INTRODUCTION

The eye may be injured by various penetrating and nonpenetrating injuries like sticks, pencils, rods, gunshot and chopsticks. Self-inflicted gunshot injuries have been rarely reported in literature. This case is interesting in multiple aspects which include poverty, lack of education and the failure of government to ensure control of the use of firearms in Nepal. We report a case of self-inflicted gun injury which was managed successfully.

CASE DESCRIPTION

A 19 year old male presented to the emergency 12 hours later with history of accidental gunshot injury to the right eye. He had assembled a homemade rifle and was using it for hunting when he sustained injury to the eye. There was loss of consciousness for 30 minutes, loss of vision in the right eye, bleeding from the wound which was associated with severe headache and few episodes of vomiting.

He had undergone a computed tomogram (CT) scan of head and orbit in a nearby center before being referred to this hospital. On examination he was conscious with Glasgow coma score (GCS) of 15. The visual acuity on right eye was no perception of light and 6/6 on the left eye. There was ecchymosis, swelling of upper and lower eyelids. The lower eyelid was lacerated 2 mm lateral to the lower punctum (Figure 1). There was full thickness central corneal perforation with total prolapse of the intraocular contents. There were no other neurological deficits.

The CT scan showed a metallic foreign body in the right temporal fossa with fracture of the lateral wall of the orbit and smaller bone fragments in the temporal lobe (Figure 2A & B). He underwent emergency right temporal craniotomy. Intraoperatively there was a large bullet in the temporal fossa with fracture of the temporal bone, dural tear of 3X4 cm, multiple intracerebral bone fragments with contusion (Figure 3). The bullet was removed followed by contusectomy and dural repair.
done by vascularized temporal fascia reinforced by
temporal muscle. This was followed by evisceration
of the right eye, lower eyelid laceration repair and
closure of the posterior orbital floor with free tissue
graft.
Postoperatively he is recovering well with the
postoperative scan showing complete removal of
the bullet along with the bone fragments and good
repair of the defect. He has been planned for right
eye prosthesis after 8 weeks.

DISCUSSION
Orbito-cranial (OC) gunshot injuries are uncommon
in civilian practice and amount for only 0.6% even
in war injuries. In a series of 60 missile injuries
reported from India there were only 15 cases with
orbitocranial injuries.5 In civilians it is usually a
part of suicidal or homicidal injury to the face. Self-
inflicted gunshot injuries have been rarely reported
in literature. This case is interesting in multiple
aspects which include shortage of resources in the
mountains, lack of education regarding the
government rules and safety involved in firearm use
and the failure of government to ensure control of
the use of firearms in Nepal leading to the make
and use of such weapons in Nepal. The Arms and
ammunition act of 1962 forbids the ownership, buy
or sale of firearms in Nepal by civilians without
permission from concerned government official.6-8
The guilty can be punished with imprisonment from
Three Years up to Seven Years or with fine from
Sixty Thousand Rupees upto One Hundred Forty
Thousand Rupees.6-8 This patient had made a
homemade rifle using metallic pipes and iron
chunks for the bullet. The primary purpose was to
drive away monkeys/animals which feed on the
crops in the hills.
The majority of the cases reported have cerebral
injury ipsilateral to the orbit with few rare cases of
contralateral injuries. The orbital roof is the
weakest point through which the majority of OC
injuries occur. The usual presentation is partial or
complete loss of vision along with headache or
seizure. The frontal or temporal bone along with the
scalp may be involved in the injury. CT with 3D
reconstruction will show the defect site, size and the
severity of intracerebral injury. Beta-tracer protein
has also been used to check the presence of CSF
leak around the wound.1 Craniotomy and removal
of the metallic body along with a water tight dural
repair is a must to prevent subsequent cerebrospinal
fluid orbitorrhoea. The cranial fossa can be
reinforced with pericranium to further strengthen
the repair. Antibiotic cover is needed to cover gram
positive and anaerobic organisms.9 The bone
fragments, if any must be removed as much as
possible without damaging the surrounding tissue.
The role of extent of bone removal and residual
bone leading to abscess later on is still a debate.10-13
The eye injury if minor can be repaired or it need to
undergo evisceration if the globe is already
perforated.

Figure 1. Picture showing the complete destruction
of the right eye with extensive ecchymosis. There
is dark staining of the entire scalp and face.

Figure 2.A CT head and orbit showing a large metallic
body in the right temporal fossa along with contusion
and smaller bone fragments. There is destruction of the
eye ball suggesting it as the entry point (A). 3D recon-
struction showing the defect in the orbital wall through
the bullet trasversed (B).
CONCLUSION
This case highlights the extent of poverty, lack of education and government failure to control the making/licensing of guns in Nepal thereby leading to the manufacture of homemade weapons which can lead to serious injury to the user. This also a rare case of survival in self-inflicted orbito-cranial injury.

Conflict of interest: None declared

REFERENCES