



Case Report

Management of an oro-antral fistula following a sequestrectomy of a benign fibroosseous lesion of the maxillary

Amadou Tidiane Bah^{1*}, Mamadou Diatta², Khadim Seck², Alhassane Alpha Camara³, Babacar Tamba²

¹Dept. of Odonto-Stomatology and Maxillofacial Surgery, Donka University Hospital Center, Conakry, Guinea

²Dept. of Oral Surgery, Institute of Odontology and Stomatology of the Cheikh Anta Diop University, Dakar, Senegal

³Faculty of Health and Technology Sciences, Gamal Abdel Nasser University of Conakry, Guinea

Abstract

Background: Oro-antral fistula is an unnatural communication between the oral cavity and the maxillary sinus. This is a common phenomenon after dental avulsion, osteomyelitis, granulomatous diseases. Several surgical options exist for management.

The aim of this study was to report the management of a case of oro-antral fistula after sequestrectomy.

Clinical Observation: A 60-year-old patient consulted our department for an endooral purulent discharge evolving for 6 months following vestibular gingival swelling with regard to the 17th, 16th, 15th and 14th. The exooral examination was unremarkable.

The endooral examination revealed poor oral hygiene, significant tartaric deposit, and generalized dyschromia. There was also a right vestibular gingival swelling with thick well under finger pressure. The exploration of the strait by the probe revealed the existence of a bone sequestration objectified by the orthopantomogram image. Sequestrectomy under local anesthesia resulted in an oral-sinus communication that was immediately repaired. The patient was subjected to antibiotic therapy. The anatomical pathological study of the bone sequestration revealed a benign fibroosseous lesion of the maxilla.

After 15 days of follow-up, we found an oro-antral fistula that we secondarily repaired with mucoperiosteal flap surgery. The result was satisfactory after 21 days.

Conclusion: In this study, the oro-antral fistula caused by sequestrectomy was successfully treated with a combination of antibiotic therapy and reconstructive surgery under local anesthesia.

Keywords: Fistula, oro-antral, Sequestrectomy, Fibro-osseous, Maxilla.

Received: 17-07-2025; **Accepted:** 02-09-2025; **Available Online:** 14-10-2025

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

The oro-antral fistula is an abnormal communication between the oral cavity and the maxillary sinus. One of the less common but important causes of oro-antral fistulas is chronic osteomyelitis of the maxilla, a persistent inflammation of the bone and bone marrow caused by a bacterial infection. Chronic osteomyelitis weakens the maxillary bone, leading to necrosis and fistulization of adjacent structures, including the maxillary sinus. The disease, often aggravated by a poor immune response or inadequate initial treatment, can lead to significant damage to the maxilla that increases the risk of

oro-antral fistula. Osteomyelitis is more frequently associated with the mandible; however, its occurrence in the maxilla, although rare, poses complex challenges in terms of infection control and defect closure, especially when large areas of necrotic bone are involved.¹

An oral-antral fistula can form when an oral-antral communication does not close and the opening epithelializes.²

*Corresponding author: Amadou Tidiane BAH
Email: bahtidianey@gmail.com

Oro-antral fistulas are an important complication and often difficult to treat during oral and maxillofacial surgery with a reported incidence of between 0.31% and 4.7%.³

The frequency of oral-antral communications is 0.31 to 4%, and that of oro-antral fistulas 0.2%. Complications occur due to processes in the lateral parts of the maxilla or iatrogenic causes.⁴

Most studies estimate that fistulas smaller than 5 mm will have a chance to heal spontaneously without intervention, but types larger than 5 mm or those that persist for more than 3 weeks require surgery to close.⁵

Various surgical methods have been described to close these fistulas. Among them, soft tissue closure is commonly practiced. Other closure techniques using autogenous bone grafts, artificial bone grafts, and various membranes have also been described.⁶

The frequency of oral-antral communications is 0.31 to 4%, and that of oro-antral fistulas 0.2%. Complications occur due to processes in the lateral parts of the maxilla or iatrogenic causes.⁴

Most studies estimate that fistulas smaller than 5 mm will have a chance to heal spontaneously without intervention, but types larger than 5 mm or those that persist for more than 3 weeks require surgery to close.⁵

Various surgical methods have been described to close these fistulas. Among them, soft tissue closure is commonly practiced. Other closure techniques using autogenous bone grafts, artificial bone grafts, and various membranes have also been described.⁶

2. Clinical Observation

It was a 60-year-old patient, living in the suburbs of Dakar, a worker. He presented to our department for an endooral purulent discharge that had been evolving for 6 months. The antecedents were limited to odontalgia and anterior abscess. The patient reported taking undocumented medications through self-medication.

