

## Nasopalatine Duct Cyst – A Case Report

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**Abstract:** Cysts are the common pathologies found in the oral cavity. Nasopalatine duct cyst or Nasopalatine canal cyst is a common intra osseous developmental cyst occurring in the midline of maxillary anterior region. Nasopalatine cysts are usually asymptomatic, but may sometimes produce an elevation in the anterior portion of the palate, and are discovered incidentally during routine radiological examination. Only few cases have been reported in the literature.

**Keywords:** Nasopalatine duct Cyst, Nasopalatine canal cyst.

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The Nasopalatine Duct Cyst (NPDC) was first described by Meyer in 1914.<sup>1</sup> Nasopalatine duct cyst is also termed as incisive canal cyst arises from embryologic remnants of Nasopalatine duct.<sup>2,3</sup> It is one of the most common nonodontogenic cysts.<sup>3</sup> Most of these cysts develop in the midline of anterior maxilla near the incisive foramen.<sup>4</sup> It constituting about 1.7–11.9% of all jaw cysts. Most cases occur in the fourth to sixth decade<sup>1</sup> and men are affected three times more commonly than women.<sup>5</sup> The majority of cases occur between 4th and 6th decades of life.<sup>1</sup> NPDC is believed to arise from epithelial remnants of the nasopalatine duct. These epithelial remnants either by spontaneous proliferation (idiopathic) or proliferation following trauma, bacterial infections, or mucous retention may become the source in giving rise to NPDC<sup>1,6</sup>.

### I. Case Report:

A 25 year old female patient reported to the Department of Oral & Maxillofacial Surgery, Mahe Institute of Dental Sciences & Hospital, Mahe U.T of Puducherry, India with complaints of watery discharge from the anterior palatal region for last 2 weeks. There was no history of trauma, or mobility of the associated teeth. On examination, a well-defined, oval shaped diffuse swelling was noticed in the anterior palate which was soft, fluctuant and measured about 1×2 cm. The associated teeth were tested vital. Radiographs revealed a well-defined circular to oval radiolucency measuring 2 X 2.5 cm between the roots of the maxillary central incisors without any evidence of root resorption (Figure 1). Fine needle aspiration of the swelling showed clear straw colored fluid.

This case was operated under local anesthesia for enucleation using transpalatine approach and tissue was sent for histopathological examination ( Figure 2).

The histopathology report revealed cystic lining with fibrous wall. Cyst was lined by thin stratified squamous epithelium and focal area by pseudo stratified columnar epithelium. The underlying connective tissue stroma was fibrous with numerous blood vessels, hemorrhagic areas and mild amount of inflammatory cell infiltrations. A few nerve bundles and blood vessels were also seen in cyst (Figure 3).

### II. Discussion

The NPDC is a developmental, non-neoplastic, non – odontogenic cyst occurring in oral cavity.<sup>7</sup> In the past, known as the fissured cyst, now according to the WHO classification is defined as a non – odontogenic, developmental, epithelial cyst of maxilla.<sup>8</sup> Most of these cysts develop in the midline of anterior maxilla near the incisive foramen.<sup>4</sup> It constituting about 1.7–11.9% of all jaw cysts. Most cases occur in the fourth to sixth decade<sup>1</sup> and men are affected three times more commonly than women.<sup>5</sup>

The etiology of the cyst is unknown, although it is believed to develop from epithelial remnants of nasopalatine ducts within the incisive canal. The factors which may stimulate for cyst formation from the epithelial remnants of the nasopalatine canal is unclear, but it is thought that trauma and bacterial infection plays important role<sup>1,6</sup>. It has also been suggested that the mucous glands within the lining may cause cyst formation as

a result of mucin secretion.<sup>7,9,10</sup> Most of these cysts are asymptomatic or cause such minor symptoms such as swelling in relation to anterior palate near incisive papilla or it may occur in the midline on the labial aspect of the alveolar ridge. The cyst may produce bulging of the floor of nose.<sup>11</sup> Sometime cyst may be so destructive may perforate the labial & palatal bony palate. Tooth displacement is common finding.<sup>12</sup> Patient may experience pain or numbness over the palatal mucosa, it could be due to result of pressure on the nasopalatine nerves. Discharge may be mucoid, watery or purulent in nature.<sup>1,6,7</sup>

The differential diagnosis for NPDC are radicular cyst, and a wide incisive canal. A radicular cyst is usually associated with non-vital teeth and generally involves the roots of teeth with loss of continuity of the lamina dura, while, the NPDC is usually associated with vital teeth. Radiographically, NPDC are well-circumscribed round, ovoid, or heart shaped radiolucencies located in between the roots of the maxillary central incisors<sup>1</sup> with the continuity of the lamina dura generally maintained.<sup>5</sup>

As the incisive canal and foramen may normally vary in size, the clinician may have some difficulty in distinguishing between a large incisive foramen on the basis of radiographic evidence alone. Few literature has suggested that when the radiolucency of the incisive canal measuring less than 0.6 cm in diameter should not be considered cystic in the absence of other symptoms.<sup>12</sup> Distinction of NPDC from a large incisive fossa can be made clinically by aspiration of the lesion<sup>6</sup>.

