

# SURGICAL SOLUTION OF A PATHOLOGICAL NASAL-ORAL COMMUNICATION

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**Keywords:** nasal-oral communication, xenograft, barrier membrane, dental implant

**Abstract:** A frequent pathology, like the periapical cyst, can determine a recurrence or complication if the used surgical procedure is deficient or the manipulation was not properly executed. We have presented a case of a pathological nasal-oral communication, of iatrogenic cause, on a patient, age 42, with a good general health. The pathological communication determines the draining of the nasal secretion into the oral cavity and due to the septic content of these secretions, the healing of the communication could not be performed. After examining the resulted defect, the removal of the periapical cyst was performed and the existent defect was sealed through a guided bone regeneration procedure – GBR. The intervention was performed in 2 steps, first guided bone regeneration in order to close the communication, restore the integrity of the injured nasal mucous membrane and restoring the defect of the alveolar crest; and second fixing the dental implant in order to substitute the missing tooth. The prosthetic crown was manufactured and fixated on the implant, after its bone integration. The patient's dental arch was restored and the physiological function of draining the nasal cavity was assured.

**Cuvinte cheie:** comunicare nazo-orală, xenogrefă, membrană barieră, implant dentar

**Rezumat:** O patologie frecventă, cum este chistul radicular, poate determina recidive sau complicații în cazul în care tehnica chirurgicală este deficitară sau manopera nu este însușită corespunzător. Am prezentat un caz de comunicare patologică nazo-orală, de cauză iatrogenă, la o pacientă în vârstă de 42 ani, cu stare generală de sănătate bună. Comunicarea patologică determină drenarea secrețiilor nazale în cavitatea orală, și datorită conținutului septic al acestor secreții, vindecarea a comunicării a fost împiedicată. După examinarea defectului rezultat, s-a realizat îndepărtarea chistului rezidual și s-a închis defectul existent, prin intermediul tehnicii de regenerare osoasă dirijată (GBR-guided bone regeneration). Intervenția a presupus 2 etape, una de augmentare osoasă, cu rol în închiderea comunicării, refacerea integrității mucoasei nazale lezate și restaurarea defectului crestei alveolare, iar a doua etapă a constat în fixarea implantului dentar cu rol în substituirea dintelui absent. S-a confecționat coroana protetică și s-a fixat pe implant, după integrarea osoasă a acestuia. Arcada dentară a pacientei a fost refăcută și funcția fiziologică de drenare a cavității nazale asigurată.

## INTRODUCTION

The nasal cavity is situated in the central facial massive, above the oral cavity, and separated by the palatine process of the maxillary and the horizontal blade of the palatine bone, that form together the palate. The nasal cavity communicates through the piriform aperture (*Apertura piriformis-nasalis*) with the exterior and through the choana (*Choanae*) it communicates with the nasal area of the pharynx. The mucous membrane that covers the nasal cavity, named pituitary membrane, is adherent on the periosteal cavity, and continues with the mucous membrane of the paranasal sinuses and the nasal floor of the pharynx. The human teeth represent the leading point for several types of pathologies in the jaw. The infectious process can extend from the dental pulp through the apical foramen, in the area of the apical periodontal membrane. The evolution of the infectious process can be acute, leading to abscess or can have a chronic character by forming a periapical granuloma, that can transform into a radicular cyst. The radicular cyst can appear at any age; is more frequent 3-4 times on the maxilla in the anterior region and is the most

frequent cysts of the jaws. The treatment is called cystectomy and implies the extirpation of the whole cystic membrane in order to prevent relapse.

## PURPOSE

Showing the complications caused by an iatrogenic factor, not observed in time and the effects they have on the physical and mental health of the patient. The purpose is to present a treatment method in case of a nasal-oral pathological communication.

