

Case Report

Nasopalatine Duct Cyst- A Case Report

Paramjit Kajla¹, Purvi Goyal², Jeevan Lata³

¹Demonstrator, ²P.G. Student, ³Professor and H.O.D.,

Department of Oral and Maxillofacial Surgery, Punjab Government Dental College and Hospital, Amritsar, Punjab, India

ABSTRACT

The nasopalatine duct cyst is the most common non-odontogenic cyst occurring in the maxilla. It may occur in the anterior maxillary bone or the soft tissues covering the nasopalatine duct. It mainly arises from the epithelial remnants of the nasopalatine duct but its exact etiology remains debatable. This article presents a case report of a cyst in the anterior midline palatal region.

Key words: Nasopalatine cyst, midline cyst, non-odontogenic cyst, maxilla, palate.

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Corresponding author: Dr. Purvi Goyal, PG Student, Department of Oral and Maxillofacial Surgery, Punjab Government Dental College and Hospital, Amritsar, Punjab. E-mail: purvi.goyal.gdc@gmail.com

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INTRODUCTION

The nasopalatine duct cyst is a developmental, epithelial and non-odontogenic cyst of the oral cavity, representing up to 1% of all maxillary cysts [1, 2, 4]. It was first described by Meyer in 1914 as a paranasal sinus [5]. The majority of cases occur between 4th and 6th decade of life with more common occurrence in males than females, with a 3:1 ratio [1]. In the past, these lesions, also known as 'anterior middle cyst', 'anterior middle palatine cyst' and 'incisor duct cyst', were regarded as fissural cyst [1, 6].

They are considered to be arising from proliferation of epithelial remnants of the embryologic nasopalatine duct. However, etiologic factors and exact pathogenesis of the proliferation remains unknown. The epithelial cells maybe stimulated by trauma, infections or mucus retention, but spontaneous proliferation could also be possible [4].

It is usually asymptomatic, grows slowly, and is detected during routine clinical and X-ray examinations [9]. When swelling, pain and drainage from the anterior palate are reported from these lesions; they are associated with secondary infection or pressure on the nasopalatine nerve [10]. Surgical enucleation is the treatment of choice with very low recurrence rate [4, 7].

CASE REPORT

A 40 years old male patient reported to the department of Oral and Maxillofacial Surgery at Punjab Government Dental College and Hospital, Amritsar; with a chief complaint of a swelling in the anterior part of the palate since past 6 months.

Intra-oral examination revealed a well-defined swelling approximately 20*30 mm in size located posterior to the palatine papilla. On palpation, the swelling was non-tender and slightly fluctuant. The overlying mucosa was normal in color with soft consistency. The maxillary central incisors were found to be missing.

Patient had history of traumatic extraction of maxillary central incisors 5-6 months back. He gave no relevant history of any pre-existing medical conditions. Imaging studies included occlusal radiograph and computed tomography (CT). CT showed a unilocular, oval in shape, radiolucent area in the anterior midline maxillary region (Figure 1). On the basis of clinical and radiographic examination, a provisional diagnosis of nasopalatine duct cyst was made.

Enucleation of the cystic lesion was planned and the surgery was performed under local anesthesia via palatal as well as buccal approach (Figure 2, 3). The specimen obtained was sent for histo-pathological examination fixed in 10% formalin.

Microscopic examination revealed a cystic cavity with a fibrous wall lined by thin, non-papillated cuboidal to columnar epithelium with occasional goblet cells (Figure 4). The cystic wall consisted of condensed fibrous connective tissue containing only scattered chronic inflammatory cells. Thus, the histo-pathological study was suggestive of a nasopalatine duct cyst.

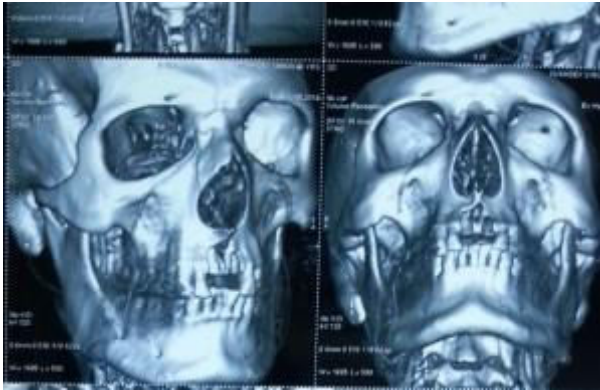


Figure 1: 3-d CT showing missing 12, 22 and unilocular oval radiolucent area in the midline.



Figure 2: Intra-operative picture showing oval bony defect on the buccal aspect in the midline region.