2.1. Exooral physical examination

On inspection, a discreet swelling of the right hemiface with obliteration of the right nasolabial fold was noted.

On palpation, the digital pressure of the right paranasal region was painful (**Figure 1**).



Figure 1: Nasolabial groove effacement

2.2. Endooral physical examination

On inspection, the mouth opening was of normal amplitude with poor oral hygiene. There was a gingival swelling in the 17, 16 and 15 absent women; a gingivo-vestibular fistula, an exteriorization of a bone piece.

On palpation, the digital pressure was painful and allowed us to flow from the fistula (**Figure 2**).



Figure 2: Gingivo-vestibular fistula

These clinical elements have made it possible to formulate a diagnostic hypothesis, that of chronic osteitis of the maxilla.

2.3. Additional examination

The orthopantomogram, a reference X-ray in Odonto-Stomatology, revealed an osteo-condensing image at dial 1. This made it possible to visualize two bone sequestrations. In addition, there was a crestal resorption of dial 3 (**Figure 3**).



Figure 3: OPG showing two receivers

Diagnosis: The comparison of clinical and radiological elements made it possible to retain the diagnosis of chronic odontogenic osteitis of the maxilla.

Sequestrectomy: Disinfection of the oral and perioral region with chlorhexidine was performed followed by vestibular infiltration of 2% adrenalinized xylocaine with palatal recall with non-adrenalin xylocaine 2%.

Using claw forceps, the bony end (sequester) was grasped through the fistula and then extracted using a combination of rotational pulling movements. The revision of the cavity made it possible to seize a second sequestration which was extracted without difficulty (**Figure 4** and **Figure 5**).



Figure 4: Bone sequestration extraction



Figure 5: Bone sequestrations

The two irregularly shaped bone sequestrations were packaged in formalin solution for an anatomo-pathological analysis, the result of which, after three weeks, concluded that there was a benign fibroosseous lesion of the maxilla.

Immediately after the sequestectomy, an oral-sinus septal defect was suspected and confirmed by the Valsalva test.

After hemostasis by compressive tamponade, the cavity was cleaned with chlorhexidine and then the banks were brought together and sutured simply with vicryl 3/0.

Oral Surgery equipment was used.

After three weeks of follow-up and rinsing with antiseptic solution and the taking of antibiotics including amoxicillin 500 mg at the rate of 2 capsules morning and evening, metronidazole 500 mg at the rate of 1 tablet morning – noon and evening, the rest was unfavorable despite the healing of the surgical site because an oro-antral fistula was diagnosed (**Figure 6**).



Figure 6: Oro-antral fistula

Surgical repair of the fistula was decided. For this, the same surgical equipment and the same anesthesia technique were used.

The surgical technique consisted of making two vertical incisions on either side of the fistula and then completed by a crestal incision. A mucous flap was detached, which allowed an excision of the fistulous tract to be carried out. A fistula of about 7 to 8 mm was objectified (fistulostomy) (**Figure 7**).



Figure 7: Flap and fistulostomy

The surgical site was cleaned with betadine, the flap was folded down and then hermetically sutured with Vicryl 3/0 (**Figure 8**).



Figure 8: Suturing the flap

A prescription was prescribed for the following doses: Spiramycin 500 mg (2 capsules morning and evening), Metronidazole 500 mg (1 tablet morning, noon and evening), Paracetamol 500 mg (2 tablets every 6 hours) and Chlorhexidine mouthwash solution to be started 24 hours after surgery (1 bath after each meal).

After 14 days of surgical repair of the oro-antral fistula, the operative wound had healed without sequelae.



Figure 9: Image at intake



Figure 10: Wound healing

3. Discussion

Other causes of oro-antral fistulas include bacterial or fungal infections, osteomyelitis, granulomatous diseases, Paget's disease, malignancies, maxillofacial trauma, and iatrogenic conditions.⁸

To confirm the presence of an oro-antral fistula, several methods can be used, such as the cotton test or the butterfly test. Another method is to hold a mouth mirror near the fistula, which fogs up the mirror due to the passage of airflow, or to place a suction nozzle on the fistula, making a noise as if blowing with the mouth into an empty bottle.⁵

In the present study, the Valsalva test was used for both situations.

