

Peurile Dental In advertences And Its Costly Ramifications

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Abstract

Foreign bodies in paranasal sinus are very rare and most of them are encountered in maxillary sinus. Complications may occur during or after any endodontic or routine surgical procedure which may be due to negligence of the operator. In this case report, a high speed dental bur probably after the extraction of an upper molar penetrated into the maxillary sinus and was seen in right maxillary sinus. The case presentation and its management are described. Practitioners should deal with great care during procedures involving maxillary teeth to avoid unexpected complications by introducing foreign bodies into maxillary sinus.

Keywords: Maxillary sinus, Foreign bodies, dental bur, Oro-antral communication, Sinusitis

Introduction

Foreign bodies found in the maxillary sinus include tooth roots, burs, dental impression material, root-filling materials, dental implants and needles.¹ There is a possibility of foreign bodies penetrated into the maxillary sinus due to the special features of the posterior aspect of the maxillary bone. In this area, the bone is of poor quality and quantity.² In most cases, these materials gain entry via oro-antral communication. Extruded material that remains in place forms an oro-antral fistula.³ Foreign bodies displaced into the

maxillary sinus must be removed because they can disturb the mucociliary function and cause potential complications, mainly acute or chronic maxillary sinusitis.⁴ Sinus bodies are commonly encountered with ciliary impairment and secondary infection due to their physical and chemical insult to the mucosa. Therefore, the removal of all sinus foreign bodies is recommended, irrespective of whether they produce symptoms or not.⁵ The common causes for sinus foreign body are following: the entry of material through oro-antral fistula, facial trauma, and iatrogenic cause.^{6,7} Oro-antral communications occur mostly following maxillary molar or premolar extractions.⁸ The most commonly found foreign bodies are the displaced fractured roots of teeth and in some instances displaced whole teeth.⁹ Other foreign bodies include dental burs, dental implants, GP points and silver points.¹⁰ In this case report, a high speed dental bur which was assumed to have penetrated into the right maxillary sinus during extraction was seen radiograph. Operator negligence was assumed given the fact that the bur was left into the sinus before the patient was completely evaluated and discharged from the treatment.

Case report

A 30-year-old female patient reported to the outpatient department of Oral and Maxillofacial Surgery, Himachal Institute of Dental Sciences, Paonta Sahib, H.P. with the complaint of pain in right upper back tooth region since 5 days. History revealed that the patient had undergone extraction with respect to her right upper first molar tooth 5 days back in a private clinic. The extraction socket did not heal with the complaint of persistent pain and discharge associated in the region. Extra oral examination revealed no abnormality while intra oral examination revealed an oro-antral communication irt 16 (Fig. 1). After thorough clinical evaluation an

Orthopantomogram was advised for further radiographic intervention. Radiograph revealed the presence of a radiopaque foreign body material possibly a dental bur/gutta percha in the right maxillary sinus with its tip pointing antero-inferiorly (Fig. 2) and a surgical intervention was thus carried out. An intra-oral approach under LA was considered and a crevicular incision along with the releasing incision was placed extending from 15 to 17(Fig. 3a) The bony window was widened with the help of a rotary instrument and thorough irrigation with saline and gauze was done to locate the foreign body which seemed to be located far postero-superiorly in the maxillary sinus. Once the material was located as the presence of some glistening appearance, it was then grasped with the help of a tweezer (Fig. 3b) and was finally retrieved out through the bony window opening. It was revealed to be a dental bur (Fig. 3c) which entered into the sinus as a result of mishap by the private practitioner and was left there before the patient was discharged from his treatment. The operated site was irrigated and edges of the opening were smoothed followed by the closure of the flap with simple interrupted sutures. Patient was kept on post-operative medications for 5 days and was kept on follow -up period for approximately 1 month. Healing was uneventful.

