Unusual Foreign Body in the Maxillary Antrum: A case report

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Abstract

A case of25 year old nomad presented with an arrow in his maxillary antrum following a rustling attack. Impaction of an arrow in the maxillary antrum is not a common occurrence. The arrow was removed through Caldwell-Luc approach under conscious sedation. The wound healed satisfactorily and the postoperative period was uneventful.

Key words: Caldwell-Luc approach, arrow, maxillary antrum

Introduction

Foreign bodies in the maxillary antrum are uncommon; when it occurs it could be from nitrogenic displacement of whole tooth, root(s) of teeth[1], dental filling material (guttapercha) or a dental bur inadvertently pushed into the maxillary antrum[2].The close anatomical relationship of the maxillary teeth to the antrum is an important factor in the easy dislodgement of teeth and dental materials during dental procedures. Lee[3] reported that 47 first molar roots were displaced into the maxillary sinus following 62 extraction cases and 76% of these roots were palatal. Trauma in war injury and assaults is another reported route through which a foreign material can gain access into the antrum[4]. Pieces of glass and bullets have been found in the maxillary antrum following road traffic accidents and gunshot attacks[5,6]. In this report, a case of arrow displacement in the maxillary antrum of a 25 year old male is presented. The management of this condition is discussed.

Case Report

A 25year old nomad presented in the Accident and Emergency unit of Federal Teaching Hospital. Gombe, Nigeria with a day history of a foreign body in the right maxillary antrum. An eyewitness account confirmed that the patient is a cattle rustler who was arrested by village vigilantes. Extra-oral examination revealed an arrow on the right middle face, with fresh blood trickling by the side of the caked blood **(Figure1)**.

Figure 1: An arrow on the (R) side of patient's face

Intra-oral examination showed a dentate patient with an oro-antral fistula measuring 2cm in diameter in the right maxillary region. He was immediately given tetanus toxoid, and a Postero-anterior (PA) view of the skull taken which showed an arrow piercing the base of the right maxillary antrum, the right nasal cavity and the nasal spine **(Figure2)**.

Figure 2: Radiograph (PA view) showing the arrow transversing the maxillary antrum

Routine blood investigation done was within normal limits. The face was thoroughly debrided with 0.3% Chlorhexidine gluconate, 3% Cetrimide solution (Savlon) alternated with povidone iodine. Local analgesic agent(2% Xylocaine with Adrenaline 1;80000) was administered via infraorbital nerve block and the patient was given intramuscular ketamine injection by the anaesthetist for conscious sedation. Using Caldwell-Luc approach to the maxillary antrum, a window was created through the buccal bone of the canine fossa into the anterior wall of sinus by using a surgical drill with size 15 round bur under copious irrigation with normal saline. The window was enlarged by Kerrison's punch forceps to expose the arrow shaft in the antrum and intraorally, the shaft of the arrow was severed to allow a separation between the external and oral components. The serrated end of the arrow was folded through the window with curved artery forceps for easy delivery **(Figure 3)**.

Figure 3: The arrow after removal from the patient's antrum

After removal, antral wash out was done, and primary suturing done with 3.0 chromic catgut for the buccal mucosa and 4.0 prolene for the skin. Patient was hospitalized and kept under intravenous medication (Cefuroxime 750mg twelve hourly, Metronidazole 500mg eight hourly and Paracetamol tablets 3g eight hourly for two days observation, while 1% Ephedrine nasal drops and Vicks inhaler were prescribed and patient instructed not to blow the nose.

A 5 day post operative review revealed a healing surgical site **(Figure 4)**.

Figure 4: Immediate postoperative state of the patient

Discussion

The maxillary antrum, the largest sinus in the human body is found within the body of the maxilla[7]. Displacement of a foreign body in the antrum is not a common occurrence and when it occurs; it is usually due to iatrogenic displacement of root(s) of teeth, teeth or dental material following dental procedures[2,8]. The reason for this displacement is the close anatomical relationship between the maxillary antrum and the upper molars. A reported case of arrow in the maxillary antrum is extremely rare and to the best of our knowledge, there was only one documented case in the literature [9]. In the only recorded case, Harvinder et al [9] reported a self inflicted injury by a patient while fishing. This is contrary to our own case in which the patient was shot by the local vigilante group during an attempted theft of a cow. In this patient, the arrow pierced the base of the right maxillary antrum, the right nasal cavity and the nasal septum whereas in the reported case, it only pierced the left maxillary antrum. The extensive involvement of tissues might be the reason for the severe pain and extensive bleeding in the case being reported while Harvinder et al's[9] case had minimal pain and no bleeding.

The alveolar and the Caldwell-Luc approaches are two well documented routes for the removal of foreign bodies in the maxillary antrum[10]. The alveolar approach ensures the immediate removal of displaced root via the oro-antral opening, while the Caldwell-Luc approach involves bone removal from canine fossa to gain access into the maxillary antrum to allow for removal of foreign bodies[10]. Advances in technology have also made it possible to use endoscopic approach to view and possibly remove foreign body from the antrum. Paranasal endoscopic

surgery using cystoscope and fibreoptic endoscopes are now being used to visualize the maxillary sinus directly and to treat paranasal sinus conditions such as epistaxis, biopsy and excision of tumor and polyps among a host of others. However, in this case, fibre-optic endoscopy was not feasible because of the length of the arrow. Therefore, the Caldwell-Luc approach was the treatment method utilized for our patient.

Conclusion

It is important that accurate localization of a foreign body should be done in any case of displacement into the maxillary antrum to facilitate removal of the object.

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