedrops flurbiprofen 4 drops two times a day was administered to reduce inflammation. There was irreparable damage to the eye, with progressive enophthalmos resulting from the shrinkage of the extraocular muscles of the right eyeball and downward rotation of the eyeball after two weeks (Fig. 3.).

Plain radiography of the orbit may be useful in excluding even multiple foreign bodies if ocular penetration is evident (Saeed *et al.,* 2008). But the presence of bony orbit impaired the visualisation of the shape of less radiopaque horn shell. Contrast radiography enabled the visualisation of the shape of the tip of the horn and hence the direction of manipulation to retrieve the foreign body. Since the tip of the horn was intact, there was no spillage of the contrast agent inside the orbital cavity. If the orbital foreign body remained in the orbit for a prolonged time it might lead to secondary complications (Dasgupta *et al.,* 2015).The impacted avulsed horn in the present case had resulted in severe functional damage to the eye. Santos *et al.* (2010) opined that large impacted foreign bodies in the orbital region need special care as early as possible but our case was presented after 24 hours of the incident and this time lag as well as the size, depth and force of the foreign body penetration would have resulted in the progressive shrinkage of the extraocular eyeball muscles due to the pressure atrophy.

**Fig. 1.** The cow with the avulsed horn lodged in the right orbital cavity.

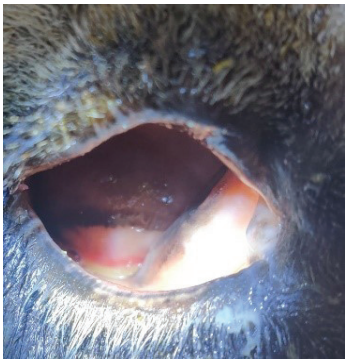

**Fig. 3** Entropion of the right eye ball with downward rotation 2 weeks after the treatment

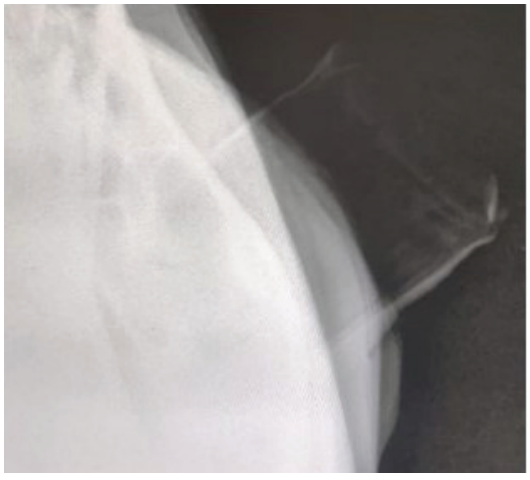

**Fig. 2.** The plain radiography showed only the details of base of the horn that projected outside the orbit and the contrast radiography revealed the shape of the horn tip and it's placement inside the orbit.

## CONCLUSION

It could be concluded that any foreign body lodged in the orbit should be assessed for its shape, depth and angle of penetration which is of utmost importance in its retrieval with minimum damage to the ocular structures. Contrast radiography was superior to plain radiography in ascertaining the shape of the tip of the horn shell and aided in easy retrieval of the foreign body, but the long duration of impaction and force of penetration caused by the foreign body resulted in enophthalmos.

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