

Case Report

Displaced Implant Retrieval from Maxillary Sinus - A 4 year Follow Up

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Abstract: A very low incidence of complications of rehabilitating jaw with implant therapy is migration of dental implants into maxillary sinus. Implant migration into the maxillary sinus may be followed by sign of infection and oroantral communication. This way, paranasal sinus function will be appearing altered after the implant migration and hence implant removal is utmost important.

Keywords: Implant, Sinus, Caldwell-Luc.

INTRODUCTION

Oral rehabilitation (full or partial) of edentulous jaws with implant-supported prosthesis has become a popular treatment modalities among dentists for orally handicapped patients in the last few decades [1].

Implant migration in the maxillary sinuses, due to inappropriate planning or limited surgical experience, have been reported in the literature [2-5]. One of the major complications resulted by foreign body migration in the maxillary sinus is sinusitis, which may result in serious conditions such as pansinusitis, panophthalmitis, and orbital cellulitis [6-11].

An immediate or early removal of the displaced implants is of utmost importance so as to prevent any paranasal complications [12-15]. This procedure can be performed either through the implant site, or by creating a window in the anterior/lateral wall of the maxillary sinus [16], or by means of an endoscopic nasal approach.

In this article we described a case report in which a dental implant, displaced into maxillary sinus, was removed by the posterior Caldwell-Luc approach with successful rehabilitation of the same edentulous area.

CASE REPORT

A 52-year-old male patient was referred to dental office by the general dentist with a complaint of migratory implant in maxillary sinus. History revealed that the patient underwent surgery, previous day, for

placement of dental implants on the right posterior maxilla with indirect sinus lift in second premolar area.(Fig.1)

During the course of indirect sinus uplift procedure, the implant was displaced in maxillary sinus. Panoramic radiography and Lateral Cephalogram confirmed its presence inside sinus. (Fig.2, 3). He presented with no sinus symptomatology. His medical history was Non-contributory.

Caldwell-Luc [17] may be performed under local or general anaesthesia depending on the patient's preference, the surgeon's experience, the health and age of the patient, and the complexity of the proposed procedure. Adequate anaesthesia was achieved by administering 2% xylocaine HCL with adrenaline 1:80,000. After giving crestal and two vertical incisions with Bard Parker knife (blade no.15) the full thickness mucoperiosteal flap was reflected using the periosteal elevator preserving the mucosa which aids in proper healing.

The soft tissue over the maxillary sinus was elevated to visualize the anterior wall of the sinus. Entry into the maxillary sinus is initiated routinely through an osteotome although drill can also be used. In making such a fenestration, the surgeon must be careful to avoid the roots of the maxillary teeth (upper jaw), and to limit the opening to that which is necessary to perform the planned surgery.

The former is important because the teeth may be devitalized if their blood supply or nerves are injured

by the fenestration. The latter is important because the larger the fenestration the more likely the soft tissue of the face is going to post-operatively collapse into the maxillary sinus. A third potential complication is injury to the infraorbital nerve. During fenestration the nerve may be directly injured or stretched leaving the patient with temporary or permanent numbness.

A lateral antrostomy was carried out, and sinus membrane was elevated and incised to allow removal of dental implant. (Fig.4) The size of the opening was restricted but sufficient to allow passage of the implant. The implant and the cover screw were easily retrieved with a vascular forceps. (Fig.5,6) The mucoperiosteal flap was then sutured.

The patient was then prescribed with antibiotics (Amoxycillin 400mg 8 hourly for 5 days) and analgesics (Ibuprofen 400mg TDS for 3 days). Chlorohexidine mouthwash (0.2%) was advised twice daily, and required post operative instructions were given to the patient.

After 1 week, sutures were removed, and the area was thoroughly irrigated with saline. The re-call appointments were made after 1 month, 2months and three months. After complete healing, the edentulous area was then restored with two implants and fixed prosthesis. The patient was then follow up for 4years post rehabilitation. (Fig.7,8).