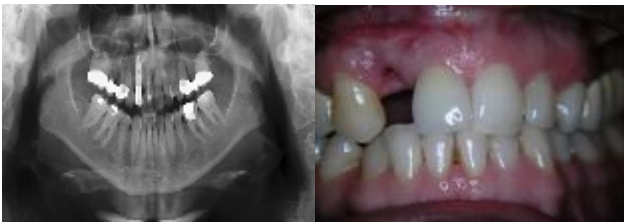
## METHODS

We had under observation and treatment a patient aged 42, with good general health. The clinical and paraclinical examination showed the absence of I.2., existence of nasal-oral communication with draining the nasal secretion through the remaining dental alveolus and the persistence of a residual cyst in the depth of the maxillary bone, observed on the OPG image. (figure no. 1).

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## CLINICAL ASPECTS

**Figure no. 1. Initial clinical aspect**



It can be observed the absence of 1.2. and the existence of a nasal-oral communication) and initial orthopantomograph image (OPG-It can be observed the persistence of a residual cyst in the depth of the maxillary bone). The communication has resulted after the extraction of 1.2. and elevation of the cyst localized at this level. We suppose that during the intervention was perforated the nasal membrane, causing the draining of the mucus through the created foramen and therefore preventing the healing process. First a local anesthesia was performed, followed by the incision and decollating the mucoperiosteal flap. The residual cyst was removed and the existent communication was cleaned and sanitized (figure no. 2)

**Figure no. 2. Clinical aspect after removing the residual cyst**



On the upper side, in contact with the remaining nasal mucous membrane, a barrier membrane was applied and fixated on the bone with 2 titan pins, in order to prevent the drifting during respiration (figure no. 3). The resulted bone defect was rehabilitated through the guided bone regeneration procedure using as a bone substitute a mix between xenograft and blood from the patient.

**Figure no. 3. Applying the barrier membrane**



The second barrier membrane was applied (figure no. 4), for stabilizing the material of addition and the suture was performed. A 7 days antibiotic prophylaxis was recommended and a Kemeny denture was made, without exercising pressure on the augmented area and having a social role.

**Figure no. 4. Clinical aspect after applying the graft material and the barrier membrane**



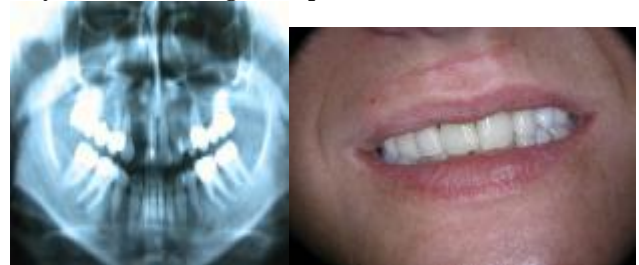
During the second treatment procedure, 4 months after the bone augmentation, a dental implant of 11.5mm/3.30 was fixated on the new ridge. After the implant osseointegration, the healing cap was fixated. An impression of the denture field was performed and the dental crown was manufactured and afterwards fixated on the implant.

**Figure no. 5. The healing cap fixation after implant osseointegration**



The patient came regularly to the dental recall; during the clinical and paraclinical examination no after-implant complications were detected (figure no. 6).

**Figure no. 6. Orthopantomograph image and clinical image - 4 years after fixating the implant**



## RESULTS AND DISCUSSIONS

The unnoticed injury of the nasal mucosa can determine complications of different gravity and can affect the comfort and health of the patient. The reconstruction treatment can be performed surgical, by re-establishing the morphology. The guided bone regeneration procedure was preferred due to the geometry and volume of the existent defect, and the use of the barrier membrane creates a favourable environment for a normal healing process. A biodegradable membrane was used because it is easy absorbed by the enzymes, assures a good adherence by being hydrophilic, has stimulating properties, and prevents other types of tissue from entering the healing area. The superior applied membrane, in contact with the nasal mucous membrane was fixated with two titanium pins in order to prevent drifting during respiration, this drifting being caused by the high pressure in this area

## CONCLUSIONS

Although bone offer may be limited, the occurrence and improvement of bone augmentation techniques has favoured the extension of implant therapy indications, irrespective of the initial clinical situation, so any anatomical situation can be remedied by different surgical procedures.

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