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Nasolabial Cyst: Presentation of A Clinical Case with Computed Tomography and Ultrasonography Findings

Dr. Ayappali Kalluvalappil Nabeel *[1], Dr. Rajasekharan Asish [2], Dr. Anita Balan [3]

1. Oral Medicine & Maxillofacial Radiology Consultant, Dental Home Ayikkarappadi, Pee Key Z Arcade, Malappuram, Kerala India.

2. Associate Professor, Department of Oral Medicine and Radiology, Govt. Dental College, Thiruvananthapuram, Kerala, India.

3. Joint Director of Medical Education, Directorate of Medical Education, Thiruvananthapuram, Kerala, India.

Corresponding Author: Dr. Ayappali Kalluvalappil Nabeel, Oral Medicine & Maxillofacial Radiology Consultant, Dental Home Ayikkarappadi, Pee Key Z Arcade, Malappuram, Kerala India.

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Abstract

Nasolabial cysts are developmental, non-odontogenic, soft tissue cysts located in the nasal alar region beneath the nasolabial fold. As the nasolabial cysts are localized in the soft tissue, conventional radiographs are often inadequate for the diagnosis of these lesions. So, Familiarity with the multimodality imaging appearances of the nasolabial cyst will allow a confident diagnosis. A nasolabial cyst is described in this report along with its characteristics on computed tomography and ultrasonography images.

Introduction

Nasolabial cyst, also known as "naso-alveolar cyst" and "Klestadt's cyst", is a rare, benign, soft-tissue lesion that affects the nasal alar region.**[**1**]** The exact origin of nasolabial cysts is uncertain; however, there are two main theories. Some researchers state that the remnants of the nasolacrimal duct's displaced epithelium are what give rise to these lesions, while others assert that they are developmental fissural cysts made up of epithelial fragments entrapped between the lateral nasal, globular, and maxillary processes.**[**2**]**

They can be observed as painless, fluctuating unilateral swellings, at the nasal alar region, and have a strong female predilection. These cysts usually occur unilaterally (90%), but bilateral lesions have been reported. **[**3–6**]** If infected, the cyst may rupture spontaneously and may drain into the oral cavity or nose.**[**5**]** Conventional radiographs are not helpful in the diagnosis of nasolabial cysts because they are typically not found in the bone tissue. For diagnosis, other imaging techniques like Computed Tomography and Magnetic Resonance Imaging should be used. **[**6–8**]** Since a few years ago, soft tissues surrounding the oral cavity have been examined using ultrasonography. **[**9,10**]** Ultrasonography can be used to diagnose nasolabial cysts, as these are soft tissue lesions.

The case presented here revealed a 2 cm diameter cystic lesion in the soft tissue on the right nasal alar region, on computed tomographic and ultrasonographic evaluation, which upon histopathologic examination was diagnosed as a nasolabial cyst.

Case Report

A 64-year-old woman presented to our department and complained of a mass on the right nasal alar region that had developed over the past two years. The patient had no memory of having undergone surgery or been injured. She reported having breathing problems through the right nostril for about a month. For approximately six months, she had pain over the right nasolabial fold region. Her medical history was non-contributory.

The extraoral examination revealed a smooth and fluctuant mass in the region of the right nasolabial fold. There was a facial asymmetry due to the bulge on the right side of the nose. Intraoral examination revealed a well-demarcated, rounded, soft-tissue mass that protruded to the labial vestibule of the maxillary right central incisor, lateral incisor, and canine. The right half of the upper lip had been altered by the mass. The associated teeth tested vital with electrical vitality testing.

There were no bony changes in the occlusal radiography examination, except reversal of the inferior border of the right nasal fossa (Figure 1). Ultrasonographic examination showed a well-defined anechoic cystic lesion of approximately 2 cm diameter with posterior acoustic enhancement under the skin of the right nasolabial fold (Figure 2). Computed tomographic examination revealed a homogeneous, well-circumscribed round soft tissue mass right to the midline, below the alar base, protruding and narrowing the entrance of the right nasal cavity. The nasal septum deviated to the left (Figure 3).

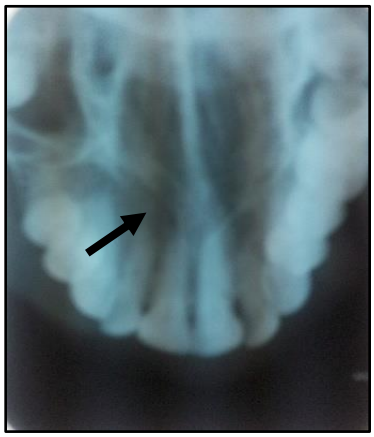

Figure 1: Occlusal radiograph shows reversal of inferior border of the right nasal fossa (Black arrow).

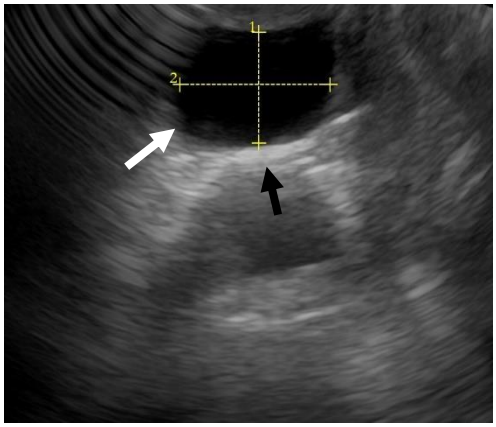

Figure 2: Ultrasonography image shows well-defined anechoic cystic lesion about 2 cm diameter (White arrow) with posterior acoustic enhancement (black arrow).

