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Case Report

Management of an implant projected into the maxillary sinus associated with chronic sinusitis: A case report

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ABSTRACT

An x-ray examination allowed the implant to be visualized and the amount of bone to be assessed at the site of the implant placement. Maxillary implants may have close relationships with the maxillary sinus. A preliminary X-ray examination of the implant site was used to assess the quality and quantity of bone and to assess the proximity of the sinuses. The authors report the extraction of a dental implant projected into the left maxillary sinus, associated with chronic sinusitis in a 65-year-old patient who did not previously receive sinus lift. An orthopantomogram was used to visualize the cylindrical implant in an upright position in a very prominent sinus. With the maxillary scanner, the implant was located with more precision in 3D, surrounded by a frame image representing the purulent collection. The extraction of the implant projected into the sinus by a simple technique under local anesthesia was decided. A control orthopantomogram showed the emptiness of the sinus cavity. The surgical suites were simple. Elimination of an enlarged crestal intra sinusal implant should be undertaken first-line in oral surgery as it is simple and less invasive. To prevent these incidents, short implants or sinus elevation technique are alternatives for prominent bone and/or sinus deficits visualized through 3D imaging.

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1. Introduction

The installation of implants in the maxilla should take into account surrounding anatomical obstacles such as the sinus. A preliminary X-ray examination of the implant site is used to assess the quality and quantity of bone and to assess the proximity of the sinuses. Cases of implant projection in the sinus have been reported by several authors.^{1–3} Caldwell-Luc and nasal endoscopic techniques have been used more by other authors.^{4,5}

The reported case is that of a 65-year-old patient, referred for a projection of an implant in the left maxillary sinus. An alveolar supra crestal removal under local anesthesia was carried out.

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2. Case History

A 65-year-old patient was referred to the surgery department after the dentist found that an implant was placed 15 days ago in the left maxillary molar region. The implant was 10 mm long and 3.5 mm in diameter. The patient, who had an uncharted general condition, described a feeling of left nasal obstruction, which had occurred since that incident, without any association of pain. An orthopantomogram visualized the cylindrical implant in an upturned vertical position (the apical part of the implant located downwards) at the posterior level of the very prominent left maxillary sinus. [Figure 1] With a CT- scan, the implant was located more accurately and also detected maxillary sinusitis translated into a frame image confirmed by the ORL. [Figure 2] It was decided to extract the implant projected into the sinus by a

simple technique under local anesthesia. This technique is more accessible to dentists. Antibiotic therapy was initiated based on amoxicillin / clavulanic acid and 2 grams per day for 7 days. After para-apical anesthesia with vasoconstrictor, we made a straight incision on the alveolar crest of about 2 cm around the implant placement site supplemented by a forward obliquely oriented mesial discharge incision. Then, using a rugine, a full-thickness flap was cleared. Minimal alveolar osteotomy using gouge pliers enlarged the implant site. [Figure 3] The Valsalva maneuver cleared the implant and the mucoperiosteal collection from the sinus. This involved pinching the nose with the fingers and asking the patient to exhale in order to pass the contents of the sinuses through the enlarged alveolar opening. The manoeuvre was effective, allowing the removal of the implant and the evacuation of a muco-purulent seousity applied to the implant. [Figure 4] A second valsalva manoeuvre was aeric without serousness. The surgical site was closed after repositioning the access flap by continuous stitches to silk thread 3.0. [Figure 5] The surgical suites were simple. A control orthopantogram showed emptiness of the left maxillary sinus cavity. [Figure 6]



Fig. 3: Osteotomy with gouge pliers



Fig. 1: Orthopantogram: implant in an upturned vertical position in the left sinus

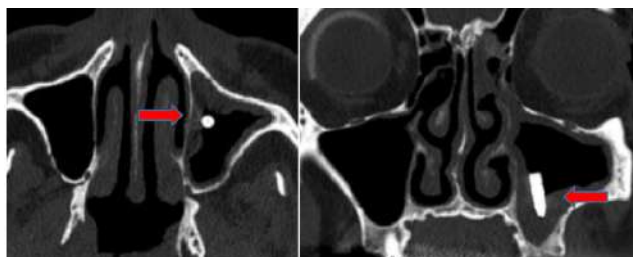


Fig. 2: TDM in axial cut (left) and frontal cut (right) objectiving the implant around frame image

3. Discussion

Implants placed on the maxilla may have varying proximity to the sinus. They can migrate or be projected in case of



Fig. 4: Extracted implant and muco-purulent collection

severe bone or sinus deficit. According to Galindo-Moreno, implant projections occur in patients aged 38 to 65 years with an average of 54.87/-8.75 years.⁶ Our patient was 65 years old. The time between installation and projection was 15 days. This period varies between the day of the installation (intraoperative) and five years after or even 10 years.⁴ The failure rate of implant placement is higher in the premolar region (40%) and molar (60%) because of the presence of the sinus.⁶ The location at the first molar was 58.3%.⁷ The implant was maxed out and was 10mm long and 3.5mm in diameter. The average length of the implants placed was 13.43/- 1.88 mm and their