Closure of oro-antral fistulas is not a simple procedure.⁴

The management of oro-antral fistulas remains challenging, requiring a balance between effective closure and the preservation of normal anatomy and function.³

Many methods have been described for the surgical closure of occlusal bone lesions. When the size of the bone defect is 3 mm or larger, proper surgery is required to prevent sinus infection and sinusitis.⁶

Endoscopic surgery is distinguished by its excellent ability to visualize the intervention and postoperative recovery of oro-antral fistulas. Compared to conventional Caldwell-Luc surgery, endoscopic maxillary sinus surgery allows drainage of the maxillary sinus through the natural opening of the middle nasal meatus, thus improving the surgical success rate and reducing recurrences.⁹

In this study, the Rehrmann flap was the one used.

The therapeutic approach to oro-antral fistula requires a rigorous consideration of factors such as the infectious state, the size of the bone defect and epithelialization. The literature describes three main treatment options: the vestibular flap, the oral fat pad, and the palatal flap.⁷

Experience with the clinical use of an autograft of the broad fascia of the hip may serve as a basis for its further

study in the reconstruction of other defects of the oral cavity and maxillofacial region.¹⁰

Closure of an oro-antral fistula is recommended by the use of an autogenous bone graft taken from the chin region, supplemented by the application of VitalOs injectable bone cement to fix the graft at the recipient site.¹¹

The use of a pedicled oral fat pad combined with a mucoperiosteal composite flap is effective in sealing and preventing oro-antral fistula, improving clinical symptoms in cases involving oro-antral fistula and maxillary posterior bone resorption during surgery.¹²

A recent systematic review showed that the use of platelet-rich fibrin in the treatment of oro-antral communications/fistulas has several advantages, as it allows the position of the muco-gingival junction to be maintained without the need for coronal displacement of the mucoperiosteal flaps.¹³

In the present study, the closure of the initial oral-sinus septal defect that occurred during sequestrectomy of the fibroosseous lesion of the maxilla had an unfavorable consequence related to the epithelialization of the pertuis. It took a second surgery to close the fistula.

According to Feras AlMofreh AlQahtani, tongue flaps, especially the dorsal and posterior flaps, are effective options for the closure of palatine fistulas, with high success rates and a favorable complication profile. Nevertheless, further research is needed to explore the potential of these techniques for the closure of oro-antral fistulas. Further studies should use randomised controlled trials with larger patient cohorts and extended follow-up periods to comprehensively assess the efficacy, complication rates and long-term outcomes of dorsal and posterior tongue flaps in the treatment of oro-antral fistulas.¹⁴

In our study, we used a monocortical flap

Different techniques can be used for closing. Regardless of the technique used, the success of the surgical procedure depends on the effective elimination of the fistula tract and the complete extermination of any pathology and/or sinus infection. The main factors determining the type of surgery for occlusal fistula closure are the size and location of the lesion. Other determining factors could be the adequacy and health of adjacent tissues. We observed that the oral fat pad was the best option for occlusal fistula closure, despite its higher morbidity, as all complications were of some duration and assessed over the long term.¹⁵

The sliding buccal flap introduced by Moczar is an alternative procedure for the closure of alveolar fistulas by shifting the flap distally by about one tooth. This flap technique has the advantage of minimizing the influence of the depth of the oral sulcus.¹⁶

There are a multitude of treatment options and the choice of the most appropriate technique will depend on the idiosyncratic factors of each patient, such as the amount of keratinized tissue present, the presence/absence of teeth, and the size and position of the oro-antral fistula.¹⁷

The oral fat pad represents a reliable, easy and predictable therapeutic option for the closure of oro-antral fistulas.¹⁸

It is essential to close the oro-antral fistula in an unharmed sinus environment to prevent exacerbation of infection.¹⁹

In our study, no anti-inflammatory drugs were prescribed. Only antibiotics combined with analgesics were prescribed. This gave a good result.

