



PEDIATRIC PRESENTATION OF A NASOPALATINE DUCT CYST: A CASE REPORT AND REVIEW

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ABSTRACT One of the most prevalent non-odontogenic, non-neoplastic developing cysts is the nasopalatine duct cyst (NPDC). It emerges from the incisive canal's nasopalatine duct's epithelial remnants and crosses the anterior maxillary midline. Here we report an unusual instance of a 9-year-old child having a Nasopalatine duct cyst, Examination showed a non-tender midline palatal swelling. CT revealed a well-defined radiolucency in the incisive canal, displacing roots. The cyst was enucleated, and histology confirmed a nasopalatine duct cyst with characteristic epithelial lining and neurovascular elements.

KEYWORDS : Nasopalatine Duct Cyst, Incisive Canal Cyst, Midline Palatal Swelling.**INTRODUCTION**

- Nasopalatine duct cysts, also known as incisive canal cysts, form from embryogenic remains of the nasopalatine duct, which is the developing fetus's communication system between the nasal cavity and anterior maxilla. Meyer was the first to characterize the nasopalatine duct cyst (NPDC) in 1914.⁴
- Near the incisive foramen, in the midline of the front maxilla, most of these cyst's form. It affects around 1% of people and is one of the most prevalent nonodontogenic cysts of the oral cavity.⁴
- Usually asymptomatic, nasopalatine duct cysts are often detected on routine radiographs. When symptomatic, they may present as midline palatal swelling, pain, or discharge. Unlike radicular cysts, adjacent teeth are typically vital, making pulp vitality testing important for diagnosis.⁴
- Although the exact origin of NPDC is unknown, local trauma, infection, and spontaneous growth are all potential causes. It arises from the growth of nasopalatine duct embryological epithelial remnants.
- Here We talk about an unusual instance of a 9-year-old child having a Nasopalatine duct cyst.

CASE REPORT

A 9-year-old male presented to the ENT outpatient department with a complaint of a painless swelling in the midline of the hard palate noticed over the past one month. There was no history of trauma, dental infection, or systemic illness.

On Examination:

A swelling in the anterior hard palate region is present

**Figure 1** Showing The Swelling In Anterior Hard Palate Region

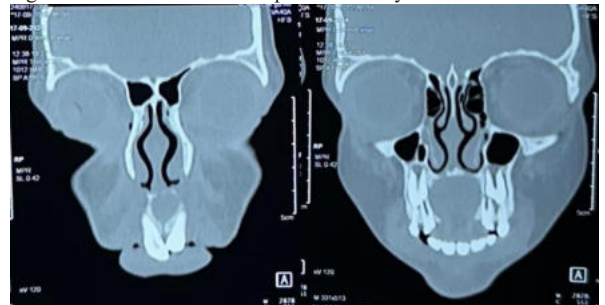
Inspection: On intraoral examination, a smooth swelling was noted in the anterior hard palate, just posterior to the central incisors, extending across the midline. The overlying mucosa was intact and non-ulcerated. There was no associated lymphadenopathy or nasal obstruction.

Palpation: firm, non-tender no local rise of temperature

Investigations: Routine Blood Investigations – within normal limits.

RADIOLOGICAL EXAMINATION –

CT PNS PLAIN: Well defined cystic lesion of size appx 2.3 X 2.1 cm with peripheral calcifications noted in the hard palate, localized to the region of incisive canal → Nasopalatine duct cyst

**Figure 2** Showing A Well-defined Cystic Lesion Localized To The Region Of Incisive Canal**Provisional Diagnosis: NASOPALATINE DUCT CYST**

PLANNED FOR ENUCLEATION OF THE CYST UNDER GENERAL ANESTHESIA

**Figure 3** Showing Midline Elliptical Palatal Mucoperiosteal Incision Being Given

SURGICAL MANAGEMENT –

- Under GA, Endotracheal intubation
- Infiltration around the swelling with Injection LIGNOCAINE 2% with ADRENALINE and midline elliptical palatal mucoperiosteal incision is given
- The incision was deepened, and a mucoperiosteal flap was carefully elevated to expose the underlying palatal bone and cystic lesion.
- After adequate exposure, the overlying bone was thinned and gently curetted to access the cyst cavity. The cyst was found to be well-encapsulated and was enucleated in toto without perforation.



Figure 4 Showing Exposure Of The Cyst

- The mucoperiosteal flap was repositioned and secured using 3-0 silk sutures.
- The excised specimen was sent for histopathological examination



Figure 5 Showing Excised Cystic Lesion.

