

## Extraordinary sneeze: Spontaneous transmaxillary-transnasal discharge of a migrated dental implant

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Author contributions: All authors contributed to this paper.

Institutional review board statement: The present paper was reviewed and approved by the University of Verona Institutional Review Board.

Informed consent statement: All person (n°1 patient) involved in the present paper gave their informed consent to clinical case publication.

Conflict-of-interest statement: There is not any conflict-of-interest in the present paper.

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Manuscript source: Invited manuscript

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Received: March 28, 2016  
Peer-review started: March 29, 2016  
First decision: May 16, 2016  
Revised: May 26, 2016  
Accepted: June 1, 2016

Article in press: June 3, 2016  
Published online: August 16, 2016

### Abstract

This case report describes an extraordinary case of the spontaneous transmaxillary-transnasal discharge of a dental implant, which occurred during a sneeze. The patient was complained of symptoms of acute sinusitis. She underwent a computed tomography scan that revealed a dental implant dislocated in the maxillary sinus. Medical treatment based on antibiotics and mucolytics was administered to the patient in order to prepare her for endoscopic endonasal surgery. The implant was spontaneously discharged two days after during a sneeze. Mucociliary clearance in combination with a local osteolytic inflammatory process and mucolytics therapy are the likely causes of this unusual discharge.

**Key words:** Complications; Dental implant; Acute sinusitis; Implant surgery

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**Core tip:** Iatrogenic dislocation of dental implants into paranasal sinuses is not a rare pathological finding. Dental implants dislocation are commonly related to a wrong operating procedure or diagnostic clinical planning. Functional endoscopic sinus surgery has been widely described as the first option to remove foreign bodies from the paranasal sinuses, while the Caldwell-Luc approach to the maxillary sinuses still represents an option if the patients wants to avoid general anesthesia. Up-today just one case of spontaneous nasal discharge was reported in the literature. Therefore this case report describes a really uncommon clinical finding.

Procacci P, De Santis D, Bertossi D, Albanese M, Plotegher C, Zanette G, Pardo A, Nocini PF. Extraordinary sneeze: Spontaneous transmaxillary-transnasal discharge of a migrated dental implant. *World J Clin Cases* 2016; 4(8): 229-232 Available from: URL: <http://www.wjgnet.com/2307-8960/full/v4/i8/229.htm> DOI: <http://dx.doi.org/10.12998/wjcc.v4.i8.229>

## INTRODUCTION

Implant-supported prosthetic rehabilitation represents one of the most common procedures in dental clinical practice<sup>[1]</sup>. In surgical dental treatment that includes the posterior maxillary region, such as implant placement or impacted third molar extraction, the maxillary sinus should be taken into account because of its anatomical position<sup>[2,3]</sup>. Implant displacement into paranasal sinuses has been reported frequently in the literature<sup>[4-9]</sup>. According to the associated complications (implant displacement, implant displacement with or without reactive sinusitis and/or with or without associated oro-antral communication), such approaches as functional endoscopic sinused surgery (FESS), intraoral approach to the sinus, or FESS associated with an intraoral approach could be considered<sup>[10]</sup>. To the authors' knowledge, this is the second report of a migrated dental implant spontaneous transnasal-transmaxillary discharge<sup>[11]</sup>.

## CASE REPORT

A 63-year-old woman was referred to our Department complaining of pain in the right cheek, malar rubor and edema, fever and nasal purulent discharge. Symptoms and signs appeared one week before her first visit. When the patient visited her private dentist with those symptoms, he promptly performed a radiological examination. The panoramic radiography revealed that an endosseous dental implant previously located at the posterior aspect of the right upper maxillary alveolar ridge had disappeared (Figure 1). On her arrival in our department, the patient immediately underwent a computed tomography scan which revealed that the dental implant was located inside the right maxillary sinus. The anterior aspect of the implant was completely inside the maxillary sinus while the posterior part was positioned throughout the osteomeatal complex. A massive right odontogenic sinusitis with ethmoid involvement was noticed (Figures 2 and 3). The clinical examination did not show any kind of oroantral communication at the superior aspect of the right maxillary ridge and the implant-supported prosthesis was stable without evidence of any kind of pathological signs. An endoscopic endonasal removal of the implant was then planned. A preoperative medical treatment [Ciprofloxacin (500 mg) and Acetylcysteine (600 mg)] twice a day for 7 d was administered in order to prepare her for surgery. Unexpectedly, 2 d after she reported that she had discharged the dental implant in the early morning during a sneeze (Figure 4). No bleeding took



Figure 1 The preoperative panoramic radiography showed an unknown disappearance of an upper endosseous dental implant previously located in the posterior aspect of the right upper maxilla.