Prior to each procedure, patients took oral amoxicillin 875 mg/clavulanic acid 125 mg on the morning of the procedure and continued twice daily, for a total of five days.¹⁶

Surgical closure of oro-antral fistulas by local flap has a 93% success rate.⁵

Ten to thirty percent of patients require a second surgery to successfully close the fistula.²⁰

This corroborates the results of this observation.

While traditional surgical techniques, such as oral advancement or palatal flaps, have been shown to be effective for closure, they can lead to complications, including vestibular shortening, mucosal tension, and interference with prosthetic rehabilitation.²¹

In a study done in Turkey in 2023, Jung et al.²² presented a novel double barrier technique using the palatelet-rich-fibrin for the closure of chronic oro-antral fistulas, involving the lifting and closing of the sinus lining. Thanks to the anti-inflammatory, angiogenic and activating properties of the palatelet-rich-fibrin fibroblasts, as well as the local protection provided by the double barrier, complete fistula closure and gingival hypertrophy were observed after two weeks of healing. These results demonstrate that this double-barrier technique using the palatelet-rich-fibrin is not only a promising method, but also a minimally invasive approach that can be used to treat some patients with oror-antral fistulas.

4. Conclusion

The closure of an oral-sinus communication following sequestrectomy is difficult because failure has been observed by the formation of the oro-antral fistula despite primary closure.

The problem of surgical repair of oro-antral fistulas is related to the infectious nature of the surgical site and the technique used.

However, the realization of a local flap associated with antibiotic therapy and regular follow-up would allow a good result to be obtained.

5. Source of Funding

None.

6. Conflict of Interest

None.

