

NASOPALATINE DUCT CYST ASSOCIATED WITH SUPERNUMERARY TEETH- A CASE REPORT

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ABSTRACT: The nasopalatine duct cyst is the most common non-odontogenic developmental cysts, comprising 10% of jaw cysts and occurring in 1 of every 100 persons with a slight male predilection, the mean age being 42.5 years. This article reports an unusual case of nasopalatine duct cyst occurring in an 11year male pediatric patient associated with supernumerary teeth.

KEYWORDS: Nasopalatine duct cyst, Non odontogenic cyst. Pediatric patient, Supernumerary teeth

INTRODUCTION

The Nasopalatine duct cyst (NPDC) is the most common developmental, non-neoplastic, non-odontogenic cysts of the oral cavity, occurring in about 1% of population¹. They are believed to develop from the proliferation of epithelial remnants of the nasopalatine duct, which exists throughout fetal life, and tend to regress after birth. In some cases, remnants may remain, proliferate, and give rise to a cyst². It's unique as it develops in only a single location, which is the midline of the anterior maxilla.³ It can arise at any age, but is seen most often in patients between 3rd and 6th decades of life, though there have been reports of NPDC in pediatric patients up to 8 years of age, It is slightly more common in males than in females with the ratio being 2.5:1. ⁴These cysts are usually asymptomatic.

The nasopalatine duct cyst (NPDC) was first described by Meyer in 1914.¹It is also known by other names such as anterior midline cyst, maxillary midline cyst, anterior middle palatine cyst, and incisive duct cyst were regarded as fissural cyst in the past. At present according to the classification of the World Health Organization (WHO) it is regarded as developmental, epithelial, non-odontogenic cysts of the maxilla alongwith nasolabial cysts.¹

Case Report

The case presented here is that of 11 year old male Patient with a swelling in the anterior part of the palate for

past 6 months. The swelling gradually increased to the present size. Extra orally no abnormality was detected.

Intra oral examination (**Fig.1**) revealed a well defined swelling approximately 1.3cm×0.2cm×0.1cm located in midline at palatine papilla region. On palpation the swelling was fluctuant and non tender. Occlusal radiograph (**Fig. 2**) showed well circumscribed oval shaped radiolucency in the midline of anterior maxilla between the roots of central incisors involving two supernumerary teeth, roots of central incisors were displaced laterally. On the basis of clinical and radiographic evidence a provisional diagnosis of Nasopalatine duct cyst was made. Surgical enucleation was done (**Fig. 3**) and specimen (**Fig. 4**) was sent for histopathological examination. Post-operative suturing (**Fig. 5**) was done. An obturator was given postoperatively (**Fig. 6**)

Histopathological examination.

Microscopic examination revealed cystic epithelium exhibiting reduced enamel epithelium – like flat cells with a thickness of 2-4 cell layers. Connective tissue wall was composed of densely arranged interlacing collagen fibres with fibroblasts and vascularity. Mild chronic inflammatory cell infiltrate chiefly composed of lymphocytes was evident.



Fig.1. Intraoral photograph showing swelling in the anterior palatal region



Fig.2. Maxillary occlusal radiograph showing radiolucency in the anterior palatal region between the roots of central incisors



