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Nasolabial Cyst: A Case Report

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ABSTRACT

Nasolabial cysts (NCs) are rare, non-odontogenic developmental cysts of the soft tissue, accounting for approximately 0.7% of all non-odontogenic cysts. These lesions predominantly affect women between the fourth and fifth decades of life, with a predilection for individuals of African descent. We report a case of a 50-year-old woman presenting with swelling adjacent to the right nostril, associated numbness, and aesthetic concerns. Radiographic examination revealed a peripheral soft tissue lesion anterior to the right maxilla that had destroyed the lateral nasal wall and anterior maxillary border, with extension into and partial obstruction of the right nasal cavity. Histopathological examination of the excised specimen revealed a cyst measuring 10×20mm with a 3mm wall thickness. The cyst was lined by squamous epithelium with areas of stratified cuboidal epithelium, surrounded by fibrous connective tissue containing mild chronic inflammatory infiltrate, blood vessels, and fat cells. The lesion was successfully treated by surgical enucleation through an intraoral approach. This case highlights the importance of considering nasolabial cysts in the differential diagnosis of soft tissue swellings in the nasolabial region, despite their rarity. Accurate diagnosis requires careful clinical examination, appropriate imaging, and histopathological confirmation to distinguish these lesions from odontogenic and other non-odontogenic entities.

Keywords: Nasolabial cyst; Non-odontogenic cyst; Developmental cyst; Enucleation.

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Introduction

Nasolabial cysts (NC) are rare developmental soft tissue cysts that are non-odontogenic and occur between the vestibule of the nose and the upper lip [1]. These cysts account for 0.7% of all non-odontogenic cysts, with 90% being unilateral and 10% bilateral [1]. NC typically occurs in black women between the fourth and fifth decades of life, with a male-to-female ratio of 1:3.6. The diameter of these cysts ranges from 1 to 5 centimeters [1]. This lesion was first described by Zuckerkandl in 1882, and since then, two main theories of etiology have been proposed [2]. One theory suggests that the lesion arises from trapped tissue of the nasolacrimal duct, while the other supports that this is a fissural cyst formed during the development of the embryo [2]. Klestadt initially considered an embryonic origin for these cysts, suggesting that these tissues should arise from entrapped epithelial tissue in the growth fissures between the maxillary process and the lateral nasal process. Since then, many authors have classified this lesion as a fissural cyst based on Klestadt's embryological theory [2].

In 1920, Brogman proposed the most accepted theory, which indicates that the nasolabial cyst originates from remnants of epithelium in the lower and anterior part of the nasolacrimal duct [3]. Clinically, NC presents as an asymptomatic soft tissue swelling in the mucosa of the upper lip in the nasolabial sulcus area, which may cause facial asymmetry. Patients may experience pain due to secondary infection resulting from nasal obstruction [2]. Histological features of this lesion include a cyst lined by epithelium with various characteristics, ranging from simple squamous epithelium to pseudostratified columnar epithelium. Ciliated and goblet cells may also be observed [4]. Panoramic and intraoral radiographs typically do not show changes unless the lesion causes significant erosion of the maxillary bone [2]. Diagnostic tests for NC include nasal endoscopy, CT, and MRI [3]. Both CT and MRI are valuable in revealing the origins of the cysts. Surgery is considered a simultaneous diagnostic and therapeutic method for this lesion, allowing for histological examination [3]. This article presents a case of a nasolabial cyst in a 50-year-old woman in Mashhad city [3].

Case Report

The patient is a 50-year-old woman with the main complaints of swelling in the area next to the right nostril, numbness in this area, and aesthetic concerns (Figure 1). The patient initially visited a general practitioner, but no diagnosis was made. She used home treatments such as ice compresses and also took Amoxicillin 500mg (every 8 hours) and Acetaminophen 325 mg (every 6 hours) for pain relief. She then referred to the Oral and Maxillofacial Disease Diagnosis Department of the Faculty of Dentistry, Mashhad University of Medical Sciences (MUMS) in 2022. The patient's medical history indicated asthma and high blood pressure, and she was taking antihypertensive medication (Losartan 25mg every morning). She had no history of hospitalization. After completing the initial examinations and diagnostic documentation, she was referred to the Department of Oral and Maxillofacial Surgery for treatment.