Figure captions



Fig. 1: Oro-antral communication in relation to 16



Fig. 2: OPG revealed the presence of radiopaque foreign body material



Fig. 3c: Dental bur retrieved from the sinus



Fig. 3a: Mucoperiosteal reflection with expanded bony window into the right maxillary sinus



Fig. 3b: Foreign body grasped and retrieved with a tweezers

Discussion

Oro-antral communications occur following the extractions of maxillary molars or premolars. An oro-antral fistula cannot be immediately detected if the Valsalva test is not performed, after tooth extraction.¹¹ In the present case the communication was formed after the patient underwent extraction of 16 from a private practitioner and resulted in an unhealed socket. Foreign bodies in a maxillary sinus are fairly uncommon and usually occur during or secondary to a dental procedure. Whatever the nature of the foreign body might be it is mandatory to remove them to avoid chronic infections and its complications even if the patient is asymptomatic. Any patient who presents with recurrent unilateral facial pain or symptoms without any previous history of sinusitis should raise the suspicion of a foreign body in the sinus regardless of any previous history of dental procedures.⁵ In the present case the practitioner did not emphasize the potential impacts an involved maxillary sinus may have during a routine surgical or even an endodontic procedure and failed to recognize its

complications as well. The patient should also be sufficiently informed of the chair side mishaps and their potential complications and the need of surgical intervention to eliminate their complications.³Detailed diagnostic identification based on complete clinical evaluation and diagnostic imaging is necessary and it is generally accepted that prompt surgical intervention to remove the foreign body is desirable to prevent the possible sequelae of acute/chronic sinusitis, mucosal cyst formation, antrolith formation, aspergillosis and persistent oro-antral communication.^{3,10}

Killey and Kay¹² noted that although sinusitis was a common occurrence after entry of a foreign body into the antrum, the onset of change in the antral lining may be delayed for months or even years and its development may be unrelated to the presence of a foreign body. From here, infection can spread to involve other sinuses and ultimately cause a pansinusitis. Accurate management of odontogenic foreign body-induced maxillary sinusitis requires not only total removal of the foreign body, but also closure of any oro-antral communications by establishing a physical barrier between the oral cavity and the maxillary sinus. Small defects less than 5 mm usually heal spontaneously, defects larger than 5 mm need to be closed and for that several surgical techniques have been described such as buccal advancement flap, buccal fat pad, palatal island flap, etc.¹³

Aspergillosis is often associated with concretions of in the maxillary sinus which have, on the basis of radiological and clinical findings, been considered to correspond to dental restorative material. The only effective treatment of Sinus aspergillosis is total debridement of the affected sinus(es).¹⁴

Antrolith is the accumulation of hard, calcified bodies or stones around a nidus within the maxillary sinus antrum.

Usually arises from the deposition of mineral salts around the nidus which may be endogenous or exogenous in origin.⁸ The predisposing factors can be poor sinus drainage, long standing infection and presence of foreign body in the sinus which can further cause hypertrophy or atrophy of the sinus mucosa ciliary tissue.¹⁵ The purulent fluid then becomes concentrated and mineral salts accumulate which further calcify resulting in an antrolith.¹⁶Surgical excision via transnasal endoscopic approach or an oral antrostomy is the treatment of choice.⁸

The maxillary sinus Mucosal/retention cyst is expansive inflammatory cyst that presents radiographically as radiopaque structures with a distinctly rounded edge that can be single or multiple located in the sinus wall and with absence of any cortical bone. It presents slow and limited growth in order to preserve mucosal integrity. Most maxillary sinus retention cysts feature spontaneous regression or remain stable without change in size at the long term.¹⁷The mucosal retention cyst in the paranasal sinuses develops when drainage of the sinus is obstructed by inflammatory processes, trauma, surgery or tumor.¹⁸

Small foreign bodies may be transported by the cilia of the epithelial lining in the maxillary sinus in the mucus containing fluid against the influence of gravity, up the nasal wall of the sinus and out into the nose via the ostium. Small particles are transported in this way out of the sinus in less than 10 minutes and small sinus bodies may be silently inhaled (during sleep or when protective reflexes are dulled by alcohol) which might result in the development of severe complications like pneumonia, bronchiectasis or even lung abscess.¹⁰

Therefore, in order to avoid such potential risks clinicians should exercise extreme care in identifying an oro-antral fistula/communication following maxillary

molar and premolar extractions. Knowledge of dento-antral relationships as well as the skill of operator is important particularly in the prevention of sinus accidents. Mechanical and chemical effects may contribute to iatrogenic complications. Because foreign bodies can cause irritation of the mucosa giving rise to above mentioned complications, it is generally recommended to remove all the foreign bodies. Several techniques like Transnasal Endoscopy, Oral Anrostomy or combination of both can be adopted depending on its size and location.^{8, 19} In our case; we used the conventional oral anrostomy technique to remove the foreign body from right maxillary sinus.

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