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# Nasopalatine Duct Cyst: A Case Report

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***Abstract***

*Nasopalatine duct cysts are the most common cysts of non-odontogenic origin. On many occasions, their clinical and radiographic characteristics lead to a precise presumptive diagnosis, however, when they reach a large size, are displaced from the midline or the adjacent teeth have undergone previous endodontic treatment, the diagnosis can be difficult and lead to totally erroneous therapeutic options, with aesthetic and functional consequences, therefore, the general dentist must know this pathology and its treatment. The main objective of this study was to describe a clinical case suffering from the disease. A 41-year-old female patient is presented, who came to the consulting room due to two months old inflammation and slight pain in the anterior palate. The X-rays showed a round radiolucent image, approximately 1 cm in diameter in the maxillary midline, with a radiopaque halo, in apparent relation to 1.1 and 2.1, both teeths with preserved vitality. Enucleation of the lesion was performed through a scalloped incision and elevation of the palatal mucoperiosteal flap with primary closure. The histopathological study confirmed the diagnosis. Follow-up is maintained in consultation with the patient.*

**Keywords:** *Nasopalatine Duct Cys, Non-Odontogenic Cysts, Maxilla.*

## 1. Introduction

The nasopalatine duct is also known as incisor canal or anterior palatine canal, it consists of a normal anatomical communication between the floor of the nasal cavity with the maxillary bone, in its midline, at the level of the incisor foramen, behind the two central ones. Through this thin passage pass the nerve and nasopalatine artery from the nose to the anterior palatine region to provide irrigation and sensitivity to the area. Its morphology is variable, having been studied by cone beam tomography slices, it has been found with cylindrical, funnel, hourglass and spindle shape. It is larger in the male sex Obando & Ruiz (2020). Nasopatine duct cysts were first described by Meyer in 1914 and are the most common nonodontogenic cysts with an incidence between 32.8 and 68.8% of these lesions (Barros et al., 2018).

It is thought that the cysts of the nasopalatine duct are formed by epithelial embryonic remains that are included in the anterior palatine canal and suffer degeneration with cystic formation at any time, in addition, the development of these by proliferation and degeneration of the epithelium of the duct by irritation induced by trauma or local infection is described (Barros et al., 2018). Sukegawa et al. reported a clinical case of a patient who suffered the formation of a cyst of this type after the placement of implants in the area of central incisors, 37 years old, male, with dental mobility due to root fracture after a motorcycle accident, who 9 years after the placement of an implant presented a radiolucent lesion surrounding the apex of the implant extending towards the nasopalatine duct. The histopathological study confirmed the presumptive diagnosis of nasopatine cyst (Sukegawa et al., 2015). In a literature review in high-impact journals on the development of nasopatine duct cysts in relation to dental implants, Al-Shamiri et al. found 4 more cases (Al-Shamiri et al., 2016).

Clinically, the cyst of the nasopatine duct appears as an asymptomatic volume increase, soft, fluctuating on palpation, of bluish-red or normo-colored coloration, in the midline of the anterior palate. If you have suffered secondary infection, the signs of Celsus' inflammation can be found (Vista, 2021). The radiographs show a very characteristic radiolucent image, circular or ovoid, symmetrical between both central incisors. When there is overlap of the anterior nasal spine and the crest of the septum, the appearance is very characteristic in the shape of a poker deck heart (Donado & Martinez, 2019). Less commonly, the radiographic image is shifted to one side of the midline, as in a case presented by Wu et al., (2015) where the cyst was located between the central and lateral ones. The treatment will always be surgical, after its total enucleation recurrence is very rare. Malignancy has been reported, but is a rare complication (Lang et al., 2021).

The differential diagnosis arises with the inflammatory root cyst of a central incisor, so it is important to check the vitality of these teeth. But when endodontic therapy has been performed in the central, the diagnosis is complicated, many times the conventional radiography is not enough and the nasopalatine cyst can be misdiagnosed leading to incorrect therapy. Hilfer, Bergeron, Ozgul and Wong reported a case of nasopalatine cyst that was incorrectly diagnosed, performing repeated root canal treatment and later the extraction of the central one due to non-resolution of the case. This experience makes clear the absolute need for the General Dentist to know this pathology and diagnose it correctly, so that it can be resolved in an adequate way, without anatomical or functional sequelae (Hilfer et al., 2013).

Presentation of the case

It was a 41-year-old female patient, with a history of good health, who came to the consultation reporting that approximately two months ago she felt the anterior region of the bony palate inflamed, with slight pain, but did not seek treatment. Within days of starting with the symptoms, the inflammation spontaneously drained a yellowish liquid and disappeared completely giving a feeling of healing. At the time of the consultation, the increase in volume had reappeared, asymptomatically.

Extraoral physical examination showed no positive signs. Intraorally one could see an increase in volume normo colored, round, of approximately 1 cm in diameter, soft fluctuating behind the incisive papilla, in the midline.

