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Case Report

Endoscopic Removal of Iatrogenic Foreign Body from the Maxillary Sinus: Report of an Uncommon Case

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Abstract

Instrument fracture during procedures is not uncommon for Dental surgeons, especially in root canal surgeries, usually inside the root canals. In rare instances high speed rotary instruments can be fractured and can be dislodged in key anatomical areas of face. In our case report, a high-speed dental bur most probably penetrated the root and was seen in the left maxillary sinus during a likely routine dental procedure. The work up and endoscopic surgical management of the case is described. Practitioners should be in great care during dental procedures and endodontic treatment to avoid unexpected complications by introducing foreign bodies into maxillary sinus. Any patient presenting with recurrent unilateral facial pain or unilateral sinus symptoms with/without previous history of sinusitis should raise the suspicion of a foreign body in the paransal sinus regardless of any previous history of dental procedures.

Keywords: Foreign Bodies; Maxillary Sinus; Toothpick

Introduction

Sinus foreign bodies are commonly encountered with ciliary impairment and secondary infection due to their physical and chemical insult to of mucosa. Therefore, the removal of all foreign bodies are recommended, irrespective of whether they produce symptoms or not. Foreign bodies are occasionally found in the paranasal sinuses [1,16]. Th common causes for sinus foreign body are following: the entry of material via an oroantral fistula, facial trauma, and iatrogenic causes [2,16]. Most foreign bodies are pieces of metal, wood or glass and they are detected by plain radiography, xeroradiography, computed tomography, magnetic resonance imaging and Ultrasonography [3,16]. They have seen as a result of complication of a dental procedures [4,16]. Antral perforation following dental procedures involving apical surgery of the maxillary molar teeth, often create a pathway for foreign bodies to enter the maxillary sinus [5,16]. The reported incidence of displaced dental instruments in the maxillary sinus are few [4,16]. Literature review showed following foreign bodies in maxillary sinus: displaced teeth [6], oral implants [5,7], Gutta-percha points [8], dental burs [4,9], dental amalgam [10,11], impression material [12]. Another case was reported in which patient accidentally inserted a sewing needle into maxillary sinus while trying to clear a dental abscess collection [13]. A wooden toothpick [14] was removed from maxillary sinus in a patient with oroantral fistula which developed after an upper second molar extraction. In this case report, a high-speed dental bur most probably penetrated the root and was seen in the left maxillary sinus during a likely routine dental procedure. The systematic work up of the case with endoscopic surgical management is described.

Case Description

A 27-year-old male patient presented repeatedly to the Primary health care center with complains of left sided facial pain. Patient gave a history of dental Procedure few months back. Due to recurrent visits, the physician ordered an X-Ray waters view (Figure 1a and 1b) which revealed a radio opaque shadow of suspected metallic foreign body in the left maxillary sinus. The patient was then referred to tertiary Centre.

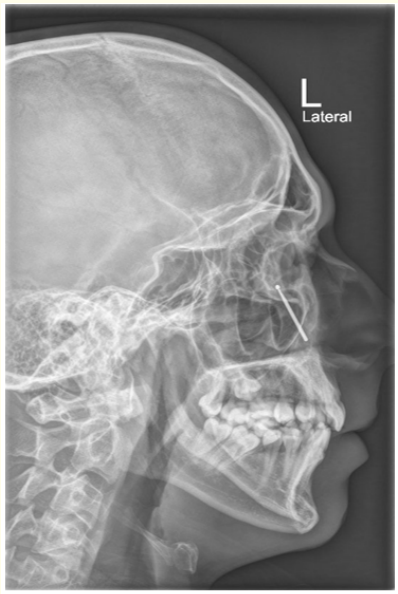
The patient instead went to a private hospital with the same previous complaints of left facial pain. He did not reveal the details of the Xray findings from the health Centre visit nor about the dental intervention that he underwent few months back. The patient was then sent for an MRI, during the procedure the patient developed severe facial pain that the MRI had to be abandoned. After which the patient revealed the Xray findings to the doctor.

He was referred to our ENT Department where a paranasal sinus CT with 3D reconstruction (Figure 2 a-d) was ordered, which revealed the Dental Bur (Foreign body) in the left maxillary sinus. It was seen dislodged compared to the Xray (which was done in the primary health Centre), with the tip pointing anteriosuperiorly, while the tip was pointing posteriosuperiorly on the xray (suggesting the foreign body moved during the MRI). The patient was then posted for endoscopic sinus surgery as a day care procedure. We did an endoscopic middle meatal antrostomy under navigation protocol and the foreign body was removed with curved suction under 30 degree Hopkins sinoscope vision (Figure 3a-b) without complications. The post operative period was uneventful and his symptoms were relieved. The patient had a uneventful follow up period of 2 months.

