

Endoscopic Removal of Bullet from Orbital Apex

Iqbal A. Muhammad Khyani, Atif Hafeez, Muhammad Umer Farooq* and Jawaid Alam

ABSTRACT

Penetrating injuries of face are not uncommon. Bullets or pellets may be lodged anywhere in the cavities of skull as a result of firearm injury. Lodgment of a bullet within the orbit through nose is uncommon. An eighteen 18 years old married woman sustained a bullet injury, which entered through lateral wall of the nose and lodged at left orbital apex area. The bullet was removed endoscopically via left nostril without any damage to the eye or disturbance in vision.

Key words: Intraorbital foreign body. Firearm injury. Endoscopic removal. Orbital apex.

INTRODUCTION

Penetrating injuries of face are not uncommon. Bullets or pellets may be lodged anywhere in the cavities of skull as a result of firearm injury. The most common abode of the lodgment of foreign body is maxillary sinus, followed by frontal, ethmoid and sphenoid sinuses.¹⁻⁴ Lodgment of a bullet within the orbit through lateral wall of nose is uncommon.

Bullet injuries are dangerous and unpredictable due to complex anatomy of the craniofacial skeleton. These injuries may be devastating functionally. It is often extremely difficult to remove them as it may result in further damage to important organs of sense during the course. However, the use of endoscopes have changed the scenario remarkably by converting extensive open procedures through external approaches into safe, less damaging, directly visualized approaches of removal. This is a rare case report, which describes the management of a young lady with bullet lodged in the orbital apex area entered through lateral wall of nose and removed through nasal endoscopy uneventfully.

CASE REPORT

The patient was an 18 years old married lady who was pregnant with 27th week of gestation. She was in normal health previously. On the day of injury, she was sleeping on the roof of her house when she woke up with a

severe sharp penetrating pain after something struck her nose on left side near nasal bridge. There was bleeding from the nose and severe headache. She was taken to the nearby clinic for first aid where a CT scan was ordered. Patient was referred to the Department of E.N.T and Head and Neck Surgery, Civil Hospital Karachi. There was no history of loss of consciousness, nausea, vomiting and seizures. The patient was conscious on presentation and was oriented in time, place and persons. The vital signs were stable.

On examination, there was a wound of entry 0.5 x 1 cm at the skin of the left lateral nasal wall near the bridge. There was no bleeding, tattooing, blackening or charring at the wound of entry. The root and bridge of the nose was slightly swollen. There was no proptosis. On anterior rhinoscopy, the mucosa on the left side was swollen with streak of blood clots. There was no active bleeding or any signs of infection.

CT scan showed a bullet causing streak artifact in left posterior ethmoid sinus and orbital apex area with destruction of left lamina papyracea. The bullet was very close to the optic nerve (Figures 1 and 2). There was also fracture of left nasal bone and left superior concha. The right side appeared normal while both eye globes were also normal. The laboratory investigations were unremarkable. Opinion from ophthalmology department was obtained. Visual acuity was 6/6 in the right and 6/9 in the left eye. The movements of the right eye ball were

Department of ENT, Head and Neck Surgery, Dow Medical College, Karachi.

* Department of ENT, Head and Neck Surgery, Lyari General Hospital, Karachi.

Correspondence: Dr. Iqbal A. Muhammad Khyani, Assistant Professor, Department of ENT, Head and Neck Surgery, Dow Medical College and Civil Hospital, Baba-e-Urdu Road, Karachi.

E-mail: driqbalkhyani@yahoo.com

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Figure 1: CT Scan. Axial view showing foreign body (Bullet) at the (L) orbital apex area.



Figure 2: CT Scan. Coronal view showing foreign body (Bullet) at the (L) orbital apex area.

normal while the movements of the left eye were restricted on lateral gaze. Left lid was swollen and conjunctiva was congested. Optic disc and retina were normal. Pupil on left side was dilated and fixed due to posttraumatic mydriasis which did not need any intervention and was expected to become normal within 6-8 weeks. Gynecological opinion was taken and ultrasound of pelvis showed single alive fetus with gestational age of 27 weeks.

