

# Maxillary Sinus with an Unusual Foreign Body : A Case Report

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## Abstract

Foreign bodies in maxillary sinuses are unusual clinical conditions and they can cause chronic sinusitis by mucosal irritation. Most cases of foreign bodies in maxillary sinus are related to iatrogenic dental manipulation and only a few cases with non-dental origin are reported. Oroantral fistulas secondary to dental procedures are the most common way of insertion. Treatment is surgical removal of the foreign body either endoscopically or with a combined approach with Caldwell-Luc procedure if endoscopic approach is inadequate for visualisation. In this case, we present a 42-year-old male patient with a handpiece bur in right maxillary sinus. The patient had a history of upper second molar tooth extraction. Panoramic radiograph revealed the presence of a foreign body in right maxillary sinus extending from the floor of the sinus to the inferior orbital margin. The foreign body, a bur was removed via Caldwell-Luc procedure.

## Introduction

Sinusitis is an inflammatory process involving the mucosa of the nose and one or more sinuses and usually more than one sinus is affected.<sup>1</sup> Unilateral maxillary sinusitis can be caused by various diseases, such as those affecting the teeth, fungal infections, trauma, tumors or foreign bodies.<sup>2,3</sup> Maxillary sinusitis secondary to the presence of foreign bodies in the interior of the maxillary sinus is an unusual clinical entity. Most cases of maxillary sinus foreign bodies in literature are related to iatrogenic dental manipulation.<sup>4</sup> Foreign bodies of very different nature, such as dental restorations, tooth roots or different types of implants are introduced into the maxillary sinus by different mechanisms, such as apical migration of fragments of fillings or accidentally.

Far rarer of maxillary sinus foreign bodies are nondental origin. Foreign bodies into the maxillary sinus may be introduced willingly by the patient or accidentally usually through an oroantral fistula.<sup>5</sup> Oroantral communications are rare complications of oral surgery which recognize maxillary molar extraction as the most common etiologic factor (frequency between 0.31% and 4.7% after the extraction of upper teeth).<sup>6</sup>

There is no agreement about the indication of techniques for the treatment of this kind of surgical complication. Spontaneous healing of 1 to 2mm openings can occur while untreated larger defects are

associated with the pathogenesis of sinusitis.<sup>7</sup> Only a few cases of non-dental paranasal sinus foreign bodies have been reported in the literature.

## Case Report

A patient aged 42 yrs was referred to Department of Maxillofacial Surgery, Santosh Dental College & Hospital, Ghaziabad by a dental practitioner with a complaint of a dislodged handpiece bur into the maxillary sinus during surgical extraction of the upper second molar. Patient's chief complaint was of headache, swelling, nasal obstruction, halitosis, and postnasal drip for the last 2 days. He had received antimicrobial therapy for the risk of developing sinusitis.

On examination, he had purulent and foul-smelling discharge from his right nostril. Intraorally there was unhealed socket in relation to right upper second molar and there was generalized periodontitis. He had no history of surgery for nasal or sinus pathologies. He had history of asthma and had been treated for tuberculosis.

Panoramic radiograph revealed sinus opacification with the presence of a foreign body in the right maxillary sinus extending from the floor of the sinus to the inferior orbital margin. (Fig. 1)

There was also a discontinuity in the bony segment of the sinus floor. Shape and position of the foreign body made us think that the bur had accidentally entered the sinus when the practitioner was attempting to extract the right upper second molar surgically.

The Caldwell-Luc procedure for better visualization of the antrum was used. The maxillary sinus was explored and the bur was located and then removed with the help of an artery forceps. (Fig. 2 & 3)

The patient was given antibiotics, anti-inflammatory drugs, systemic & topical decongestants for a week following surgery. The patient improved dramatically from the symptoms, without any complications.

## Discussion

Foreign bodies in the maxillary sinus, whatever their origin are rare entities but they are an integral part of the differential diagnosis for sinusitis, mainly when sinusitis occurs unilaterally. It is difficult to estimate their frequency because of the rarity of the entity and because of the small numbers of series published. Although the exact mechanism of how foreign bodies cause sinusitis remains unknown, it has been suggested that foreign bodies produce chronic physical and chemical irritation of the mucosa, leading to a degree of ciliary

insufficiency and secondary infection.<sup>8</sup>

Maxillary sinus foreign bodies usually have a dental origin in relation to manipulation or they may show up secondary to an oroantral fistul. Oroantral communications occur most frequently following maxillary molar or premolar extraction. The surgeon should be extremely careful for inspecting oroantral communications especially after maxillary molar and premolar tooth extraction or endodontic surgery performed on maxillary teeth which may result in sinus perforation that may develop into oroantral communication more than into oroantral fistula.<sup>9,10</sup> Because foreign bodies can cause irritation of the mucosa that can be concluded to sinusitis, the removal of all foreign bodies is generally recommended, even when they do not produce symptoms.<sup>11</sup>

A foreign body can be removed with different techniques depending on the size and location of it. The most common technique is endoscopic sinonasal surgery allowing the removal of most foreign bodies via a wide endonasal meatotomy.<sup>12</sup> When extraction is not possible by the endonasal approach, it can be conducted through an external approach by oral antrostomy or a combined approach of endonasal meatotomy and oral antrostomy.<sup>13</sup>

This case is unusual and interesting for two reasons; first, the foreign body itself, a whole carbide bur is usually not a very common finding; second, the position and direction of the bur made us think that it had been inserted through an oroantral fistula which occurred secondary to a tooth extraction. This case points out once more that it is very important to recognize and fix an oroantral communication occurred during a dental procedure immediately to prevent complications. Oroantral communications should be treated by establishing a physical barrier between oral cavity and maxillary sinus and numerous surgical techniques have been introduced for repair, including rotating or advancing local tissues such as the buccal or palatal mucosa, buccal fat pad, submucosal tissue, or tongue tissue.<sup>9</sup>

In conclusion, foreign bodies in the maxillary sinus are rare issues and oroantral fistulas which are usually secondary to dental procedures are the most common way of insertion. Whatever the foreign body is it must be removed surgically to prevent any further complications.

## References

References are available on request at [editor@healtalkt.com](mailto:editor@healtalkt.com)

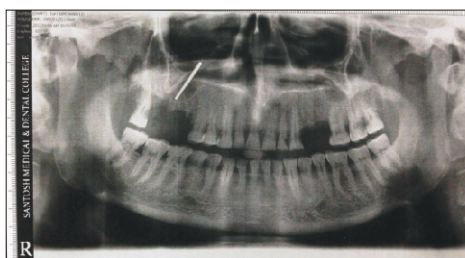


Fig.1 OPG showing a radiopaque foreign body (bur) in the right maxillary sinus region.



Fig. 2 Bony window to access the maxillary sinus cavity



Fig. 3 The bur which was retrieved from the sinus

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