Fig. 5: Silk yarn suture



Fig. 6: Orthopantomogram showing emptiness of the left sinus

average diameter was 4.13/-0.18 mm.⁶ In most implant projections (91.6%), bone height was less than 10 mm.⁷ The patient described a nasal obstruction with no pain. Chronic sinusitis has been diagnosed and is thought to be caused by an infected tooth extracted. Sinusitis was one of the most common complications (13.3%), caused by the presence of an implant after several months.⁶ The unilateral nasal obstruction described by the patient is one of the signs. Other signs such as cacosmy, mucopurulent rhinorrhea and maxillary gravity.⁸ The orthopantomogram shows the presence of the implant in the left maxillary sinus. This impact is essential for an overall evaluation of the implant in the sinus. In order to better visualize the position of the implant, three-dimensional imaging (scanner, beam cone) must be performed.^{2,8}

It visualizes bone loss and sinus pathologies in order to better plan the surgical procedure and the pathway first.⁵

We opted for the crestal abord because of its funnel shape, the position of the implant adjacent to the lower edge of the sinus (floor) and constituted a quick and simple escape route from the purulent collection represented by the frame image at the front cut. This pathway is an alternative for the oral surgeon and is minimally invasive with a localized osteotomy at the initial position of the implant performed after a minimum flap. This osteotomy can be done with a gouge clamp or a piezotoma. The technique used for this case is simple and reproducible. It is less invasive because using the alveolar ridge at the level of the implant placement site. The implant is evacuated thanks to the pyramidal shape of the sinus, to the gravity and to the air force released by the Valsalva maneuver. An artificial oroantral fenestration of approximately 5mm was made by Harada at the alveolar crest of the molar region with an irrigation into the maxillary sinus.⁹ This technique can be used after sinus root projection during dental avulsion. Most of the authors used other pathways to remove the implants. These are nasal passages (nasal endoscopy), antero-lateral (Cadwell-luc) or lateral crestals. The Cadwell-luc way accounted for 53.3% of techniques according to Galindo 6.94% according to Manor and 47% according to Jeong.^{4,10}

This pathway is indicated if the pathology has not affected the other sinuses with an intact ostium. The procedure can be performed under local or general anesthesia with the use of piezosurgery.³ The otolaryngologist often uses the transnasal endoscopic pathway under general anesthesia or sedation in case of multiple sinuses with sinus symptomatology.⁵ The lateral alveolar pathway more invasive than the crestal pathway utilized in our case, but beneficial in the case of simultaneous implants with bone filling by retromolar or symphyseal autogenous bio-bone after removal of the sinus implant.¹ This lateral alveolar pathway is used in 71.4% of patients in the Sgarabella study.⁷

Implant projections into the sinus can be avoided by various strategies. 3D imaging thus makes it possible to plan the quantity of bone available before implant placement as well as the choice of the dimensions of the implants. Sinus lift could be an alternative in case of bone deficit.²

4. Conclusion

Elimination of an enlarged crestal intra sinus implant should be undertaken first-line in oral surgery as it is simple and less invasive. To prevent these incidents, short implants or sinus elevation technique are alternatives for prominent bone and/or sinus deficits visualized through 3D imaging.

References

1. Fauroux MA, Malthiery E, Torres JH. Implant projection in maxillary sinus: case management and literature review. *Med Bucc Chir Bucc.* 2015;21:115–9.

2. Tadinada A, Fung K, Thacker S, Mahdian M, Jadhav A, Schincaglia GP. Radiographic evaluation of the maxillary sinus prior to dental implant therapy: A comparison between two-dimensional and three-dimensional radiographic imaging. *Imaging Sci Dent.* 2015;45(3):169–74. doi:10.5624/isd.2015.45.3.169.
3. Fusari P, Doto M, Chiapasco M. Removal of a Dental Implant Displaced into the Maxillary Sinus by Means of the Bone Lid Technique. *Case Rep Dent.* 2013;2013:1–5. doi:10.1155/2013/260707.
4. Jeong KI, Kim SG, Oh JS, You JS. Implants displaced into the maxillary sinus: a systematic review. *Impl Dent.* 2016;25:547–51.
5. González-García A, González-García J, Diniz-Freitas M, García-García A, Bullón P. Accidental displacement and migration of endosseous implants into adjacent craniofacial structures: a review and update. *Med Oral Patol Oral Cir Bucal.* 2012;17:769–74.
6. Galindo-Moreno P, Padial-Molina M, Avila G, Rios HF, Hernández-Cortés P, Wang HL. Complications associated with implant migration into the maxillary sinus cavity. *Clin Oral Implants Res.* 2012;23(10):1152–60. doi:10.1111/j.1600-0501.2011.02278.x.
7. Sgaramella N, D’Tartaro G, Amato S, Santagata M, Colella G. Displacement of dental implants into the maxillary sinus: a retrospective study of twenty-one patients. *Clin Impl Dent Res.* 2016;18:62–72.
8. Gaborya LD, Catherine JH, Molinier-Blossier S, Lacane A, Castillo L, Russeg P. SFORL’s best practices for implant surgeries related to the maxillary sinus. *Ann Franç Otorhinolaryngol Pathol Cervicofac.* 2020;137:51–7.
9. Harada T, Isomura ET, Uchihashi T, Kogo M. Aspergillosis associated with migration of a dental implant into the maxillary sinus: A case report. *J Oral Maxillofac Surg Med Pathol.* 2017;29(5):448–51. doi:10.1016/j.ajoms.2017.05.006.
10. Manor Y, Anavi Y, Gershonovitch R, Lorean A, Mijiritsky E. Complications and Management of Implants Migrated into the

Maxillary Sinus. *Int J Period Restor Dent.* 2018;38(6):e112–8. doi:10.11607/prd.3328.

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