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Treatment of a Secondarily Infected Nasopalatine Duct Cyst: A Case Report

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Abstract: Nasopalatine duct cyst (NPDC) is an intraosseous, developmental, epithelial, non-neoplastic cyst and is considered the most common non-odontogenic cyst of the midline anterior palate. This cyst develops mainly from epithelial remnants in the nasopalatine duct. Following the non-vital pulp, lesions may develop in the periapical area around the apex of the anterior teeth due to the spread of infection and the formation of NPDC. Radiographically, the NPDC is well-defined round or roughly heart-shaped. Enucleation is the preferred treatment plan for removing NPDC. The presented report deals with the diagnosis and treatment of NPDC in a 30-year-old male patient with no complaints or symptoms.

Keywords: Nasopalatine duct cyst, CBCT, Diagnosis

Introduction

Nasopalatine duct cyst, first described by Meyer in 1914, is the most common non-odontogenic lesion resulting from the proliferation of epithelial remnants of the embryological nasopalatine duct (Garg et al., 2019). However, the etiological factors and exact pathogenesis are still unknown (Kobashi et al., 2017). Epidemiologically, NPDC accounts for approximately 5% of all jaw cysts and 80% of all non-odontogenic cystic lesions. It is most common in patients aged 30-60 years and has a male/female ratio of approximately 3:1 (Garg et al., 2019). NPDCs are localized mostly at the midline of the anterior hard palate and most lesions present as a constant swelling into the oral cavity palatal to the incisors. Rarely, a lesion deeper within the incisor canal may occur and present as a swelling of the labial alveolus or swelling at the base of the nose (Srivastava et al., 2013).

Radiographically, a well-defined corticated oval-round shaped lesion is seen with a total radiolucent internal structure which is located in the nasopalatine canal or foramen (Conte Neto et al., 2010). Most lesions are asymptomatic; however, some cases may have diverged central incisor roots with/without root resorptions. Nasal fossa floor may be displaced superiorly in some cases. A large incisive foramen and a radicular cyst should be considered in the differential diagnosis. Large nasopalatine foramina (>6mm) may mimic the appearance of a cyst so previous radiographs should be evaluated carefully and since the chronic apical periodontitis is located at the apical region of non-vital teeth, vitality tests should be performed. Because of the superposition of the anterior nasal spine, orthopantomographs may reveal a heart-shaped lesion which is most

specific for NPDCs. NPDC should be treated by complete removal with a combination of labial and palatal surgical approaches (Srivastava et al.).

Case Report

A 30-year-old male patient was referred to our clinic for poor aesthetics at maxillary central incisor teeth without any clinical symptoms and asked for new veneers. No medication or diseases was present in the anamnesis. Extraoral examination revealed no medical abnormality in the skin, lymph nodes, and muscles. Intra-oral examination revealed deep dentin caries extending into the pulp chamber in maxillary left first premolar tooth and metal-supported porcelain crowns which had deformities.Orthopantomograph revealed apical lesions at the apical region of maxillary left first incisor and maxillary right first incisor and behind those apical lesions, another radiolucency was present at the midline (Figure 1).

