A needle in a haystack: Endoscopic removal of a foreign body from the infratemporal fossa

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ABSTRACT

Background: This report presented the case of a difficult-to-remove needle foreign body. The patient had a dental procedure in which a 30-gauge needle was lost in the gingival buccal sulcus. Several attempts at removal were unsuccessful. The patient presented to the otolaryngology clinic with trismus, pain with mastication, intermittent right otalgia, and numbness of the right cheek.

Methods: The needle was finally localized in the infratemporal fossa and removed by using image guidance technology.

Results: This case demonstrated an approach to a difficult-to-locate foreign body removal and the importance of intraoperative imaging in foreign body localization.

Conclusion: Foreign bodies of the infratemporal fossa and posterior orbit are better removed via endoscopic than open technique.

Foreign bodies in the head and neck are often encountered by otolaryngologists and oral maxillofacial surgeons. These foreign bodies are often iatrogenically caused and can distort normal anatomy. Because the decision to remove foreign bodies is dependent on the possibility of damage to nearby structures, imaging is critical. Preoperative imaging includes radiographs, computed tomographies (CT), magnetic resonance imaging, and ultrasound. Intraoperative techniques include image guidance, tagged hemoclips, fluoroscopy, sinography, and sonography. Even with current imaging techniques, extracting a foreign body can be difficult. In this case report, we presented a difficult-to-extract foreign body of the infratemporal fossa (ITF) and the techniques used to identify and remove it.

CASE REPORT

J.S. (a 54-year-old man) underwent a routine dental extraction in which a 30-gauge needle was used to perform a local injection. This needle broke off at the hub and was lost in the right gingival buccal sulcus. The dentist was unable to remove it and referred J.S. to an oral surgeon at St. Joseph’s Health Care (London, Ontario). A radiopaque foreign body was seen in the right masticator space and ITF on CT. An attempt at removal of the foreign body in the operating room was unsuccessful. A postoperative CT showed the object pushed deeper into the infraorbital fissure (Fig. 1). The patient was subsequently seen by a specialist in the otolaryngology service and described trismus, pain with mastication, intermittent right otalgia, and numbness of the right cheek. On examination, the patient had masseter swelling and trismus (2 cm). Results of an examination of the cranial nerve indicated that the nerve was intact except decreased sensation in the V2 distribution.

After careful consideration, the patient and surgeon decided to attempt endoscopic (nasal) extraction by using image guidance assistance. The patient first underwent a right middle turbinate resection, complete ethmoid dissection, and right sphenoidotomy. By using image guidance, the right inferomedial orbital wall was drilled and the periorbita was incised. The infraorbital fat was searched, but the needle was not visible. After this, a right medial maxillectomy was performed. The sphenopalatine artery was ligated. The posterior maxillary wall was then removed and the internal maxillary artery was ligated, after which the fat could be diligently searched. The needle was eventually located in the ITF fat (in the infraorbital fissure) at the junction of the fissure and previously opened orbital wall, and, now that it was found, it was removed intact (Fig. 2). The defect was reconstructed by using Gelfoam (Ethicon, Somerville NJ, USA) and Tisseel (Baxter, Mississauga, Canada), and was covered with mucosa. After extraction, his symptoms resolved, and recovery was complete.
DISCUSSION

Foreign body removal can be difficult at the best of times. In this case, multiple removal attempts moved the needle into the ITF, almost 5 cm from its origin. Surgery in this area requires particular care due to important nearby structures, including the mandibular nerve (chorda tympani, lingual nerve) and the maxillary artery. Other important structures that could have been damaged include the sphenopalatine artery, carotid artery, infraorbital nerve, and optic nerve. This anatomy highlights the need for good pre- and intraoperative imaging. In this case, three-dimensional CT images allowed surgeons to plan management. During surgery, image guidance was successfully used on the third retrieval attempt. Its use earlier in management may have shortened the overall course, sparing the patient the stress of multiple operations. Finally, this case is important due to its unique nature. We were unable to find a similar case report in the literature. It is important to share the details of this case so that, in the future, we are aware of the risks of local anesthesia and are able to streamline treatment.

CONCLUSION

This case demonstrated a surgical approach to a difficult foreign body in the ITF. It also highlighted the importance of intraoperative imaging in such cases. Because these cases are rare, it is important to discuss the successful management technique for future cases.

ETHICAL APPROVAL

This study was approved by our institutional review board.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

This article does not contain any studies with human or animal subjects.

STATEMENT OF INFORMED CONSENT

There are no human subjects in this article and informed consent is not applicable.

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