Figure 3: Computed tomography image (axial section) shows homogeneous, well-circumscribed round soft tissue mass in the right nasal fossa.

Based on the Computed tomography, ultrasonography, and clinical findings, a preliminary diagnosis of a nasolabial cyst was made. The lesion was removed surgically with an intraoral approach under local anesthesia, and the surgical specimen was sent for a histopathological examination. According to histopathological examination, the lesion was diagnosed as a nasolabial cyst. Microscopic examination has revealed a cyst, consisting of cellular and vascular connective tissue, lined by ciliated, pseudostratified columnar epithelium (Figure 4). After 1 year follow-up period, the patient had no complaints of pain and swelling and showed no evidence of recurrence.

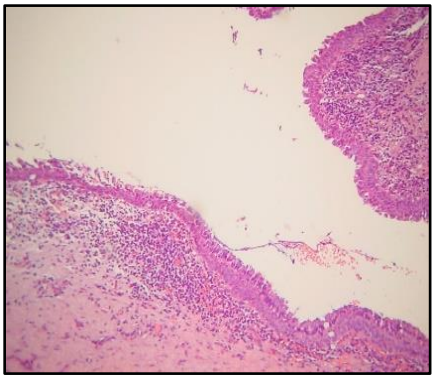

Figure 4: Microscopic examination revealed a cyst, consisting of cellular and vascular connective tissue, lined by ciliated, pseudostratified columnar epithelium.

Discussion

Nasolabial cyst also called the “nasoalveolar cyst” or “Klestadt’s cyst”, is a relatively uncommon benign, non-odontogenic, extraosseous maxillary developmental cyst, that occurs in the upper lip lateral to the midline. **[**7**]** Usually it is unilateral, but there have been instances of bilateral lesions, at a rate of approximately 10% of the cases. **[**6,11,12**]** Nasolabial cysts show a female preponderance of a ratio ranging between 2.7:1 and 3.7:1. **[**13,14**]**

Despite being called developmental cysts, these lesions typically affect adults between the ages of 30 and 45.**[**3,7**]** Clinically, nasolabial cysts are asymptomatic lesions, but they have the potential to enlarge, extend inferiorly into the labial sulcus, elevate the nasal floor, and cause oral tumefaction.**[**8**]** These cysts can grow from 1 cm to 5 cm in size, and if they do, their size can cause the underlying bone to erode.**[**15**]** Except when there is infection or secondary hemorrhage, swelling is typically painless. It is possible for a cyst to spontaneously rupture into the nasal cavity, cause a brief discharge, and then completely resolve.**[**3**]**

Differential diagnoses of nasolabial cysts should be made with dentoalveolar cysts and incisive foramen cysts. They should also be differentiated from epidermoid or dermoid cysts, unilocular lymphatic malformations, and froncule and dental abscesses.**[**2,5**]** Vitality test results of the teeth that are involved are important. Furthermore, whether the cyst is in soft tissue or hard tissue, its location is crucial for differentiation. The definitive diagnosis requires a histopathologic examination.**[**4**]**

Because the nasolabial cyst appears as a soft tissue mass, it is not always obvious on conventional radiographs. However, if present, resorption can be seen on the maxillary bone.**[**1**]** For the diagnosis, localization, and delineation of nasolabial cyst borders, CT and MRI can be used. Due to lower costs, CT is used more frequently than MRI. **[**1,4**]** Computerized tomography has a high contrast resolution and provides both good bone detail and good soft tissue definition.**[**6**]**

Kato et al. have been described the CT image of the nasolabial cyst as a well-demarcated low-density cystic lesion lateral to the pyriform aperture without invasion of the adjacent bone.16 The CT results in that report showed a well-defined cystic lesion in the lateral nasal area, which was similar to the findings in the current case. One case report demonstrated calcium levels resembling “milk of calcium” as in renal cysts or in the gall bladder.**[**1**]**

On MRI, they appear slightly hyperintense to CSF on T1-weighted images and brightly hyperintense on T2-weighted images. Hyperintense levels on T1-weighted images can be seen indicating calcium or hemorrhage.**[**3**]**

Another diagnostic technique used in maxillofacial radiology is Ultrasonography. Akinbami et al. reported that USG is valuable for the differential diagnosis of cysts, tumors, hemangioma, and soft tissue swellings in the cervicofacial region.[17] On ultrasound, these lesions are anechoic with or without internal debris representing hemorrhage, secretions, or calcium.[3] In this case, the USG examination of the patient who applied to our clinic revealed a soft tissue cystic lesion.

The advantages of USG over MRI and CT include having a nonionized character, being less expensive, and being more widely available.[4] In this case, we have demonstrated the value of USG in identifying nasolabial cysts.

Conclusion

Nasolabial cysts are rarely encountered non-odontogenic extraosseous cysts typically located in the nasolabial fold. Conventional radiographs are often inadequate for the diagnosis of these lesions. CT, MRI, and Ultrasound are successful diagnostic imaging methods for evaluating the location, determining the contents of the cyst, and diagnosing, alongside a clinical examination. The experience of the doctor who performs the USG is important, to accurately define the borders of the lesion.

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