



Incisive Canal Cyst (Nasopalatine Duct Cyst) in a Pediatric Patient – A Rare Case Report

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Case Report

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Abstract

Incisive canal cyst also called as Nasopalatine duct cyst is a rare non-odontogenic and non-neoplastic cyst occurring in the oral cavity. The most common occurrence in the general population usually varies from third to sixth decade. Development of this cyst is uncommon in children. Therefore, the aim of this case publication is to report an occurrence of incisive canal cyst in a 14-year-old Indian male patient. As this cyst is asymptomatic and painless most of the time it is accidentally diagnosed following a radiographic examination. Therefore, knowledge about its occurrence, diagnosis and management is utmost important among pediatric dentist.

Keywords: Incisive Canal Cyst; Heart-Shaped Radiolucency; Non-Odontogenic Cyst; Nasopalatine Duct Cyst; Surgical Enucleation

Abbreviations

NPDC: Nasopalatine Duct Cyst.

Introduction

“Incisive Canal Cyst” also referred as “Nasopalatine Duct Cyst” (NPDC) is the most common developmental, non-odontogenic, non-neoplastic and epithelial cyst of the oral cavity [1]. This cyst develops from remnants of embryonic nasopalatine duct found with a prevalence of 1% in the general population. Other etiologic factors include local trauma, mucus retention and bacterial infection which may provoke the epithelial cell remnants of nasopalatine duct to proliferate and finally leading to cyst formation [2]. They are located in the midline of anterior maxilla (median of the palate) near the incisive foramen. The first description of this cyst is given by Meyer AW [3] in 1914, and called by various synonyms like incisive duct cyst, fissural cyst, maxillary midline cyst and anterior middle palatine cyst.

These cysts show a predilection for males than females (ratio ranging from 2.5:1) and reported in 40 to 60 years of age. Radiographically they found between the roots of the maxillary central incisors and appears as a heart-shaped radiolucency. Most of the time, they are asymptomatic and slow growing and rarely produce an elevation in the anterior portion of the palate [1-3]. The aim of this research paper is to showcase occurrence of incisive canal cyst in 14-year-old male Indian patient.

Case Report

A 14-year-old Indian male patient reported to a private dental clinic seeking treatment for the irregularly positioned lower anterior teeth. Detailed examination of the patient was carried out and scheduled for the orthodontic treatment. After a month, patient reported complaining of small soft tissue swelling present behind the upper front teeth. The details of patient presented with soft tissue swelling is shown in Table 1 (Figures 1 & 2).

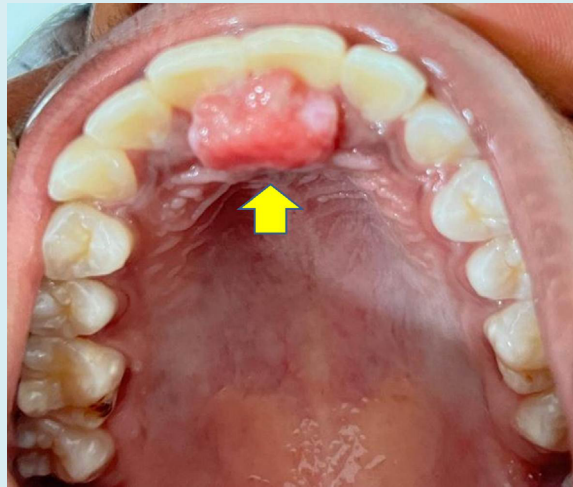


Figure 1: Intraoral photograph showing small soft tissue swelling at the incisive papilla behind the two central incisors (Yellow arrow).

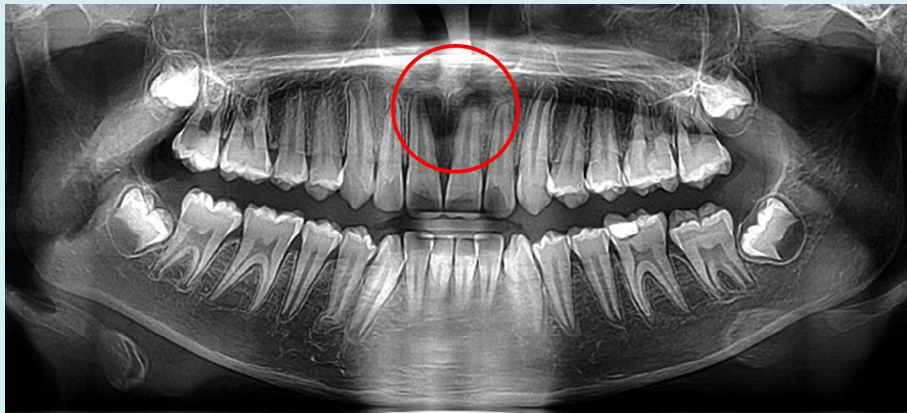


Figure 2: Panoramic radiograph showing incisive canal cyst or nasopalatine duct cyst between permanent maxillary two central incisors (Red circle).

