

Nasopalatine Duct Cyst A Case Report and Literature Review

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Abstract: The Nasopalatine duct cyst (NPDC) also known as nasopalatine cyst is a developmental, nonneoplastic cyst that is considered to be the most common nonodontogenic cyst. It is one of many pathologic processes that may occur within the jawbones, but it is unique in that it develops in only a single location, in the midline anterior maxilla. Nasopalatine cysts are usually asymptomatic and are discovered incidentally during routine radiological examination. This article reports a case with a thorough discussion regarding epidemiology, etiology, diagnostic work-up, differential diagnosis and therapeutic strategies.

Introduction: The nasopalatine cyst described first by Meyer in 1914¹ was believed to arise from remnants of nasopalatine duct, an embryologic structure connecting the oral and nasal cavities in the area of incisive canal.² It is one of the most common non-odontogenic cyst³, comprising 10% of jaw cysts and occurring in 1 of every 100 persons with slight male predilection, the mean age being 42.5 years.⁴ These cysts are usually asymptomatic, unless they are secondarily infected. The most commonly reported clinical symptom is swelling in the anterior part of the palate. These entities are usually treated with surgical enucleation.⁵

Case Report: A 35 year old female patient reported to the outpatient department with a complaint of swelling in the anterior region of palate for the past six months. The patient noted swelling six months previously which gradually increased to the present size. The swelling was associated with a dull aching intermittent pain. Extraorally there was no detectable abnormality or lymphadenopathy. Intraoral examination revealed a well defined oval shaped bluish swelling measuring approximately 1 x 1 cm, located posterior to the palatine papilla in the midline. The swelling was fluctuant and non tender (Figure-1). Intraoral periapical radiograph and occlusal radiograph revealed a well defined radiolucency located

anteriorly, between the apical third of roots of maxillary central incisors. The radiolucency extending laterally along the apex of the roots of the lateral incisors, then extending superiorly and medially to give a “heart shaped” radiolucency, which is the characteristic feature of a nasopalatine cyst. The periphery of the lesion was well defined. There was no evidence of resorption or displacement of the tooth roots (Figure-2,3). On the basis of the clinical and radiographic findings, a provisional diagnosis of nasopalatine cyst was made. The lining of the cyst was removed (Figure-4, 5) and the specimen was subjected for histopathological examination.

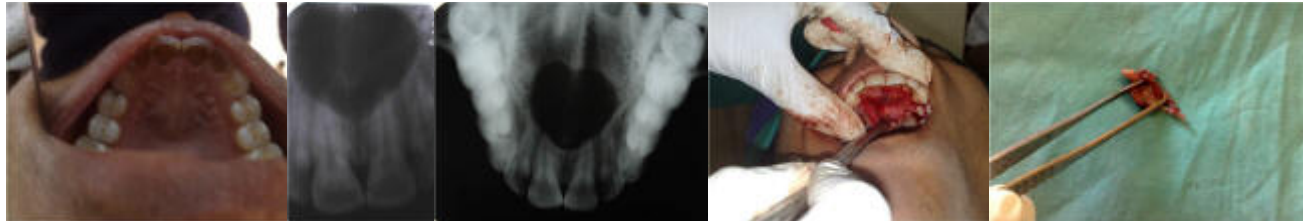


Figure 1

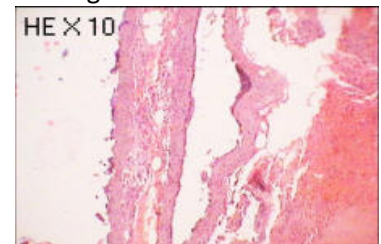
Figure 2

Figure 3

Figure 4

Figure 5

Histopathological examination: On microscopic examination the cyst was lined with a cuboidal epithelium and the cyst wall contained small muscular arteries lined by endothelial cells, veins, features of hemorrhage were also seen. (Figure 6)



Enlarged Pictures At End of Manuscript

Discussion: The nasopalatine duct cyst is a developmental, nonneoplastic cyst that is the most common of the non-odontogenic cysts of the oral cavity, occurring in about 1% of population.⁶ Most studies show a higher incidence of nasopalatine duct cyst among males than females with the ratio being 1.7: 15. The age distribution is broad, with most cases being discovered in the fourth through sixth decade.⁷ In spite of being a developmental cyst, it is rarely seen in the first decade of life.² Nasopalatine cysts are believed to develop from epithelial remnants of paired embryonic nasopalatine ducts within the incisive canal. The stimulus for cyst formation from the epithelial remnants of the nasopalatine canal is uncertain, although trauma and bacterial infection are thought to have a role. It has also been suggested that the mucous glands within the lining may cause cyst formation as a result of mucin secretion.⁸

Most of these cysts are asymptomatic or cause such minor symptoms that they are tolerated for very long periods. Usually patients complain of a small asymptomatic swelling just posterior to palatine papilla. If the cyst is near the surface the swelling will be fluctuant and blue.⁷ The deeper cyst is covered with normal appearing mucosa which may be ulcerated due to masticatory trauma. In some cases, the swelling may occur in the midline on the labial aspect of the alveolar ridge and in some patients through and through fluctuation can be palpated between the labial and palatal swellings. The cyst may produce bulging of the floor of nose. In various cases, the swelling is associated with a burning sensation, numbness over the palatal mucosa and pain as a result of pressure on the nasopalatine nerves. Various combinations of swelling, discharge and pain may occur. Discharge may be mucoid, in which case the patients describe a salty taste, or it may be purulent and the patients may complain of a foul taste.³ Displacement of teeth is a rare finding.

Even though definitive diagnosis of a nasopalatine cyst is more easily made on plain films,⁹ other advanced imaging modalities such as computed tomography and magnetic resonance imaging are being used to

differentiate this entity from other lesions.^{10,11} CT findings of a nasopalatine cyst reveal a midline location, smooth expansion with sclerotic margins.¹²

As the incisive canal and foramen may normally vary greatly in size, the clinician may have some difficulty in distinguishing between a large incisive foramen and a small asymptomatic incisive canal cyst on the basis of radiographic evidence alone. Some clinicians follow the rule of thumb that radiolucencies of the incisive canal measuring less than 0.6 cm in diameter should not be considered cystic in the absence of other symptoms.⁴ A radicular cyst or a granuloma associated with the central incisor should also be considered in differential diagnosis as these entities may be similar in appearance to an asymmetric NPDC. The presence or absence of the lamina dura and enlargement of the periodontal ligament space around the apex of the central incisor indicates an inflammatory lesion. NPDC and radicular cysts can also be differentiated by taking a second periapical view at a different horizontal angle, which show an altered position of the image of a NPDC, whereas a radicular cyst should remain centered about the apex of involved tooth. A vitality test of the regional teeth may also be useful.⁷ Nasopalatine cysts are usually treated by enucleation, in case of large cysts, marsupialization may be considered before definitive enucleation. Recurrence rate ranges from 0% to 11%.⁶

Conclusions: Nasopalatine duct cysts occur in approximately 1% of the population with mean age of 42.5 years. The lesions may be asymptomatic or may manifest as swelling, pain, and drainage from the hard palate. A well-circumscribed, round, ovoid, or heart-shaped radiolucency is seen on radiograph. Enucleation is the preferred treatment with low recurrence rates.

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