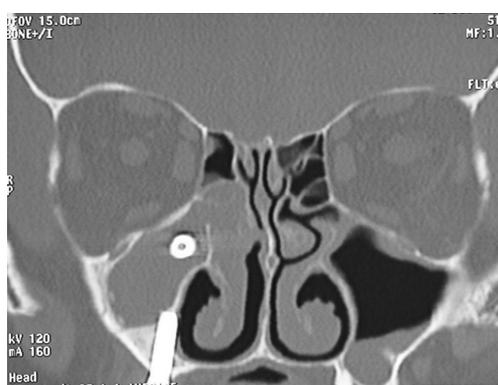


Figure 2 Coronal computed tomography scan clearly revealed the dental implant located in the upper third of the maxillary sinus. Acute maxillary sinusitis and ethmoiditis are evident.



Figure 3 Axial computed tomography scan allowed to analyze the exact position of the implant between the maxillary sinus anteriorly and the osteomeatal complex posteriorly.

place. Surgery was then cancelled and the patient completed her medical treatment. Signs and symptoms disappeared without any kind of late complications within 7 d.

## DISCUSSION

Foreign body dislocation in the paranasal sinuses is a



**Figure 4** The sneezed implant. The prosthetic abutment is still engaged to the dental implant.

common event<sup>[12-14]</sup>. The presence of a foreign body inside a paranasal sinus often causes an acute inflammatory reaction of the Schneider membrane with a possible consequent obstruction of the sinus ostium. The occlusion of the osteomeatal complex and the edema of the sinus membrane could lead to a severe alteration of the mucociliary function and, as a direct complication, an acute or recurrent sinusitis<sup>[15]</sup>. When foreign body displacement occurs, it has to be removed in order to avoid sinus pathology<sup>[10,12]</sup>. Although several different approaches to remove a foreign body from the maxillary sinus have been described, all of those should be associated with preoperative and postoperative antibiotic, mucolytics and corticosteroid treatment. The first aim of the medical therapy is to reduce the edema of the sinonasal mucosa and to limit the infection.

In the present case the patient underwent preoperative medical therapy that probably stimulated the reactivation of the mucociliary function of the maxillary sinus with a consequent dislocation of the migrated dental implant from the maxillary sinus to the osteomeatal complex. The dental implant then acted like a trigger causing subsequent multiple sneezing and the final extraordinary transnasal discharge of the foreign body.

## COMMENTS

### Case characteristics

The paper describes an extraordinary case of an ectopic implant spontaneously discharged during a sneeze.

### Clinical diagnosis

The case describes an acute maxillary sinusitis due to a dislocated dental implants into maxillary sinus.

### Differential diagnosis

Maxillary sinusitis vs rhinosinusitis.

### Imaging diagnosis

Computed tomography scans clearly describe the position of the ectopic implant located between the maxillary ostium and the medial meatus.

### Pathological diagnosis

Malar rubor and malar oedema associated with severe nasal discharge and nasal dripping allowed to make diagnosis of acute maxillary sinusitis.

### Treatment

The patients was candidated to functional endoscopic sinuses surgery in order to remove the foreign body but immediately before the surgical procedure she discharge the ectopic dental implant.

### Related reports

Please provide other contents related to the case report to help readers better understand the present case.

### Term explanation

To the authors' knowledge, this is the second report of a migrated dental implant spontaneous transnasal-transmaxillary discharge.

### Experiences and lessons

The present case showed clearly how competent could be the mucociliary clearance and helps to understand that the combined antibiotic and mucolytic therapy is always advisable before surgery.

### Peer-review

This case report describes an extraordinary case of the spontaneous transmaxillary-transnasal discharge of a dental implant. The implant was spontaneously discharged 2 d after during a sneeze. It is interesting and meaningful.

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**P- Reviewer:** Gürel P, Liang ZQ **S- Editor:** Ji FF  
**L- Editor:** A **E- Editor:** Zhang FF





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