Radiographic examination revealed axial and cross-sectional CBCT images showing a soft tissue lesion (peripheral) in the anterior maxilla on the right side (Figure 2), causing destruction of the lateral wall of the nasal cavity on that side and the anterior border of the maxilla, (presenting a saucer shape) and extending into the right nasal cavity, leading to obstruction of it. Swelling in the buccal soft tissue on the right side was also observed. Increased thickness of the mucosa in both right and left maxillary sinuses was evident.

To treat this lesion, excision of the lesion was planned. After preparation and draping in sterile conditions, anesthesia was achieved using an infraorbital approach with 2% lidocaine containing epinephrine at a concentration of 1:100,000. An intraoral incision was made in the swollen area, and soft tissue dissection from the lesion was performed (Figure 3). The lesion was then excised and sent for pathology. After achieving hemostasis, the area was sutured with 3-0 silk thread. The patient received both general care instructions and a prescription for medication

Histopathological findings showed a ruptured cyst with a brownish color measuring 10*20mm and a maximum wall thickness of 3mm with elastic consistency. Microscopic examination of the submitted sample revealed a pathological cavity lined by squamous epithelial covering and cuboidal stratified epithelium in some areas, with a fibrous connective stroma showing mild infiltration of chronic inflammatory cells, blood vessels, and fat cells (Figure 4). The differential diagnosis included 1. Nasolabial cyst and 2. Mesenchymal lesions. Based on radiographic appearance, clinical examination, and histopathological findings, the final diagnosis was a nasolabial cyst. For reporting this case, written informed consent was obtained from the patient.

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Figure 1. Clinical view showing swelling in the nasolabial region adjacent to the right nostril.

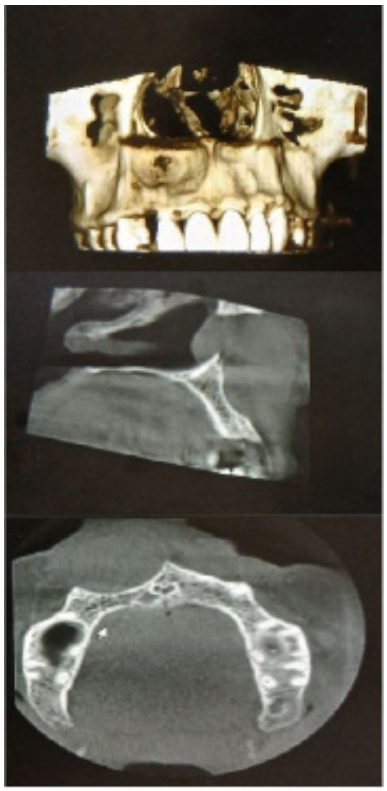


Figure 2. CBCT view of the cyst.

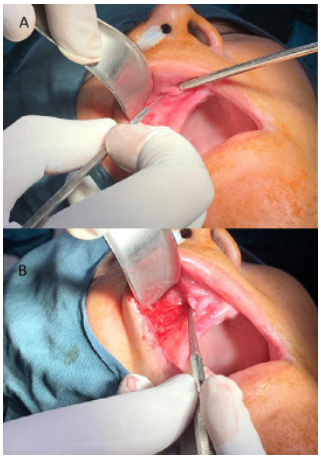


Figure 3. Intraoral approach for removal of the nasolabial cyst.

Discussion

This article reports a case of nasolabial cyst occurrence. According to searches in related resources, few instances of this cyst have been reported [1]. Histological features of NC include a cyst lined by epithelium with various characteristics ranging from stratified squamous epithelium to pseudostratified columnar epithelium that may also have cilia and contain scattered mucous or goblet cells [1]. Apocrine changes have also been reported in the cyst lining. Often, the cyst wall is formed from fibrous connective tissue, which sometimes may also contain a bundle of skeletal muscle [4]. In most cases, the contents of the cyst consist of thin mucoid or light yellow (straw colored) serous fluid. In cases of secondary infection, infectious materials may predominate [4].