Histologically, NPDC have squamous, columnar, cuboidal or sometime combination of these epithelium and respiratory epithelium. Epithelial lining depends whether the cyst located in palatal or nasal part of the canal or intermediate. These shows the pluripotential character of the embryonic epithelial remnant. Peripheral nerves, arteries and veins, mucous glands are also noted in the section. These structures are native to nasopalatine canal so helps in diagnosing the lesion<sup>13</sup>.

### **III. Conclusion:**

Nasopalatine cysts are not rare and it is important that clinician should be aware of the features of this cyst as it could be asymptomatic but sometime these cyst may perforate labial and palatal plate in case of large cyst.

### **Reference:**

- [1]. Allard RH, van der Kwast WA, van der Waal I. Nasopalatine duct cyst. Review of the literature and report of 22 cases. *Int J Oral Surg* 1981;10(6):447-61.
- [2]. Curtin HD, Wolfe P, Gallia L, May M. Unusually large nasopalatine cyst: CT findings. *J Comput Assist Tomogr* 1984;8(1):139-42.
- [3]. Sapp J, Eversole L, Wysocki G, editors. *Contemporary oral and maxillofacial pathology*. 2nd ed. St. Louis: Mosby; 2004.
- [4]. Damm DD, Lu RJ, Rhoton RC. Concurrent nasopalatine duct cyst and bilateral mesiodens. *Oral Surg Oral Med Oral Pathol* 1988;65(2):264-5.
- [5]. Gnanasekhar JD, Walvekar SV, al-Kandari AM, et al. Misdiagnosis and mismanagement of a nasopalatine duct cyst and its corrective therapy. A case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1995;80:465-70.
- [6]. Aparna M, Chakravarthy A, Acharya SR, Raghu R. *BMJ Case Rep* Published online: doi:10.1136/bcr-2013-200329
- [7]. Salamm ART, Parthiban V, Gopinath, Karpagam R. Extensive Nasopalatine Duct Cyst Causing Nasolabial Protrusion. *Indian Journal of Multidisciplinary Dentistry* 2011; 1(5): 285-88
- [8]. Francoli J.E., Marques N.A., Aytes L.B., Escoda C.G.: Nasopalatine duct cyst: Report of 22 cases and review of literature. *Med. Oral Patol. Oral Cir. Bucal*. 2008, 13, 438-443.
- [9]. Regezi JA, Sciubba JJ, Jordan RCK. *Oral pathology clinical pathologic correlations*. In: *Cysts of the jaws and neck* 4th edition, Saunders 2003:p256-7.
- [10]. Velasquez-Smith MT, Mason C, Coonar H, Bennett J. A nasopalatine cyst in an 8-year-old child. *Int J Pediatric Dent* 1999;9(2):123-7.
- [11]. Neville BW, Damm DD, Brock T. Odontogenic keratocysts of the midline maxillary region. *J Oral Maxillofac Surg* 1997;55(4):340-4.
- [12]. Elaine Cristina Batista Basso, Edson Rodrigues de Paula Neto, Luciano Lauria Dib, Claudio Costa. An unusual case of nasopalatine cyst in Brazilian population. *J Health Sci Inst*. 2012;30(3):292-4
- [13]. Rajendran R. *Developmental Disturbances of Oral and Paraoral Structures*. In: *Shafer's text book of oral pathology*. Ed Rajendran R and Sivapathasundharam B. 7th ed Reed Elsevier India Private Limited, New Delhi 2012. p 64.

Figure 1. Well circumscribed radiolucency in the anterior hard palate

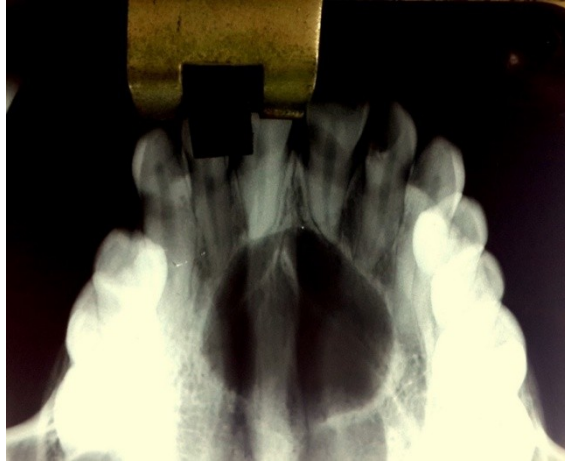


Figure 2. Clinical photograph showing post surgical cystic enucleated area in the anterior hard palate



Figure 3. Photomicrograph with  $\times 10$  magnification showing a cystic lining, made up of pseudo stratified ciliated columnar epithelium

