

# Occupational Cow Horn Eye Injuries in Ibadan, Nigeria

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## Abstract

This case series aims to describe the clinical features, management, and outcome of occupational eye injuries caused by cow horns and to recommend possible preventive measures. A review of patients with cow horn inflicted eye injuries seen at the University College Hospital, Ibadan between January 2006, and December 2011 was conducted. Three patients were identified, and their charts were reviewed for demographic information, mechanism of injury, initial and final visual acuity, surgeries performed, as well as anatomic and visual outcome. The three patients were males and were aged 45, 22, and 49 years, respectively. They were all involved in cattle-related jobs, and they all had unilateral open-globe injuries with corneoscleral lacerations. Presenting visual acuity was nil light perception in the injured eyes. The contralateral eyes were all normal. Two of the patients required evisceration of the eye, while the third patient underwent repair of lacerations. Visual improvement was not achieved in any of the patients. Cow horn eye injuries may be quite severe and could result in loss of the eye with monocular blindness. Careful attention must be paid to prevent such injuries. Cattle rearers and dealers should wear safety goggles, and proper restraint of the animals is advocated.

**Keywords:** Cow horn, Eye injury, Monocular blindness, Occupational injury

## Introduction

Cow horn injury is an uncommon cause of penetrating eye injury with grave consequences.<sup>[1]</sup> It is common amongst cattle rearers/dairy farmers, in rural areas and males.<sup>[1-5]</sup> Cow horns can also cause facial lacerations, fractures of facial bones,<sup>[6]</sup> blowout fractures of the orbit,<sup>[7]</sup> injuries to the palate,<sup>[8]</sup> cheek and forehead,<sup>[5-6]</sup> abdominal injuries,<sup>[5,9,10]</sup> anorectal injuries<sup>[5,11]</sup> and nonobstetric vulvo-vaginal injuries.<sup>[12]</sup> The visual prognosis of eyes that sustain cow horn injury is often poor. However, some functional visual outcome may be achieved with the introduction of advanced vitreo-retinal surgery techniques.<sup>[1,13]</sup>

This is a case series of three patients seen with cow horn eye injury over a period of 5 years (January 2006 to December 2011) highlighting the patient's demographic characteristics, mechanism of injury, presenting and final visual acuity, associated injuries, surgical procedures performed as well as anatomical and visual outcomes.

The three patients comprise 0.4% of a total of 774 patients seen with orbito-ocular trauma during the 5 year period.

## Case Reports

### Case 1

He was a 45-year-old male cow dealer assistant. He presented with a 5-hour history of bleeding and swelling of the right eye following cow horn injury, while trying to sell the animal to a customer. He was unable to see with the right eye. There was no history of pre-morbid eye disease or systemic medical illness. Visual acuity was nil light perception (NLP) in the right eye and 6/5 in the left eye. He had a right brow laceration, complete right ptosis and a ruptured globe in the right eye. Examination of the left eye was essentially normal. Skull radiographs did not reveal any orbital wall or skull fractures. He subsequently had examination under anaesthesia (EUA) and right eye evisceration with brow repair. The ruptured globe could not be repaired because there was almost complete loss of ocular contents, and it was impossible to restore the anatomy of the globe. He was discharged on the third post-operative day.

### Case 2

He was a 22-year-old male butcher. He presented with a 2-day history of trauma to the left eye from a cow horn, while travelling in a vehicle carrying three cows. There was associated immediate loss of vision and bleeding from the

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left eye. There was no pre-morbid eye disease or systemic medical illness. Visual acuity was 6/5 in the right eye and NLP in the left eye. There was an upper lid laceration, distorted cornea with uveal prolapse. Examination of the left eye was essentially normal. There were no orbital or skull fractures detected on skull radiographs. He had EUA and left eye evisceration with lid laceration repair. Evisceration was performed in view of the severe distortion of ocular anatomy precluding primary repair. He was discharged on the 4<sup>th</sup> day post operatively.

### Case 3

He was a 49-year-old male cattle rearer. He presented with a 4-day history of cow horn injury to right eye while feeding the cow. There was an immediate loss of vision, bleeding, watering and pain in the right eye. There was no pre-morbid eye disease or systemic medical illness. Visual acuity was NLP in the right eye and 6/9 in the left eye. Examination of the right eye showed brow laceration, mild ptosis, moderate discharge, chemosis, corneo-scleral laceration extending from 12 to 7 o'clock, hyphema clots and shallow anterior chamber. Examination of the left eye was essentially normal. Skull radiographs did not show orbital wall or skull fractures. He had EUA and repair of corneo-scleral and brow lacerations. He was discharged on the 4<sup>th</sup> day post operatively.

## Discussion

This retrospective review suggests that cow horn is not a common cause of eye injury in our setting. Helbig and Iseli<sup>[13]</sup> in a 50 year review in Switzerland identified 59 cases of cow horn eye injuries and reported a prevalence of 5% of all open globe injuries. Similarly, cow horn injuries accounted for 3.1% of in-patient admissions following ocular trauma in Switzerland.<sup>[1]</sup>

All three of our patients were involved in cattle-related jobs. Cow horn injury is usually seen in those dealing with the animals such as the rearers, dairy farmers and the dealers who sell the animals.<sup>[1,13]</sup> Furthermore, only males were observed in our series to have sustained cow horn eye injury. This is likely to be because men are at increased risk as cattle rearers and dealers are usually men.<sup>[3,4]</sup>

Despite the low incidence, the impact of cow horn ocular injury is quite significant. This is because the eye injuries are usually devastating with resultant monocular blindness and evisceration of the eye, as was the case in two of our patients. Removal of the eye is often indicated because the globe rupture usually extends posteriorly causing anatomical distortion of the eye, making it virtually impossible to repair the eye. In addition, the attendant risk of sympathetic ophthalmia is a reason to recommend evisceration.<sup>[14]</sup> Following removal of the globe, visual improvement or rehabilitation is impossible.

Only one of the patients presented within 24 hours of the injury; one of them presented after 4 days. Late presentation

for treatment following ocular trauma may contribute to poor visual outcome. Presenting visual acuity of NLP, which is more likely with late presentation, usually carries a grave visual prognosis. Furthermore, the severe nature of the injury and damage to the ocular structures often result in poor visual outcome. Thus, health care providers who provide first aid treatment to victims of such eye injuries should be encouraged to ensure prompt referral for definitive management. Early specialist intervention may increase the likelihood of a favorable visual outcome and preservation of the eye ball.

The mechanism of the injury is usually from the significant force of impact made by the tip of the cow horn when it hits the eye. In general, the tip of the horn is pointed but not necessarily sharp. The force of impact in addition to the gouging done by the horn results in corneal and/or scleral laceration or globe rupture.

It is, therefore, important that precautions are taken by people involved in cattle-related jobs. Such precautions should include coagulation of cow horns 2 weeks after birth, proper restraining of the animals, keeping the animals in well-covered vehicles during transportation to prevent injury to other road users and the use of protective goggles by those involved in cow related jobs to reduce the risk of injury to the eyes. When eye injury does occur, early presentation to an ophthalmologist is important to improve the chances of visual recovery where possible.

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