Although the pathogenesis of nasolabial cysts is not fully understood, it has been determined that they have a non-odontogenic origin. However, they always occur near the alveolar process of the maxilla [5]. The main proposed theories suggest that their origin is from displaced epithelium from the embryonic nasolacrimal duct located on the surface of the alveolar process. In contrast, others state that it is a developmental fissural cyst created by trapped epithelial remnants from lateral nasal, globular, and maxillary processes [6].

In a study by Santata and colleagues, a 77-year-old male patient presented with a soft, fluctuating swelling in the infraorbital region, causing elevation of the nasal dorsum, facial asymmetry, and painful symptoms, diagnosed as a nasolabial cyst [7]. The surgical procedure involved a right paranasal and infraorbital incision in an inverted "L" shape. After divulsion, the lesion was visualized with the infraorbital plexus positioned over the capsule and was removed by enucleation [7]. The upper location of the cyst in the infraorbital region suggests an origin from epithelial remnants of the nasolacrimal duct [7]. Most authors believe that the prevalence of nasolabial cysts is much higher than reported cases, likely due to misdiagnosis as odontogenic/inflammatory lesions or not being diagnosed at all [6]. The differential diagnosis of nasolabial cysts includes odontogenic and non-odontogenic lesions occurring in the anterior maxilla or the soft tissues of the nasolabial region. Radicular cysts arising from anterior maxillary teeth may extend into soft tissues [2]. Clinical examination, including vitality tests and radiographic examination, helps differentiate it from nasolabial cysts by showing periapical radiolucency around affected teeth [1]. Residual cysts associated with extracted anterior maxillary teeth may also be considered in differential diagnosis [1]. An apical abscess that leads to infection of the canine space can also resemble a nasolabial cyst [6]. This lesion is an inflammatory lesion, and thus, the classic signs of inflammation, in the presence of a non-vital tooth, help differentiate it from a nasolabial cyst [6]. A nasopalatine duct cyst can also be considered; however, this lesion is purely an intraosseous lesion and presents as a heart-shaped radiolucency in the anterior midpalatal area [6]. Sometimes, odontogenic cysts, such as dentigerous cysts or odontogenic keratocysts, may perforate the labial tissue and extend into the soft tissues. These cysts have an intraosseous origin and can be diagnosed through radiographic examination [7]. To diagnose a nasolabial cyst, it is necessary to comprehensively consider the patient's symptoms, physical signs, and imaging examination findings [7]. Compared with CT and MRI, ultrasonography (USG) can more clearly reveal the cystic wall and cystic contents; therefore, USG findings facilitate more accurate judgment of the lesion's nature [8] (sensitivity of 95%, accuracy of 95%, and a missed diagnosis rate of 5%) [9]. Benign soft tissue neoplasms such as schwannomas, neurofibromas, or benign salivary gland neoplasms can be differentiated with the help of biopsy [5]. Dermoid or epidermoid cysts may rarely occur in the alar region of the nose. They typically appear with a yellowish color and are often diagnosed in childhood, and they can be differentiated through biopsy [5].

Roed-Peterson reported in his study that out of 116 cases of nasolabial cysts, only 13 showed bilateral occurrence [2]. Sato and colleagues reported in their study of 20 patients that only one case had bilateral cysts [2]. Kuriloff reported that among 26 cases of nasolabial cysts, only one showed bilateral manifestation. Therefore, the occurrence of bilateral nasolabial cysts is very rare. Clinical features among all reported cases are almost similar [2]. In the study by Balaji et al., the patient was a 48-year-old man whose cyst had formed entirely in the buccal mucosa. According to other studies, this was the first reported case of this cyst that developed entirely in the buccal mucosa [3]. Clinically, this cyst appears as an asymptomatic swelling in the nasolabial area [4]. Infection can cause tenderness, obliteration of nasolabial folds, nasal grooves, and elevation of the alar base. Nasal obstruction, difficulty in using dentures, breathing obstruction, and facial deformity may also occur [4]. In some cases, they may spontaneously rupture and drain through the nostrils or oral cavity [4]. Almost all patients will have at least one of three main symptoms: partial or complete nasal

