

The Nasolabial Cyst: From Diagnosis to Treatment – A Case Report and Review of the Literature

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ABSTRACT

Nasolabial cyst (NLC) is a rare non-odontogenic form of maxillary cysts presenting as a mass of the alar region erasing the nasolabial fold. Hereby, we describe a case of NLC diagnosed in a 28-year-old man, consulted in our department for a painless swelling in the alar region slowly enlarging over 5 years, with no nasal obstruction nor epistaxis. Through this case presentation, we will discuss the different aspects of the NLC, its principal differential diagnosis, and describe surgical techniques.

Key words: Maxillary cysts, nasolabial, non-odontogenic cyst

INTRODUCTION

The nasolabial cyst (NLC) is a rare non-odontogenic form of maxillary cysts presenting as a mass of the alar region erasing the nasolabial fold, with a typical aspect on the radiological images. It is important to know how to differentiate it from the other similar diagnosis. Treatment is mainly based on an intraoral excision or an endonasal marsupialization, with a high rate of success.

The aim of this paper is to review the literature and discuss the different aspects of the NLC, its principal differential diagnosis, and describe surgical techniques.

CLINICAL PRESENTATION

We present the case of a 28-year-old man, with a history of nasal bone fracture 5 years ago. The patient consulted in our department for a painless swelling in the alar region slowly enlarging over 5 years, with no nasal obstruction nor epistaxis. On palpation, there was a soft mass of the alar region, erasing the nasolabial fold, causing an asymmetric disfigurement,

painless, and mobile with no inflammatory signs measuring 2.5 cm. The mass filled in the labial vestibule with an intact gingival mucosa and a good dental condition [Figure 1].

The first episode of secondary infection of the mass was treated by a needle aspiration evacuating a purulent fluid, with oral antibiotics (amoxicillin-clavulanic acid); while the recurrent infectious episodes were treated with the same antibiotic and a puncture realized by the patient himself.

On CT scan, the lesion appeared as a circular mass on the right alar region, measuring 26x20 mm, exhibiting a hypodense texture, with a mass effect on the maxilla. No bone destruction was visualized and the teeth were intact [Figure 2]

The procedure consisted of a total excision of the lesion through a vestibular sublabial approach, under general anesthesia [Figures 3].

Pathology revealed a cystic structure lined with pseudostratified columnar epithelium corresponding to a NLC, with no sign

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of malignancy. At his 6 months follow-up, the patient had an excellent recovery with no signs of recurrence.

DISCUSSION

The NLC is a rare benign, non-odontogenic, extra-osseous, soft-tissue lesion located in the nasal alar region below the nasolabial fold,^[1] representing only 0.7% of all maxillofacial cysts and 2.5% of non-odontogenic cysts.^[2,3] However, the prevalence may be higher due to misdiagnosed cases.^[2]

The NLC had been presented under multiple other names, but the term “nasolabial cyst” has been considered more accurate because of the situation of the lesion.^[4,5]

The NLC occurs mainly in the fourth and fifth decades of life,^[3] with a female prevalence (sex ratio of 3/1),^[1,6] most commonly in the black ethnicity.^[2]

The pathogenesis of the NLC is based on two theories, not yet established.^[6] According to the first one suggested by

Klestadt, the NLC derives from trapped embryonic nasal respiratory epithelium in the mesenchyme, after the fusion of maxillary medial and lateral nasal processes at approximately the 4th week of intrauterine life.^[4,6] This concept led to the term “fissural cyst.” However, this theory was countered by several arguments such as the absence of epithelium between these processes.^[5] The second and most recent one proposed by Bruggemann, considered the NLC as arising from the epithelial remnants of the lower anterior part of the nasolacrimal duct due to histological similarities and extending between the lateral nasal process and maxillary prominence.^[3-5]

Clinically, as described in our case report, the NLC appears as a painless swelling in the nasolabial region. The lesion is soft and fluctuant on palpation with a normal overlying skin.^[4,5] The submucosal location at the anterior nasal floor is both distinctive and constant. The cyst’s growth is slow and can take multiple directions: To the nasolabial fold, the mouth or vestibule, and the labioalveolar sulcus.^[3-5] It is usually unilateral, with a bilateral presentation in 10% of cases. Some authors report a more frequent development on the left side, unlike our patient.^[2,6] Graamans *et al.* considered a well-limited fluctuating swelling with a cystic consistency in the nasolabial sulcus as a definitive sign of NLC.^[7]

The size can vary from 1 to 5 cm and rarely erode the underlying bone.^[1,3] Size variations can be explained by the spontaneous draining into the nose or mouth.^[5] In nearly 30% of patients, the initial presentation is an infection. Then, the cyst becomes painful and could rupture spontaneously in the oral cavity or nose or can require a needle aspiration.^[3]

The evolution of the NLC results in the obliteration of nasolabial sulcus, nasal vestibule, and maxillary labial sulcus.^[4] Thus, nasal blockage is the main complain,^[4] besides facial disfigurement and asymmetry represented by the disappearance of the nasolabial fold, alar nose elevation, and upper lip projection. Furthermore, the discomfort secondary



Figure 1: Swelling in the alar region, erasing the right nasolabial fold (black arrow)