The patient was prepared for endoscopic removal and high risk consent was obtained regarding both the left eye and fetus. The patient was shifted to operation theatre and general anaesthesia was induced. Endoscope was passed through left nostril, landmarks were identified. The uncinate process area and middle turbinate were infiltrated with 2% xylocain and 1:100,000 adrenaline. Uncinectomy and bullectomy was done along with anterior ethmoidectomy. The posterior ethmoid was entered and a defect was identified in the posterior part of lamina papyracea with dark brown to black foreign body lying in the orbital apex area.

The defect was enlarged after raising the mucoperiosteal flap from the peri-lesional area. The bullet was found lying lateral to optic nerve abutting the globe in orbital apex area with intact periorbital. It was delivered carefully through the defect in lamina papyracea in the posterior ethmoid region with the help of probes and curette. From here, it was grasped with Blakesely wilde forcep and removed through left nostril. Haemostasis was secured and the mucoperiosteal flap was placed back on the defect in lamina.

The bullet was 2.0 cm in length and 0.75 cm in diameter. Bleeding was controlled easily by simple pressure packs and external wound was stitched with 3/0 prolene. Patient was put on antibiotics and steroids. Post-operative recovery was uneventful. Anterior nasal pack was removed next day.

Postoperative eye examination was performed next day which revealed same visual acuity as it was prior to surgery. The eye movements were improved and the eye was moving in all directions of gaze. Pupil was still dilated and fixed due to posttraumatic mydriasis in the immediate postoperative period. The patient was kept on intravenous antibiotics and was discharge after 2 days on oral treatment.

Postoperative follow-up after one week shows improvement of left eye movements, with sluggish papillary response to light. The fetus was alive and healthy with active moments.

DISCUSSION

Gun shot injuries are common in the metropolitan city of Karachi. It is due to the increasing use of fire arm by criminals and also on social and cultural events. Gun

shot injuries in the craniofacial region. It often cause loss of valuable lives and damage to vital organs leading to irreversible and uncompensated damage. The course of gun shot injury is unpredictable as the bullet or pellets may traverse in any direction and / or lodged in any of the compartments or fossal of the skull. It is rare to sustain gunshot injury in this way and lodgment of bullet in the orbital apex area entering through lateral wall of nose with out causing much damage to neighboring structure and sparing the optic nerve, as seen in the presenting repeated case.

The commonest site of lodgment of facial foreign body are the paranasal sinuses.¹⁻⁴ Bullets and pellet may be lodged with in the cranial cavity.^{5,6} Plain radiology is helpful in localizing the foreign body. CT scan helps pinpoint the exact location of the bullet and provides the roadmap for safe and precise endoscopic removal, as in the case.

Conventional open methods of removal would obviously lead to increase morbidity, scarring, disfigurement and other complications. Transnasal endoscopic removal is safe, less damaging and easy, as it gives you direct visualization, provided that the foreign body is approachable endoscopically. Endoscopic removal of bullet and pellets from maxillary sinus, frontal sinus, sphenoid sinus and anterior cranial fossa, has been reported in the literature.³⁻¹⁰

Site of the foreign body would tailor the approach for its removal. Some times the site is so critical that it contraindicates surgery. The risk of their removal would out weigh the benefit.¹⁰ The decision to remove bullet or pellets in the craniofacial region would depend on its location, skill and experience of the surgeon and facilities available. Sometime an attempt to remove bullet end up with mere failure, even more damaging than expected.

In this case bullet was uneventfully removed by transnasal endoscopic approach through anterior and posterior ethmoid sinus from the orbital apex area. It caused much less morbidity compared to external approach. This approach is recommended in all the cases of foreign bodies in the cranio facial region provided that it is approachable through endoscope and expertise and facilities are available.

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