Discussion

The maxillary sinus anatomy and its relation to the roots of maxillary molars, premolars and canines, is in a way that many of the odontogenic infections and procedures can cause complications in the sinus. In addition, a thin floor of the maxillary sinus can lead to projection of the roots of posterior teeth's in some individuals [8]. In this case report, a dental bur was most likely introduced

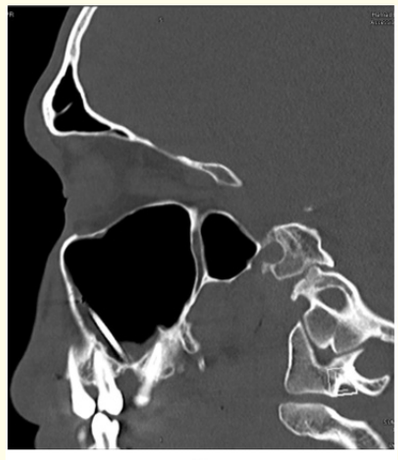
a



b

Figure 1a and b: Shows the Anterioposterior and Lateral view Xray showing the radioopaque foreign body situated in the left maxillary sinus with head of the foreign body pointing posteriorly.

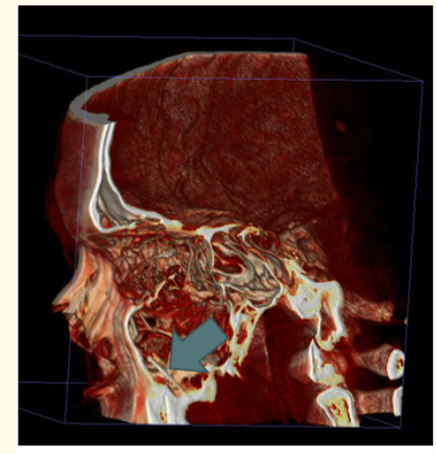
a



b

c

Figure 2a-c: Shows 3 sagittal cuts of CT sinus showing the head of the foreign body pointing Anteriorly, most likely due to the change in position during the MRI.



d

Figure 2d: Is a 3d reconstructed CT scan paranasal sinus showing the foreign body.

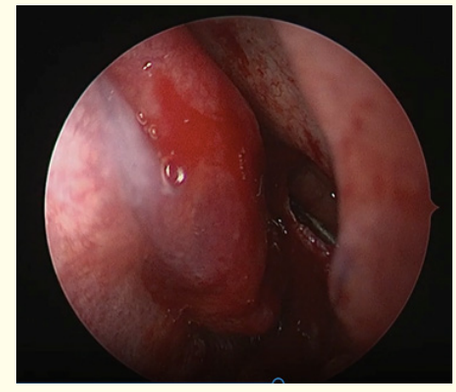


Figure 3a: Endoscopic view showing radio opaque foreign body in maxillary sinus.

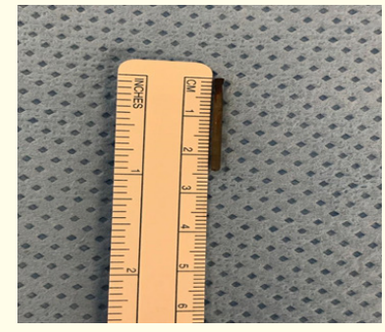


Figure 3b: Shows the foreign body post removal.

Figure 3c: Shows an image of a dental bur size 801.

during the dental procedure. However, a medical practitioner must always suspect the possibility of foreign body in the maxillary sinus in a patient complaining of recurrent unilateral facial pain even if no history of dental procedure is elicited. In this case, an MRI was done in the patient, this could have caused fatal complication due to the foreign body being dislodged to the brain or other vital structures.

Foreign bodies in the paranasal sinuses should be removed, even when they are asymptomatic in order to prevent mucosa irritations and reactions [1]. The pathophysiology of sinusitis caused by foreign bodies is still unclear. Tissue reactions and chronic irritation of the mucosa caused by Foreign bodies could lead to a degree of ciliary insufficiency and then sinusitis [1].

A case report describes carcinoma of the maxillary sinus in a 48 year old patient with a metal foreign body in the antrum [15]. Also another case which was misdiagnosed as an ethmoid tumor but caused by a foreign body reaction to an amalgam filling was reported [11]. So, the prompt surgical intervention to remove the foreign body is expected to prevent the possible complications including sinusitis, mucosal cyst formation, foreign body granuloma and persistent oro-antral communication [2,8].

Previously, the most common surgical technique used was the Caldwell-Luc procedure, which involves opening the anterior wall of the maxillary sinus [1,16]. With advancement of imaging and endoscopic techniques, Nasal and sinus endoscopic surgery is becoming the first line approach for the removal of a foreign body from the maxillary sinus. If the foreign bodies are large enough then their removal may not be easy by routine endoscopy [2]. In our case, endoscopic approach was applied.

Conclusion

Foreign bodies in the maxillary sinus are fairly uncommon. They usually enter sinus occur during or secondary to a dental procedures. Whatever the nature of the foreign body might be, it must be removed to prevent chronic infections even if it is asymptomatic. Any patient presenting with recurrent unilateral facial pain or unilateral sinus symptoms with/without previous history of sinusitis should raise the suspicion of a foreign body in the sinus regardless of any previous history of dental procedures.

We suggest that an endoscopic approach should be considered as the first line option for removal of maxillary sinus foreign bodies. Endoscopic approach can be performed as day care and provide removal under direct vision with less complications and facilitates an early recovery.

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