- The patient was kept nil per oral for 6 hours postoperatively, then started on soft, cold diet.
- Analgesics and a 5-day course of broad-spectrum antibiotics were prescribed.
- Antiseptic mouth rinses (chlorhexidine) were advised twice daily for 7 days.
- Instructions were given to avoid trauma or pressure over the surgical site and to maintain good oral hygiene

Histopathological Report:

Sections studied show the excised cyst wall consists of a fibrous connective tissue capsule partially lined by pseudostratified ciliated columnar epithelium, with focal areas exhibiting stratified squamous epithelium. The connective tissue stroma contained neurovascular bundles, mucous salivary gland elements, and a mild chronic inflammatory infiltrate. No evidence of malignancy was noted.

These histological features are suggestive of a “**NASOPALATINE DUCT CYST**”.

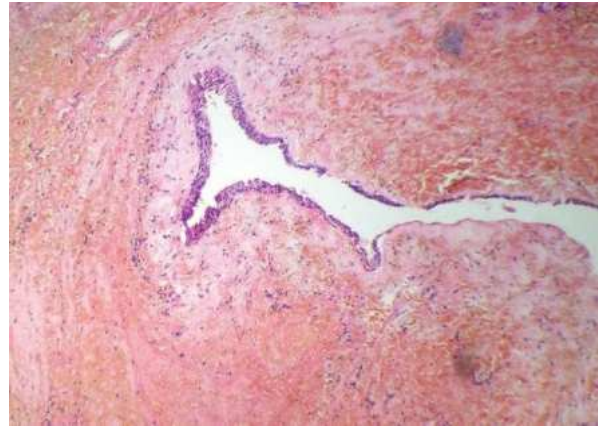


Figure 6- Histopathological Picture Of Nasopalatine Duct Cyst

Final Diagnosis- NASOPALATINE DUCT CYST**Postoperative Course And Follow Up:**

- The postoperative period was uneventful. The patient was monitored for 24 hours and discharged the following day with instructions for maintaining oral hygiene and adhering to a soft, cold diet.
- A 5-day course of antibiotics and analgesics was prescribed, along with chlorhexidine mouth rinses.



Figure 7 Shows At The 1-week Follow-up, The Palatal Mucosa Showed Satisfactory Healing, With No Signs Of Infection.

Subsequent follow-ups at 1 month and 6 months revealed complete mucosal healing, no residual swelling, and no signs of recurrence. The patient remained asymptomatic and had no complaints related to speech, mastication, or nasal symptoms.

DISCUSSION

- The most prevalent non-odontogenic cyst of the jaws, the NPDC, can develop at any age, however children are rarely affected. Histopathological analysis confirms the diagnosis of NPDC, which is based on clinical and radiographic findings.⁴
- The differential diagnosis of a nasopalatine duct cyst includes several conditions such as odontogenic keratocyst, radicular cyst, periodontal cyst, an enlarged but normal incisive canal, and median palatine cyst.
- Because of its symptoms that resemble those of a radicular cyst or granuloma, several writers think that its prevalence is substantially larger than what is reported in the literature. The nasopalatine duct cyst may be mistakenly identified as a periapical lesion.⁴
- The most common kind identified by histopathologic analysis is stratified squamous epithelium. The pseudostratified columnar epithelium is also identifiable in a few cases. Cilia and goblet cells may accompany the epithelium. Usually, the fibrous wall contains veins, arteries, and nerves.^{7,8}

- Melanin pigments, muscle, adipose tissue, reactional bone formation, and daughter cysts are further findings. In certain instances, there may also be small salivary glands and cartilage islands. The cyst's straw-colored fluid is made up of leukocytes, erythrocytes, bacteria, and desquamated epithelial cells.^{7,8}
- While marsupialization has been used for bigger cysts, surgical enucleation is the method used to treat NPDCs.^{9,10,11}
- Following complete enucleation of the nasopalatine duct cyst, recurrence is uncommon. Although there have been cases of nasopalatine duct cyst malignant transformation, this is a very uncommon consequence.¹²
- This case report makes a valuable contribution to the literature by documenting a rare instance of a nasopalatine duct cyst in a pediatric patient. It enhances current knowledge of oral cystic lesions in children, especially those occurring in the nasopalatine region, which are infrequently reported in this age group.

CONCLUSION

- Nasopalatine duct cysts are the most common non-odontogenic developmental cysts of the maxilla, arising from epithelial remnants within the incisive canal. Though typically asymptomatic and incidentally discovered, they may occasionally present with swelling, pain, or drainage in the anterior hard palate.
- This case highlights a rare pediatric presentation of such a lesion, reinforcing the importance of including it in the differential diagnosis of anterior palatal swellings in children.
- Diagnosis is based on characteristic clinical and radiographic features, and complete surgical enucleation remains the standard and effective treatment, with an excellent prognosis and low recurrence rate.
- Reporting such uncommon cases expands clinical awareness and strengthens the literature on maxillofacial cysts in pediatric patients.

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