References

- Bhambri G, Kalita S, Deka J, Paul P, Gupta S. Managing oroantral fistula with chronic osteomyelitis using a nasolabial flap: a case report. *Cureus*. 2024;16(11):e73695. <https://doi.org/10.7759/cureus.73695>.
- Badadesai AS, Elhammali NA, Manas A, Sonkar TP, Majumdar A, Sutar S, et al. Effect of buccal fat pad, platelet-rich fibrin (PRF) and buccal advancement flap in oroantral fistula closure. *Bioinformation*. 2024;20(12):1765–8. <https://doi.org/10.6026/9732063002001765>.
- Bacci C, Manera C, Meneghetti D, Dhelpra I, Sbricoli L. Efficacy of Bichat's buccal fat pad advancement in the treatment of odontogenic maxillary sinus fistulas. *Surgeries*. 2025;6(1):10. <https://doi.org/10.3390/surgeries6010010>.
- Adamska P, Kaczoruk-Wieremczuk M, Pylińska-Dąbrowska D, Stasiak M, Bartmański M, Zedler A, et al. Treatment of oroantral communication and fistulas with the use of blood-derived platelet-rich preparations rich in growth factors: a systematic review. *Int J Mol Sci*. 2024;25(21):11507. <https://doi.org/10.3390/ijms252111507>.
- Salari A, Khomeiran RT, Norouzi V. Review paper: the prevalence, etiology & management of oroantral fistula. *J Dentomaxillofac Radiol Pathol Surg*. 2023;12(3):7–12. <https://doi.org/10.32592/3dj.12.3.7>.
- Hotta Y, Ito K, Komatsu S, Saito T, Teramoto Y, Hotta H. A case of simultaneous sinus augmentation and oroantral fistula closure for implant preparation. *J Oral Implantol*. 2024;50(6):589–94. <https://doi.org/10.1563/aaid-joi-D-24-00116>.
- Moreira CLF, da Rocha FC, Medeiros YdL, Urbano ES. Therapeutic strategies in recurrent oral and sinus fistulas: case report and literature review. *Indian J Otolaryngol Head Neck Surg*. 2025;77(8):3290–5. <https://doi.org/10.1007/s12070-025-05657-4>.
- Verma RR, Verma R. Oro-antral fistulas and their management: our experience. *Indian J Otolaryngol Head Neck Surg*. 2022;74(Suppl 2):1576–83. <https://doi.org/10.1007/s12070-021-02739-x>.
- Liu S-S, Heng W-W, Jiang P, Li C-Z, Hu X-H, Li S. Endoscopic maxillary sinus drainage combined with buccal fat pad flaps for repairing large oroantral fistulas in patients with odontogenic maxillary sinusitis. *World J Otorhinolaryngol Head Neck Surg*. 2023;10(4):296–302. <https://doi.org/10.1002/wjo2.149>.
- Alishlalov SA, Sysolyatin SP, Serebrov TV, Shelesko EV, Chernikova NA, Khandzratsyan AS. [The first experience of using an autograft from the wide fascia of the thigh for closing oroantral fistula]. *Stomatologiia (Sofia)*. 2025;104(1):17–22. <https://doi.org/10.17116/stomat202510401117>.
- Habib AA, Soliman MM, Khalil MM. Clinical and radiographic evaluation of the efficacy of vital-os bone cement in stabilizing an autogenous monocortical bone graft in the repair of oroantral fistula (a comparative study). *Saudi Dent J*. 2025;37(4–6):30. <https://doi.org/10.1007/s44445-025-00037-8>.
- Zou J, Hou X, Wang L, Li L, Li Y, Hu X, et al. [Application of pedicled buccal fat pad/mucoperiosteal composite flap technique to prevent and seal oroantral fistula]. *Shanghai Kou Qiang Yi Xue*. 2025;34(2):218–24. Chinese.
- Salas E, Ladino LG. Surgical approach to management of oroantral communications. Case report. *J Surg Case Rep*. 2024;2024(11):rjae700. <https://doi.org/10.1093/jscr/rjae700>.
- AlQahtani FA, Kuriadom S, Mastrogeorgiou M, Abualgasim A, Shokier HM, ElSayed SA. Are tongue flaps effective in the closure of palatal fistulas? A systematic review and meta-analysis. *Oral Maxillofac Surg*. 2025;29(1):103. <https://doi.org/10.1007/s10006-025-01392-w>.
- Shukla B, Singh G, Mishra M, Das G, Singh A. Closure of oroantral fistula: comparison between buccal fat pad and buccal advancement flap: a clinical study. *Natl J Maxillofac Surg*. 2021;12(3):404–9. https://doi.org/10.4103/njms.njms_323_21.
- Sabatino L, Lopez MA, Di Giovanni S, Pierri M, Iafrati F, De Benedetto L, et al. Odontogenic sinusitis with oroantral communication and fistula management: role of regenerative surgery. *Medicina (Kaunas)*. 2023;59(5):937. <https://doi.org/10.3390/medicina59050937>.
- Salgado-Peralvo A-O, Mateos-Moreno M-V, Uribarri A, Kewalramani N, Peña-Cardelles J-F, Velasco-Ortega E. Treatment of oroantral communication with Platelet-Rich Fibrin: a systematic review. *J Stomatol Oral Maxillofac Surg*. 2022;123(5):e367–75. <https://doi.org/10.1016/j.jormas.2022.03.014>.
- Chekarau SM, Benjelloun L, El Harti K. Management of oro-antral fistula: two case reports and review. *Ann Med Surg (Lond)*. 2021;69:102817. <https://doi.org/10.1016/j.amsu.2021.102817>.
- Azzouzi A, Hallab L, Chbicheb S. Diagnosis and management of oro-antral fistula: case series and review. *Int J Surg Case Rep*. 2022;97:107436. <https://doi.org/10.1016/j.ijscr.2022.107436>.
- Cui QY, Chen SY, Fu S, Peng CB, Ma W, Wang LD, et al. [A preliminary exploration into the efficacy of personalized surgical schemes in the repair of maxillary sinus perforation and maxillary sinus fistula]. *Zhonghua Kou Qiang Yi Xue Za Zhi*. 2022;57(9):953–7. Chinese. <https://doi.org/10.3760/cma.j.cn112144-20220615-00326>.
- Gedik B, Erdem MA. Novel palatal submucosal flap technique for oroantral fistula repair. *J Craniofac Surg*. 2025. <https://doi.org/10.1097/SCS.00000000000011604>.
- Jung JW, Hong SO, Lee EJ, Kim RY, Jee YJ. The double-barrier technique using platelet-rich fibrin for closure of oroantral fistulas. *J Korean Assoc Oral Maxillofac Surg*. 2023;49(3):163–8. <https://doi.org/10.5125/jkaoms.2023.49.3.163>.

Cite this article: Bah AT, Diatta M, Seck K, Camara AA, Tamba B. Management of an oro-antral fistula following a sequestrectomy of a benign fibroosseous lesion of the maxillary. *Int J Oral Health Dent*. 2025;11(3):240–245.