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obstruction, localized pain, and well-defined swelling [5]. In the present case, the patient exhibited all these main symptoms and also had a history of odontogenic infection that could have led to cyst infection [5]. In a study conducted by Anekar and colleagues, a case was presented of a 55-year-old woman with a bilateral cyst, and there has been no reported recurrence of the disease in this patient [2]. The histopathological appearance showed epithelium with cuboidal cells as well as goblet cells, and chronic infection was also present. Clinically, swelling and obliteration of the alar folds were reported [2].

In the study by Pereira Filho and colleagues, a 42-year-old woman presented with the main complaint of swelling and elevation of the right nasolabial area [10]. Based on clinical examinations, radiographic images, and histopathological findings, which included goblet cells and epithelium with cuboidal and columnar cells, along with the presence of scattered chronic inflammatory cells in the connective tissue, a diagnosis of nasolabial cyst was made [10]. When imaging methods such as CT or MRI are used for other reasons in the head and neck area, an asymptomatic nasal cyst may be observed [5]. Schroff noted that these do not have bone lesions; therefore, thorough radiographic examinations should be conducted to differentiate them from odontogenic causes or other non-odontogenic causes [11]. In the patient presented in the study by Filho and colleagues, a change in the shape of the maxillary bone in the periapical area of the affected tooth was mentioned. This bone analysis has also been observed by other authors [10].

The most common approach for excision of the nasolabial cyst is through a sublabial incision at the upper buccal sulcus [10]. The treatment for nasolabial cysts involves complete removal under local anesthesia or general anesthesia, using either an endoscopic intraoral or transnasal approach [11]. Transnasal endoscopy offers advantages such as reduced operative time, decreased postoperative pain, fewer complications, lower admission rates, shorter hospital stays, a diminished need for general anesthesia, and cost savings. Clinicians can leverage these findings to select the most suitable surgical approach for their patients [6]. Intraoral access is associated with postoperative complications such as facial swelling, dental numbness, and perforation of the nasal floor. The endoscopic approach in the study by Rodrigues and colleagues showed no signs of recurrence two years after surgery [6]. A systematic review by Sheikh and colleagues reported no difference in recurrence rates between intraoral and transnasal endoscopic methods. Lee and colleagues reported one case of recurrence in a patient who underwent transnasal surgery [6]. Our patient underwent enucleation for the treatment of the cyst. In a study conducted by Nilesh, the presented patient was a 50-year-old woman with painless swelling on the right side of her face [4]. Given that this cyst is a soft tissue cyst, MRI is the best identification method; although bony involvement is rare, an analysis of the maxilla is observed in this case [4].

In the study by Castel and Perez, the patient was a 50-year-old woman with sinus pain and swelling [11]. CT was used for diagnosis, revealing an oval-shaped lesion with slight peripheral enhancement originating from the lateral wall of the right nasal cavity [11]. The patient presented in the study by Almutairi and colleagues was a 44-year-old man who complained of swelling on the right side of his nose [1]. After conducting clinical examinations and histopathological diagnosis, which revealed respiratory epithelium and goblet cells, along with radiographic images, a diagnosis of nasolabial cyst was made [1]. Ultimately, the cyst was surgically removed, and follow-up indicated no recurrence of the disease [1].

Conclusion

The nasolabial cyst is a rare soft tissue developmental cyst in the nasal region that may go undiagnosed. To make an accurate diagnosis, differential diagnoses should be considered, and clinical diagnosis should be confirmed through microscopic examination and interpretation of its histopathological appearance, which ranges from simple squamous epithelium to pseudostratified columnar epithelium, and may also contain cilia and scattered goblet cells. This case presentation (12) aims to assist in making a potential diagnosis.

Conflict of Interest

There is no conflict of interest to declare.

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