Figure (1). Volume increase behind the incisive papilla

The right center had a resin restoration without filtration and both 1.1 and 2.1 were positive in pulp vitality tests. Periapical and panoramic X-rays were indicated, showing a round radiolucent image, well delimited by a radiopaque halo in the maxillary midline, in apparent relation to 2.1 and 1.1.

Figure (2). Panoramic radiography

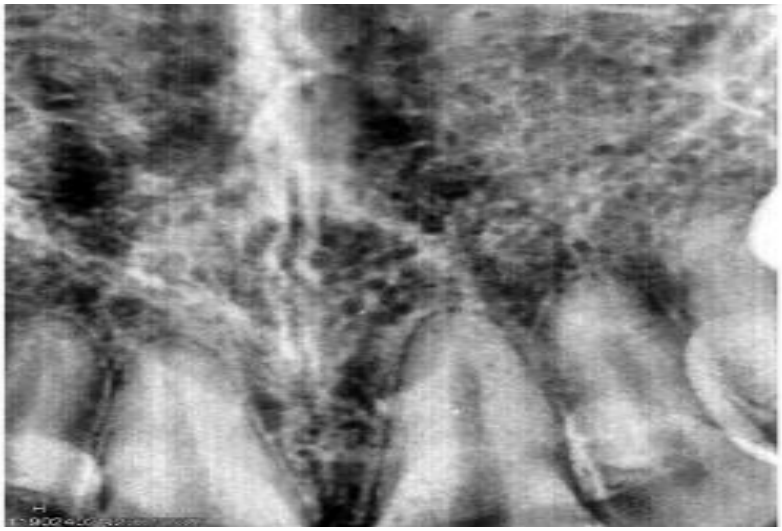

Figure (3). Periapical X-ray

The presumptive diagnosis of nasopatine duct cyst was made. Complete surgical enucleation was performed through a scalloped incision with mucoperiosteal flap lift. The sample was sent for histopathological study, which resulted in cystic formation compatible with nasopalatine cyst with severe exacerbated chronic inflammation. The epithelium lining the wall was mainly stratified cubic, with Malpighian differentiation to ciliated pseudostratified cylindrical epithelium. The stroma of the wall composed of connective tissue with some nerve fillets and small congestive blood vessels. Lymphoplasmacytic inflammatory infiltrate accompanied by detritus and leukocyte fibrin material with numerous neutrophils was observed throughout the thickness of the wall.

Figure (4). Clean bone bed after removal of the cyst.

**2. Results and Discussion**

Hilber, Gatti, Montes de Oca, Ledesma and Puja, in a study of Prevalence, distribution and histopathological diagnosis of radiolucent imaging findings of the jaws in Argentina, were able to appreciate that the most affected sector was the anterosuperior, where 49.4% of inflammatory root cysts and 3.09% of cysts of nasopalatine ducts were observed (Matías et al., 2018). Cavalcante et al.,

(2021) in a retrospective clinicopathological study of 20 years carried out in two Oral and Maxillofacial Surgery services in northern Brazil, found that of 18121 oral cysts 45 were found to be nasopalatin, 24 were found in men and 21 in women, with a higher age of 43.2 years of age, most of them asymptomatic, with an average size of 2.1 cm. Microscopically, non-keratinized stratified squamous epithelium predominated (66.7%), however, there were presentations with more than one variety of epithelium. It was also common to find nerves, blood vessels, hemorrhages, chronic inflammatory infiltrate, in contrast, mucous glands, sebaceous, cholesterol plaques and giant cells were little observed. This coincides with the findings found in our work. On rare occasions nasopalatine cysts grow too large, not only affect the palatine process of the maxilla, but can extend into the anterior vestibular table bulging it, destroying it and causing obvious facial deformation (Tanaka et al., 2008). The treatment of choice for small and even medium-sized nasopatine cysts is enucleation with primary closure, however, for larger cysts the treatment may be less clear, from intraoral marsupializations, intranasal, with video endoscopic techniques, with endodontic treatment of adjacent vital teeth and even their extraction (Syebele et al., 2018; Wu et al., 2013). In a study by Kabunda, Thifhelimbilu, Munzhelele and Mchenga, which occurred in South Africa, in 20 patients with large cysts, marsupialization and follow-up for 24 months were sufficient for correct bone regeneration, spontaneous realignment of displaced teeth, without the need for root canals or extractions. Conservative treatment is preferable Kobashi et al. (2017).

## 4. Conclusion

A case of cyst of the nasopalatine duct was diagnosed and its enucleation was performed with primary closure. The presumptive diagnosis was corroborated by the histopathological study, which also showed a strong component of exacerbated chronic inflammation. Follow-up is maintained in the patient's office.

**Conflict of interest**:
The authors declare no conflict of interest.

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