

Management of Displaced Dental Implant in Maxillary Sinus- A Case Report

**Kaustubh Suresh Thakare^{*1}, Vaibhav Tiwari², Bharat Gupta³, Nupoor Khiraiya⁴,
Neha Anil Patil⁵, Priya Gupta⁶**

¹Department of Periodontology and Implantology, V Y W S Dental College and Hospital, Amravati,
Mumbai, India

²Department of Periodontology and Implantology, Government Dental College, Raipur, India

³Department of Periodontics, Mgm dental college, Navi Mumbai, India

⁴Department of Periodontology and Implantology, Government Dental College, Raipur, India

⁵Department of Oral Medicine and Radiology, Mgm dental college, Navi Mumbai, India

⁶Department of Medical Science, Private practitioner, Navi Mumbai, India

ABSTRACT

As an increase in attempt to rehabilitate compromised maxillary arch with sinus lift, the complications are becoming more frequent. One of them is the displacement of dental implants into the maxillary sinus which can occur during initial or second stage surgery. The present report is discussing a case dislodged implant during second stage surgery and its management. A male patient aged 33 years reported with missing teeth in right posterior back tooth region. Implant was placed with delayed protocol at sites 16 and 17. The patient was recalled after 6 months for second stage surgery. While removing the cover screw and due to the obvious reasons of lack of osseointegration; the dental implant got displaced in to the maxillary sinus.

OPG was taken to locate the implant and the implant was removed using Caldwell-Luc (CL) operation.

Lack of bone quality and quantity, failure to repair of Schneiderian membrane, lack of primary stability. Inability to achieve osseointegration are most common causes. It is advisable to remove displaced implant as early as possible with appropriate approach to prevent complications.

Key words: Dental implant, Maxillary sinus, Dental implant displacement, Complication

HOW TO CITE THIS ARTICLE: Kaustubh Suresh Thakare, Vaibhav Tiwari, Bharat Gupta, Nupoor Khiraiya, Neha Anil Patil, Priya Gupta. Management of Displaced Dental Implant in Maxillary Sinus-A Case Report, J Res Med Dent Sci, 2021, 9(12): 512-514

Corresponding author: Kaustubh Suresh Thakare

e-mail ✉: kaustubhthakaremds@gmail.com

Received: 01/12/2021

Accepted: 15/12/2021

INTRODUCTION

In Dentistry; Dental implants have come a long way with development of various ridge augmentation technique implantology has moved on to increase bone volume and placement of prosthesis in individuals with insufficient alveolar ridge. Sometimes in such cases, particularly in maxillary posterior region complication due to anatomical and physiological conditions would be displacement of dental implant in to the maxillary sinus.

Ethmoidal sinus or sphenoidal sinus can occur. The most common of all is displacement of implants into maxillary sinus. The displaced implant may be asymptomatic or may cause sinus infections. the implant displaced in maxillary

sinus can migrate to ethmoid sinus, orbital floor, sphenoid sinus, or even the cranial fossa. The maxillary sinus infection can lead to orbital cellulitis and damage the optic nerve, resulting in meningitis or brain abscess in some cases. It is therefore recommended to remove it as soon as possible. Numerous techniques are successfully used to remove dental implants. The most commonly used are the endoscopic sinus surgery (ESS) and the classic Caldwell-Luc (CL) intraoral approach operation and in some cases both are applied.

CASE REPORT

A male patient aged 33 years reported with missing teeth in right posterior back tooth region. Implant was placed with delayed protocol at sites 16 and 17. The patient was recalled after 6 months for second stage surgery. While removing the cover screw and due to the obvious reasons

of lack of osseointegration; the dental implant got displaced in to the maxillary sinus.

Radiographic examination revealed displacement of implant in maxillary sinus (figure 1).



Figure1: OPG was taken to locate implant as it was not possible to locate it during second stage surgery.

The patient was asked to move this head and OPG was taken to determine whether the implant was attached to sinus wall, Since the implant was floating within sinus and changed position with the movement of head. Caldwell-Luc (CL) operation was selected as it enables anteroposterior visual inspection of sinus floor. The operation was done under local anesthesia and a full thickness periosteal flap was raised (figure 2).