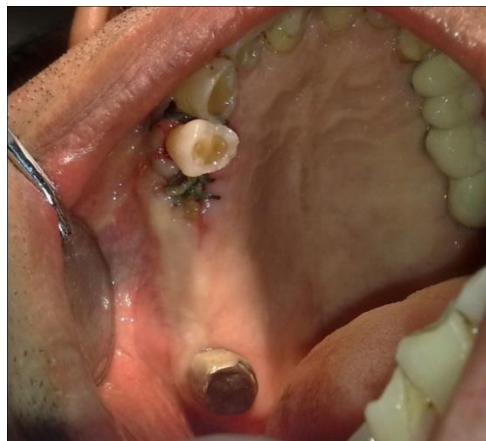


Fig-1: Pre Operative



Fig-2, 3: Pre Operative Radiographs



Fig-4: Lateral window



Fig-5, 6: Implant Retrieval

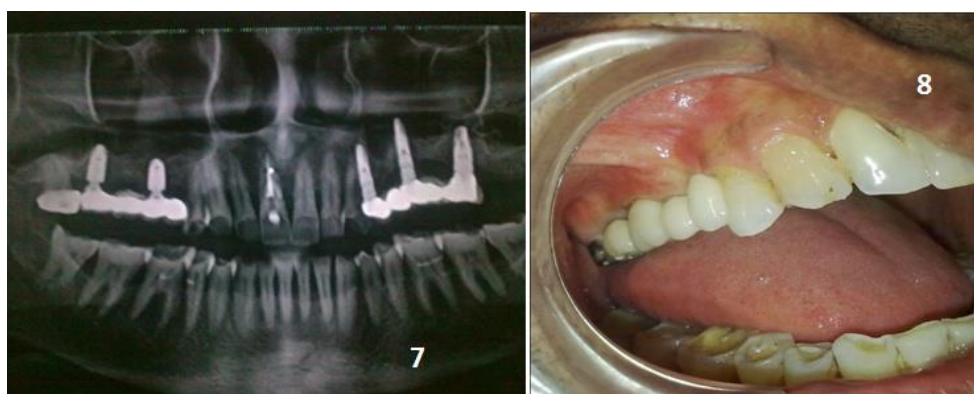


Fig-7, 8: Four Years Post Operative

DISCUSSION

Possible mechanisms by which implant can be migrated into maxillary sinus are change of pressure in intranasal and nasal areas; periimplantitis due to inflammatory component resulting in loss of soft and hard tissues of the periodontium; and post operative bone resorption after loading due to inappropriate distribution of occlusal forces [18-19].

Removal of foreign body is strictly advised due to the risk of interruption of mucociliary clearance or tissue reaction in maxillary sinus. In addition, fungal infections or even cancer are also associated with such foreign bodies [20]. Since the presence of oral implants migrated in the maxillary sinus may not determine the course of inflammatory/infectious reaction [21], however it is strictly advisable to remove any foreign bodies in the paranasal sinuses so as to prevent any inflammation/sinusitis by interrupting mucociliary clearance [22-24]

Improper distribution of occlusal forces of prosthetic device on the implant may also cause migration of the implant. This is common in those cases in which dental implants and bone reconstruction through sinus lift is carried out simultaneously [25].

Another situation that can contribute to the displacement of the implants is the lack of adequate osseous height present for fixtures placement. Minimal height of 5 mm along with immediate osseous grafts

(sinus lift) has already been indicated is the basic requirement for implant placement [26]; an undervaluation in the initial procedure could influence the installation of implants without adequately high osseous, and adding it to a poor osseous quality could be reasons in permitting the migration of the devices. In situations limited to available bone height and poor osseous conditions, alternatives like short implants, angulated implants, or osseous graft should be considered [27].

There are three different major approaches to remove materials displaced into the maxillary sinus: suction from the socket of an extracted tooth, the classical open surgery via the canine fossa and endoscopic approach. Suction through the dental socket is the easiest procedure when a small root is displaced into the maxillary sinus during the course of extraction²⁸ However, this blind procedure may lead to unsatisfactory results when the material is entrapped in the undercut of the sinus, and often leads to undesirable postoperative depression of the alveolar ridge due to the procedure of enlarging the socket for a suction tube.

Another alternative procedure is the classical approach corresponding to the Caldwell-Luc procedure [28,29]. However, this may lead to retraction of the soft tissues of the cheek and paraesthesia of the infraorbital nerve [30]. However the Caldwell-Luc approach is the gold standard for access to the maxillary sinus for treatment of various problems, including retrieval of

foreign bodies, until the development of functional endoscopic sinus surgery [29].

CONCLUSION

The first choice of treatment for removing the dental materials displaced into the maxillary sinus should be the technique that the surgeon is accustomed, in order to reduce complications. The Caldwell-Luc may be an “old-fashioned” technique, but it is a simple approach for those that do not have the endoscopic equipment and the specific training to manage it.

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