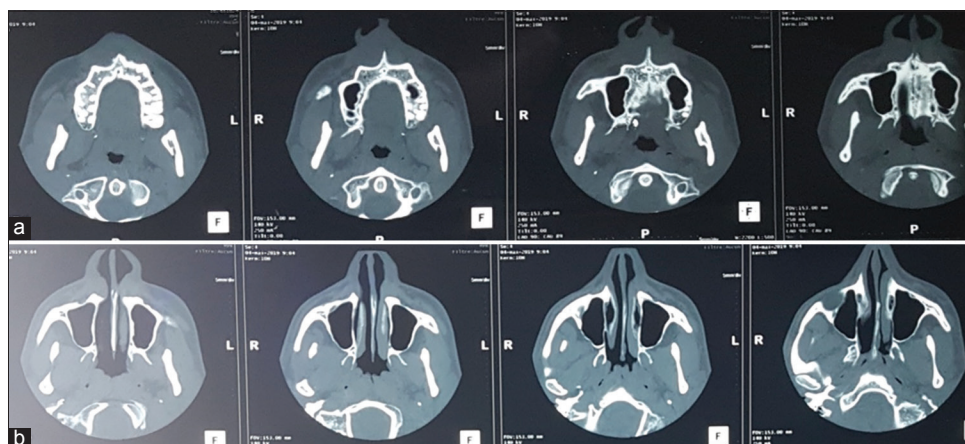


Figure 2: (a and b) Computed tomography scan images of the nasolabial cyst

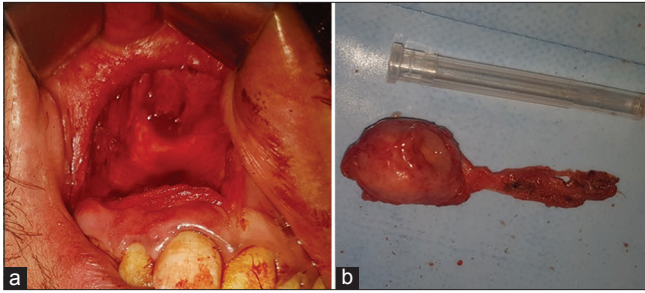


Figure 3: (a) The remaining cavity after the excision of the lesion. (b) The nasolabial cyst after total removal

to its interference with the upper denture while the cyst may erode the maxillary alveolus and displace the incisor teeth.^[5]

NLC cannot be seen in a conventional radiography as it is a soft-tissue cyst. It is only when the cyst erodes the underlying maxillary bone that the panoramic radiography gains some interest by revealing a cyst being external to the alveolar bone, producing “cupping” of the maxillary cortical plate.^[1,5] After the aspiration of its fluid, the cyst can be injected with a contrast material for better visibility.^[1] These radiographs help distinguish the NLC from the odontogenic and other non-odontogenic cysts.^[2]

On computed tomography (CT) and magnetic resonance imaging (MRI), the cystic nature of the lesion appears in greater details with a precision of its relation with the nasal ala and the maxilla, showing also bone involvement.^[5] The CT scan remains preferable to MRI for its lower cost and shows a well-demarcated, circular, homogenous, low-density soft-tissue lesion, also, the scalloping and bone remodeling can be visualized as presented in our case. Although MRI avoids the ionizing radiation and shows characteristics of a liquid-containing cyst as low-to-intermediate intensity on the T1-weighted images and high intensity on the T2-weighted images with no enhancement of the content or the wall of the cyst.^[1]

The ultrasonography has the advantages of being an affordable non-ionizing examination that reveals the NLC as a well-defined anechoic rounded cystic lesion beneath the nasolabial fold, helping also for the differential diagnosis.^[1]

The differential diagnoses of the NLC include both odontogenic and non-odontogenic cysts of the maxilla as well as benign or malignant soft-tissue neoplasms or minor salivary glands tumors. Radiological examination and the dental vitality test help assess the diagnosis.

The diagnosis is confirmed by the histopathological study of the specimen which describes the NLC as a soft to firm mass with a smooth surface, its content variably cystic with clear fluid, hemorrhage, or purulent if infected with no cholesterol crystals.^[5,7]

The treatment consists on surgical excision of the NLC. Two main techniques are described on the literature.

The intraoral sublabial approach. It is the classic and most common method used, considered as the treatment of choice^[2,5] and the one used in our case. It offers good exposure^[6] as it starts with a superior sublabial incision, a submucosal dissection of the cyst until its release from the nasal pyriform aperture, following its projections with the most care to preserve the nasal mucosa.^[7-9]

An alternative to the intraoral approach is the Neumann incision, more commonly used by dentists for performing alveoplasties.^[10] This approach considers the elaborate anatomy of nerves and blood vessels in the region; therefore, the local sensory disturbance and bleeding are minimal. Furthermore, it allows the best approach to the pyriform aperture and helps exposing the NLC completely.^[3,10]

The marsupialization of the cyst through a transnasal endoscopic approach which can be performed under local anaesthesia. The procedure can be performed under local anesthesia. The advantages of this technique are its rapidity, during approximately 15 min, less bleeding, lower rates of facial swelling and pain, and a lower overall rate of complications making it a procedure that can be done in an outpatient setting.^[3,6,11] However, if the window created on the NLC is small, it may cause a stenosis of the opening followed by accumulation of the mucus and then cyst recurrence.^[3,6] It seems important to report that Sheikh *et al.* on a study on 311 patients with NLC found no significant recurrence rate between these two techniques, while most published papers consider the sublabial approach as the best alternative.^[12]

Other treatment modalities were proposed as the injection of sclerotic substances,^[2] simple aspiration, incision, and drainage, but they all were associated with a high recurrence rate.^[5]

The prognosis is favorable when the excision is complete regardless of the approach used. Recurrence and malignancy transformation are very rare,^[6] but it deserves to be mentioned that some cases were described in the literature of NLC transformation to an apocrine cyst adenoma.^[13]

CONCLUSION

The NLC is a rare entity with multiple similarities with other diagnosis that can be excluded based on clinical presentation and radiological features. The treatment remains surgical with two main techniques, the intraoral sublabial approach and the transnasal endoscopic marsupialization. A complete and large excision prevents recurrence and makes the prognosis favorable.

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