Figure2: After flap reflection.

After exposing the sinus wall, a bony window was created with the round bur. (figure 3).



Figure3: Lateral window was created to get access to the sinus cavity.

Following exposure of Schneiderian membrane and removal of bony window retrieval of implant was done successfully (figure 4).



Figure4: Implant located in sinus cavity.

The placed was placed back in its positioned and sutured with 3-0 silk suture. After the surgery, patients are instructed to avoid blowing their nose for 2 weeks and sneeze with the mouth open. Antibiotic therapy with amoxicillin and clavulanate (1 g) was prescribed in association with nonsteroidal anti-inflammatory drugs were prescribed for 5 days to prevent sinus infection. Chlorhexidine mouth-wash was prescribed for seven days. The healing was uneventful only slight swelling was recorded post-surgery which subsided after 5 days. After seven days, the patient was recalled and suture was removed.

DISCUSSION

In intraoperative phase the causes of implant displacement include incorrect surgical planing, deficient bone height, use of larger size implant, or incorrect surgical procedure. In the post-operative phase Lack of primary stability impairs osseointegration which may be due to poor quality and quantity of bone or infections like sinusitis. Moreover, it may be due to any pre-existing bone related disorders such as osteoporosis or osteopenia Implant displaced into maxillary sinus should

be immediately removed as it may be asymptomatic as reported by Galindo-Moreno et al. in two cases of implant migration in maxillary sinus. The migrated implant that had been left behind on request of the patient showed no signs of clinical complications at 4-year follow-up visit. On the other hand the implant placed in sinus may act as a foreign object and may cause chronic sinusitis. The major causative bacteria in chronic maxillary sinusitis are *Peptostreptococcus* (34%), *Corynebacterium* (23%), *Bacteroides* species (23%), and *Veillonella* (17%).

An endoscopic approach via a transnasal access is an alternative treatment option which is less invasive, however it may require general anesthesia and enlargement of ostium. Combination of endoscopic and the intraoral approach (Caldwell-Luc technique) can also be performed when the displacement of implant is associated with presence of sinusitis, obstruction of the maxillary ostium and oroantral communication. In the present case report CL approach is used after controlling the sinus infection as may allow an excellent access and visibility of the maxillary sinus, thus rendering the removal of foreign bodies displaced into the sinus very easy.

Conclusion

Lack of bone quality and quantity, failure to repair of Schneiderian membrane, lack of primary stability. Inability to achieve osseointegration are most common causes. It is advisable to remove displaced implant as early as possible with appropriate approach to prevent complications.

REFERENCES

1. Regev E, Smith RA, Perrott DH, et al. Maxillary sinus complications related to endosseous implants. *Int J Oral Maxillofac Implants* 1995; 10:451-461.
2. Haben CM, Balys R, Frenkiel S. Dental implant migration into the ethmoid sinus. *J Otolaryngol* 2003; 32:342-344.
3. Felisati G, Lozza P, Chiapasco M, et al. Endoscopic removal of an unusual foreign body in the sphenoid sinus: An oral implant. *Clin Oral Implants Res* 2007; 18:776-780.
4. Cascone P, Ungari C, Filiaci F, et al. A dental implant in the anterior cranial fossae. *Int J Oral Maxillofac Surg* 2010; 39:92-93.
5. Chiapasco M, Felisati G, Maccari A, et al. The management of complications following displacement of oral implants in the paranasal sinuses: a multicenter clinical report and proposed treatment protocols. *Int J Oral Maxillofac Surg* 2009; 38:1273-1278.
6. Sgaramella N, Tartaro G, D'Amato S, et al. Displacement of dental implants into the maxillary sinus: a retrospective study of twenty-one patients. *Clin Implant Dent Relat Res* 2016; 18:62-72.
7. Gwaltney JM Jr, Sydnor A Jr, Sande MA. Etiology and antimicrobial treatment of acute sinusitis. *Ann OtolRhinolLaryngol Suppl* 1981; 90:68-71.