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## Impacted Foreign Body to the Anterior Orbit-A Case Report

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**Abstract-** A 41 year old welder presented with the hook of a metallic spring impacted in the right medial and upper part of the orbit after being hit accidentally while working on a motorcycle. An orbital x-ray was done to determine the orientation and location of the hook of the metallic spring. The metallic spring was removed as guided by the radiographic image. Plain radiography proved helpful in forming a scheme for the management of this patient.

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# Impacted Foreign Body to the Anterior Orbit- A Case Report

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## I. INTRODUCTION

Orbital foreign body may present with varying signs and symptoms depending on the size, location, and composition of the agent of injury<sup>1</sup>. Penetrating injuries to the orbit usually occur from high missile objects which could arise during occupational activities that involve heating metals like welding, carpentry, panel beating or from gunshot injuries. Objects could be retained within the orbit unnoticed<sup>2</sup> if they are inert, small or without obvious signs of penetration on the ocular surface. Larger objects are usually very obvious because of the external extension in most cases. The role of radiological investigations cannot be overemphasized in cases like these. Plain film radiography is useful in detecting radiopaque objects. CT scan helps to identify the presence and location of metallic objects while MRI is useful for non metallic objects like glass, plastic and wood<sup>3</sup>. The globe may be spared or involved depending on the extent and axis of penetration. A case report of a man with unusual accidental impaction of a metallic object in the right orbit is hereby presented.

### a) Case report

We report a case of a 41 year old welder who presented in our ophthalmic facility with an impacted right orbital foreign body of 6 hours duration. He sustained injury while trying to fix the brake of a motorcycle. The retaining spring of the brake pad was said to have sprang back accidentally with a resultant penetration and impaction in the anterior orbit. There was history of associated bleeding from the medial canthal region with progressive eyelid swelling. He claimed to have good vision in both eyes before the injury. He was not wearing any protective eye device at the time he sustained the injury.

Significant findings at presentation were complete mechanical ptosis on the right with some bleeding from the right medial canthal region and nasal cavity. He was immediately referred for an orbital X-ray which revealed a metallic foreign body in the anterior orbit (Fig. 2) with the external extent of the spring lying as far as the neck inferiorly. Generous local anesthetic agent was applied and the metallic object was removed following the direction denoted by the shape of the curved tip of the spring within the anterior orbit. (fig3)

After removal, visual acuity was done (manually lifting the ptotic lid) and was found to be 6/24<sup>+1</sup>. Vision in the contra lateral eye was 6/9<sup>+2</sup>. Conjunctival was injected with some degree of chemosis. Anterior segment was normal. Pupil was round, regular and briskly reactive. Fundoscopy revealed pink disc, with normal vessels and macula. Findings on the other eye were essentially normal. Patient was given injection tetanus toxoid and commenced on intravenous ceftriazone and frequent topical ciprofloxacin. Analgesic (oral acetaminophen) and acetazolamide was also commenced.

He was seen 1st day post removal of foreign body (Fig. 4). Ptosis and conjunctival chemosis were resolving (fig 3) but there was mild subconjunctival hemorrhage inferiorly. Visual acuity unaided was 6/6. Intraocular pressure was normal. Patient had intravenous antibiotics for 72 hours after when he was commenced on oral antibiotics. (fig.5) He was given a week appointment but did not show up but telephone communication with him confirmed that he was well without any complaint.

## II. DISCUSSION

Penetrating orbital injury has been reported in various parts of the world and can be due to varying agents such as metal<sup>4</sup>, wood<sup>5</sup>, plastic<sup>6</sup> and glass. Injuries due to metallic objects and glass have been found to be more frequent than organic foreign bodies<sup>4</sup>. Our patient presented with an obvious impacted anterior orbital metallic foreign body. Orbital foreign body could be very obvious especially when there is an external component<sup>7</sup> or pass unsuspected only to be detected by radiological investigations<sup>5, 8</sup> or when patient present with symptoms related to the effect of the agent of injury. The age of this patient is in agreement with what has been observed that orbital foreign bodies are more

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common in men than in women and in younger rather than older people<sup>4, 9</sup>. An explanation for this could be that males are usually more exposed to the high risk activities that increase the risk of such injuries. The injury in this patient was occupationally related and accidental. Even though injuries can also be self inflicted<sup>10</sup>, accident is a more common mechanisms.<sup>4</sup>

Extra care is required in the management of a patient like this because of the nature of the object involved. The risk of globe perforation can be increased by poor handling of the agent of injury. In order to minimize this risk, an orbital x-ray was done to identify the position of the object as well as the orientation in relation to the globe. Although CT scan is the most recommended for most ocular foreign bodies while MRI offer a better alternative except for magnetic sensitive objects<sup>11</sup>. Management of this patient would have been bedeviled by the twin problem of non- availability and affordability of recommended investigative procedure if cheaper and easily available alternative had been ignored. Our patient could not get a CT scan done because it was not available in the environment of care. The nearest location was about 120km from the place of care. In addition, this patient was in the low socioeconomic class and insisting on the test would have delayed intervention and possibly increase the risk of ocular morbidity. The absence of a CT scan was however a limitation in the investigation of this patient. Intravenous and topical antibiotics were administered in order to prevent the occurrence of a secondary orbital infection<sup>1</sup>. Outcome of orbital trauma can vary with agent of injury, velocity of impact and attributes of the projectile. There was a good visual outcome in our case evidenced by the visual acuity unaided of 6/6 by the 2nd day post removal of foreign body. Factors that have been found to determine the final outcome of eye injury are the quality of care, preexisting eye status, severity of initial lesion and the first aid treatment provided and the time between injury and definite care<sup>12</sup>. The good outcome in this patient was partly due to the absence of globe involvement as well as prompt intervention within 24hours of injury. The eyeball was spared in this patient as evidenced by the post-treatment visual acuity of the patient and absence of ocular abnormality on detailed examination after removal of the foreign body. Some patients could present with injuries to the eyeball as was reported by Okoye<sup>13</sup> in southeast Nigeria where projectiles such as gunshot pellet, metal pieces, splinter of glass and wood were responsible for most of the eye injuries(73.2%) necessitating hospitalization. More Severe cases of injuries with projectile objects can present with trans orbital intracranial penetration of the agent of injury<sup>14</sup>. Our patient had developed severe lid edema with resultant mechanical ptosis at the time he was seen because the injury had been sustained for about 6hours before presentation. However the rapidity

with which the edema resolved was a prove of the appropriateness of intervention<sup>9</sup>. The injury could have been entirely preventable by the use of protective eye device<sup>15</sup>.

### III. CONCLUSION

Early intervention and absence of globe involvement greatly influenced the outcome of this patient and helped to minimize ocular morbidity. There is need to legislate the compulsory use of protective eye device by artisans who engage in activities with risk of ocular injuries. When penetrating orbital injuries occur in places where CT scan is not readily available plain X-ray should be done to determine the orientation of radiopaque objects so as to minimize risk of iatrogenic ocular damage.



Figure 1



*Figure 2*



*Figure 3*





Figure 4



Figure 5 : Post operative day 4

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