Age Gender Ethnicity	Chief Complaint	Clinical Features (Figure 1)	Radiographic Features (Figure 2)	Treatment Provided
14 years Male Indian	Complains of small swelling in the upper anterior portion of palate behind the upper anterior teeth.	A painless, small (2X3 cm) soft tissue swelling observed at the incisive papilla behind the maxillary two central incisors. Vitality test revealed vital central incisors.	An ovoid radiolucent lesion observed at the incisive foramen between two maxillary central incisors on panoramic radiograph.	Surgical enucleation of the cyst

Table 1: Patient details with Incisive Canal Cyst or Nasopalatine Duct Cyst.

Complains of small swelling in the upper anterior portion of palate behind the upper anterior teeth.

A painless, small (2X3 cm) soft tissue swelling observed at the incisive papilla behind the maxillary two central incisors.

Vitality test revealed vital central incisors. An ovoid radiolucent lesion observed at the incisive foramen between two maxillary central incisors on panoramic radiograph, surgical nucleation of the cyst.

Discussion

Exploring of dental literature pertaining to odontogenic and non-odontogenic pathologies including either cysts or tumors occurring in humans highlighted numerous publications [4-10]. Incisive canal cyst or nasopalatine duct cyst is rarely reported in children with first or second decade of life and reported more in adults. In differential diagnosis, periapical cyst or granuloma, inflammatory periapical lesions and sometimes wide incisive foramen is considered with the incisive canal cyst. Most of the time, they are asymptomatic and detected on routine radiographic examination [11,12]. However, in some cases a tiny swelling or painful swelling and drainage at the anterior part of palate have been reported. But in the present case, patient had soft, painless small swelling in the anterior part of the palate behind the maxillary right and left central incisors. Recently Talebi A, et al. [2] reported occurrence of nasopalatine duct cyst as a delayed consequence of dental implant placement in the anterior maxilla while placement of a dental implant. In the case described here, clinical features, radiological features and histological features were suggestive for incisive canal cyst.

In larger cyst, the two central incisors get displaced along with its roots. Hence, based on their position these cysts are classified as central and unilateral. There is no prevalence for side affected. On radiographic examination, they appear as well-defined round or oval radiolucency in the dental midline, and sometimes appear as heart-shaped radiolucency. This is because during cyst expansion, the cyst becomes notched by the nasal septum or nasal spine is superimposed on the radiolucent area [11-13].

Management of this cyst includes surgical treatment which depends on the size and location of the cyst. If the cyst is large, marsupialization is recommended to first to reduce the size of the cyst later followed by enucleation. In addition to this autogenous bone grafting has also been suggested following cystectomy in case of larger cyst [1-3,14]. During surgical enucleation of the cyst, incision and reflection of flap is carried out using either sublabial or palatine approach. In the present case too, palatine approach was used for the enucleation of the cyst. Histologically, in 71% of the cases, these cysts consist of columnar, squamous, cuboidal or some combination of these epithelial cell types. Respiratory epithelium was found in only 9.8% of cases [14,15].

Francoli JE, et al. [12] performed a retrospective observational study comprising a period of 36 years from 1970-2006. Authors found only 22 patients with histopathological confirmation of nasopalatine duct cyst. In all cases, surgical treatment was carried out under local anesthesia which included the dissection and removal of

the cyst adopting a usual palatine approach. No statistically significant correlation was observed between the size of the lesion and patient age, although the size of the cyst differed according to the patient gender with a mean diameter of 16 mm in males and 12 mm in females. Authors also recorded absence of root resorption and loss of vitality of the upper incisors following surgery. Radiological features showed rounded structure in 15 cases and heart-shaped structure in the remaining 7 cases. In the majority of the cases, periapical, occlusal and panoramic radiographs were used to identify the lesion.

However, in doubtful cases, computed tomography scan was also performed. In addition to the palatal approach, Sheikh OA, et al. [14] and Kagoya R, et al. [15] suggested management of this cyst by transnasal endoscopic marsupialization. Therefore, from the literature search it is evident that an awareness about occurrence of various intra oral soft tissue lesions is highly essential among clinicians dealing with children [4-10,16,17].

Conclusion

Although development of incisive canal cyst or nasopalatine duct cyst is rare, detailed knowledge about its occurrence, diagnosis, differential diagnosis and management is highly essential among all dental professionals to provide appropriate care to the patient.

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