

## Case report

# Traumatic avulsion and bilateral eye loss: report of two cases

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## Abstract

**Background:** The optic nerve and the globes are resistant to mild to moderate trauma and bilateral avulsion of the eyes is rare with only a few cases reported in the literature. **Case:** We report two cases of traumatic bilateral eye avulsion. The first case was secondary to a bear bite and was managed successfully, although the eyes were not salvageable whereas the second case which was due to physical assault expired due to associated severe head injury. **Conclusion:** Traumatic bilateral globe avulsion/loss is a rare complication of trauma. In developing countries like Nepal, poverty, forest encroachment activities, extensive deforestation, frequent domestic disturbances and lack of education are some of the circumstances that increase the probability of such visual injuries.

**Keywords:** bear bite, bilateral globe avulsion, face, fracture, injury

## Introduction

Avulsion or subluxation of the eyes is associated with trauma of the face or the orbits (Tunçbilek et al, 2008). Bilateral avulsion is though rare with only a few cases reported in the literature (Razmjua et al 2009). The Himalayan black bear (*Ursus thibetanus* or *Selenarctos thibetanus*) is a threatened animal in the Himalayan range and has occasional contact with humans causing bite injuries (Hayashi et al, 2003; Rasool et al, 2010). We report two cases of traumatic avulsion and bilateral eye loss.

## Case report

### Case one

A 35-year old female who had been attacked by a bear while cutting trees in the forest presented to the hospital in shock after six hours of sustaining the injury. The dressing of the injury was extensively soaked with blood and her Glasgow coma score (GCS was) 11/15. Clinically, the left eye was

missing, the right eyeball avulsed and avulsion of a part of the scalp and the nose (Figure-1). Computed tomogram (CT) showed a fracture of the right frontal bone extending to the skull base and herniated brain matter. She underwent emergency surgery with contusectomy, dural repair and closure of the frontal wound with enucleation of the damaged eye, repair of the ear laceration and re-approximation of the avulsed scalp. She was given seven units of blood transfusion and was ambulated on the fourth day. The sutures and staples were removed in the second week after which she was discharged. Psychiatric counseling regarding her loss of sight was done and at the twelve-month follow-up she was doing fine, except for the visual loss, with no other neurological deficits.

### Case two

A 30-year-old male was brought to the emergency with a history of physical assault over a domestic issue and loss of consciousness since the assault. On examination he was in shock, with a GCS of 7/15, and with active bleeding from the scalp vessels.

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The left globe was prolapsed with partial loss of its contents while the right globe was crushed by the fractured orbit (Figure 2). There was a large scalp-skull defect with herniating brain matter over the right frontal area. The CT showed extensive fractures of the anterior skull base and of both the orbits. Primary ABC management along with blood transfusion was done and the patient was kept on a ventilator. The patient party did not consent to neurosurgical/ophthalmological intervention in this case, and despite all efforts, he succumbed to the severe head injury and expired on the fourth day.



**Figure 1:** Picture showing loss of the left eye, complete scalp avulsion and avulsed right eye



**Figure 2:** Showing severe comminuted fracture skull with herniating brain matter, loss of left eye and avulsed right eye

### Discussion

Optic globe avulsion is a rare injury usually associated with trauma to the maxillofacial structures (Tunçbilek et al, 2008). Management of such injuries should include the ABC of trauma care with a later

multidisciplinary team approach for the best functional and cosmetic result. Adequate investigation with the help of a skiagram or CT with debridement and primary closure is the best option. Aerobic and anaerobic coverage should be included. The most important issue in such problems is the repositioning of the globe with possible revival of vision. Many studies have shown that urgent and early repositioning of the eyes has led to salvaging the globe although the visual prognosis still remains poor (Razmjua et al, 2009). It is also recommended that even though the probability of visual recovery is not high, the globe should still be replaced to improve the psychological outcome in such patients (Bajaj et al, 2000). The nonfunctioning eye may then be enucleated at a later date.

The rural population of some of the hilly and mountainous regions of Nepal face the risk of attacks by wild animals in the nearby forests. Lawlessness and alcoholism also contribute to social problems and physical assaults. There is thus a role for the government for stricter forest management and prevention of deforestation and illegal encroachment of land. The problem of rampant alcohol abuse must also be addressed. These measures, together with the improvement of the education among the common masses, will help reduce the incidence of such eye injuries as presented in our two cases

### Conclusion

Traumatic bilateral globe avulsion/loss is a rare complication of trauma. In developing countries, poverty, encroachment activities during extensive deforestation, frequent domestic disturbances and lack of education increase the probability of such visual injuries.

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