Fig.3. Photograph showing Surgical excision of cyst

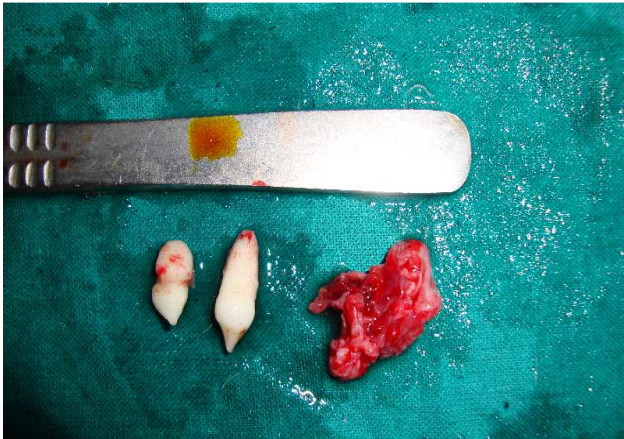


Fig..4. Photograph showing surgically removed supernumerary teeth and specimen

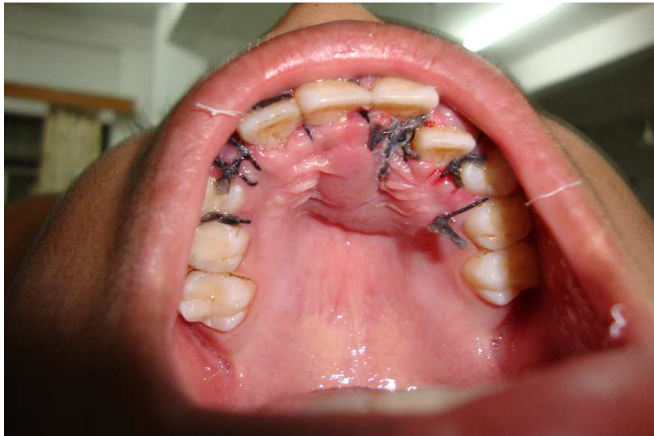


Fig.5. Postoperative photograph showing suturing



Fig.6. Postoperative photograph showing insertion of obturator

Discussion

NPDCs are usually central or unilateral.⁵ Nasopalatine ducts ordinarily undergoes progressive degeneration however, the persistence of the epithelial remnants may later become the source of epithelia that gives rise to NPDC, from either spontaneous proliferation⁶ or proliferation following trauma (e.g. removable dentures), bacterial infection or mucous retention⁷. Genetic factors have also been suggested¹. The mucous glands present among the proliferating epithelium can contribute to secondary cyst formation by secreting mucin within the enclosed structure⁸. The etiology is not clear, though in addition to the hypothesis of spontaneous proliferation from embryonic tissue remains most accepted.¹

These cysts are usually asymptomatic and discovered on routine radiographs. The most common presenting symptoms are swelling of the anterior palate, drainage and pain. Rarely a large cyst may produce a “through-and-through” fluctuant expansion involving the anterior palate and labial mucosa. If the cyst is near the 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.³

Radiographically, they are seen as well defined round or oval radiolucencies in the midline, although some lesions may appear heart-shaped⁹, either because they become notched by the nasal septum during their expansion or because the nasal spine is superimposed on the radiolucent area. Most authors agree that 6 mm should be considered the upper limit for normal incisive canal radiolucencies larger than this should be considered potentially pathologic and merit further investigation.¹⁰

Due to similar signs and symptoms, the NPDC may be easily misdiagnosed by the clinicians as a periapical lesion. This is why many authors believe that its prevalence is actually higher than presented in the literature.⁴ Although a large NPDC might show the adjacent incisors roots to be within the cystic cavity, the lamina dura will be usually intact and the pulp usually vital, whereas a radicular cyst is associated with a pulpless tooth and involves a portion of the root, usually with loss of continuity of the lamina dura.⁴

The differential diagnosis should be established with the following conditions: Odontogenic cysts (e.g., lateral radicular cyst, lateral periodontal cyst, odontogenic keratocyst). Odontogenic tumors (e.g., ameloblastoma, odontogenic myxoma). Non-odontogenic tumors (e.g., central giant tumor, brown tumor of hyperparathyroidism, central hemangioma)¹

A thorough differential diagnosis must be established in order to avoid unnecessary treatments such as endodontic procedures in vital permanent upper central incisors. A

correct tentative diagnosis should be based on positive dental vitality testing and negative percussion findings of the permanent upper central incisors provided these teeth do not have pulp or periodontal problems. Radiological exploration is essential for diagnosing NPDCs¹

Histopathological examination reveals a cavity lined by epithelium and surrounded by connective tissue wall. As reported 71.8% of NPDCs have squamous, columnar, cuboidal, or some combination of these epithelial types; respiratory epithelium is seen in only 9.8%.¹¹

The treatment of choice is surgical excision of the cyst, although some authors propose marsupialization of large cysts. The neurovascular bundle is a delicate and highly vascularized structure giving rise to profuse bleeding if inadvertently sectioned during surgery. Electrocoagulation is required in such cases.¹

CONCLUSION:

Nasopalatine duct cysts are the most common nonodontogenic cyst of the oral cavity seen in the general population. NPDCs must be distinguished from other maxillary anterior radiolucencies. Vitality testing of teeth adjacent to or involved with a cyst-like lesion is mandatory and the final diagnosis could only be performed after histological analysis. It is important that practitioners are aware of the features of the NPDC.

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