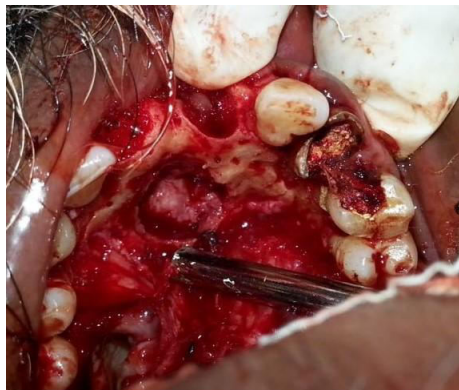


Figure 3: Intra-operative picture showing well-defined oval to round bony defect with intact cystic lining on the midline palatal aspect.

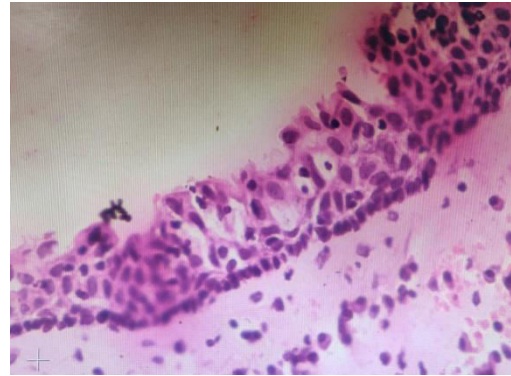


Figure 4: Histopathological picture showing cystic cavity with a fibrous wall lined by columnar to cuboidal epithelium with few goblet cells.

DISCUSSION

Nasopalatine duct cyst is one of the many pathologic processes that may occur within the jaw bones, but is unique in that it develops in only a single location, which is the midline of anterior maxilla [3]. It can arise in any age, but is seen most often between 30 and 60 years of age [2, 8]. Although there have been reports of this cyst in pediatric patients up to 8 years of age [1].

It can form within the incisive canal located in the palatine bone and behind the alveolar process of the maxillary central incisors; or in the soft tissues of the palate that overlies the foramen, called the cyst of the incisive canal [2]. It is slightly more common in males than in females; the ratio being 3:1 [8].

Nasopalatine ducts ordinarily undergoes progressive degeneration, however, the persistence of the epithelial remnants may later become the source of epithelia that gives rise to the cyst; from either spontaneous proliferation or proliferation following trauma, bacterial infection or mucus retention [4]. Genetic factors have also been suggested [1, 2]. Thus the etiology of the nasopalatine duct cyst remains debatable; however spontaneous proliferation is considered to be the most possible explanation.

Most of the cysts are asymptomatic and are discovered during routine clinical and radiographic examinations. The most frequent symptom is swelling in the midline of maxillary labial gingival and anterior palate. Pain and drainage of pus may occur if the cyst becomes infected [11]. If the cyst is near the mucosal surface, the swelling will be fluctuant with a bluish hue. Deeper cysts are covered by normal mucosa unless it is ulcerated. Burning sensation and numbness may be experienced due to pressure on the nasopalatine nerve [1].

Radiographically, it appears as a round or ovoid radiolucency between the roots of maxillary central incisors. Due to superimposition of the nasal spine, a heart shaped appearance maybe seen. Most of the lesions have a well defined sclerotic border [1, 2].

Histo-pathological examination reveals a cavity lined by stratified squamous epithelium alone or in combination with pseudostratified columnar (with or without cilia), simple columnar, or simple cuboidal epithelium [11]. The type of epithelia that line the nasopalatine duct is highly

variable; the duct is characterized by a respiratory type of epithelial lining and moving downwards the lining changes to cuboidal epithelium, and in the most inferior portion closest to the oral cavity, squamous epithelium is the usual type [1]. Some specimens also show the presence of nerves and blood vessels as these structures often course through the incisive canal [12].

The differential diagnosis should include:

Odontogenic cysts like lateral radicular cyst, lateral periodontal cyst and OKC. Odontogenic tumors like ameloblastoma and odontogenic myxoma. Non-odontogenic tumors like central giant cell tumor, brown tumor of hyperparathyroidism and central hemangioma [1].

Thus the histo-pathological characteristics of the lesion and a good clinical and radiographic examination are essential to confirm the diagnosis and establish an effective treatment plan.

The treatment of choice includes complete removal of the cystic lesion, generally using a trans-oral, palatal or vestibular approach [12]. Although some authors propose marsupialization of large cysts [1]; as in these cases total excision is difficult with increased risk of post-operative complications like submucosal hematoma, wound dehiscence, injury to tooth roots, injury to nasopalatine neurovascular bundles, paresthesia of anterior palate, facial swelling and formation of an oronasal fistula [12].

CONCLUSION

Nasopalatine duct cysts are the most common non-odontogenic developmental cysts occurring in about 1% of the population. Their common presentation is of an asymptomatic ovoid swelling in the anterior midline palatal region with more predilections in male population. They must be distinguished from other anterior maxillary radiolucencies and final diagnosis is established only after the histo-pathological examination. Enucleation is the preferred treatment with low recurrence rates.

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