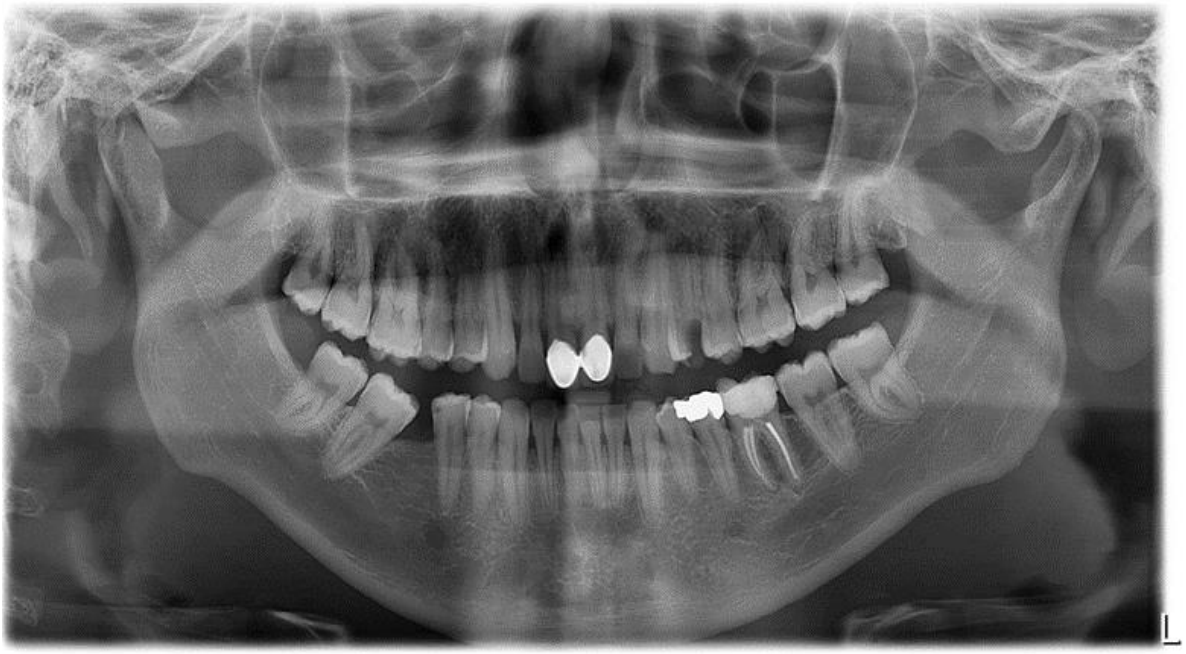

Figure 1. The radiolucency is located at the maxillary midline.

Cone-Beam Computed Tomography (CBCT) was performed in order to evaluate those three radiolucencies and a well-defined 7.98 x 7.52 mm lesion with total radiolucent internal structure was detected in the nasopalatine canal (Figure 2).

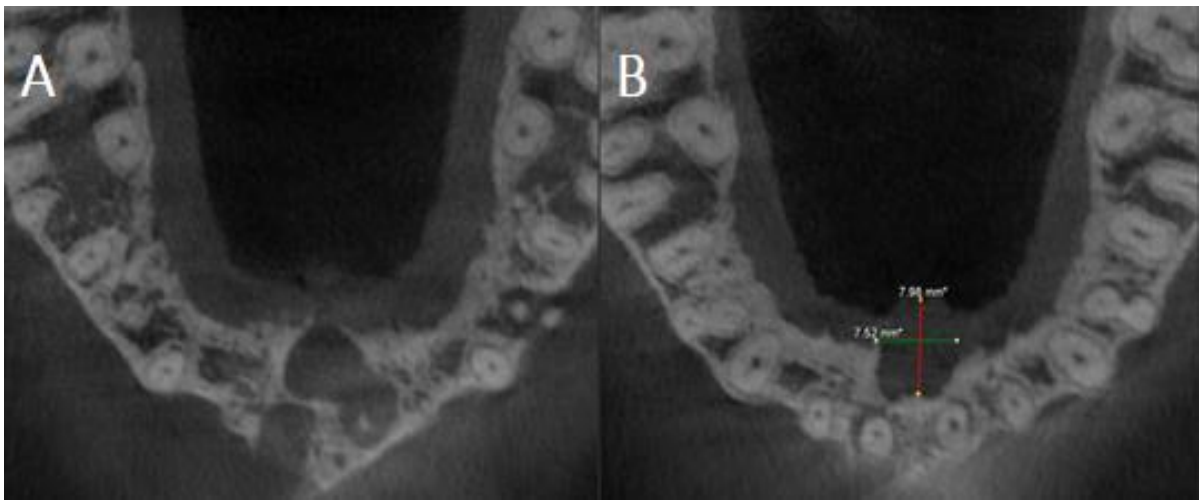

Figure 2. (A) Three radiolucent lesions at the maxillary anterior site. (B) well-defined 7.98 x 7.52 mm lesion in the nasopalatine canal.

It was seen that the maxillary right central incisor tooth area had buccal cortical plate destruction while the maxillary left central incisor tooth area had palatal cortical plate destruction (Figure 3). Given that the NPDC was located at the palatal site of central incisors, NPDC was likely secondarily infected.

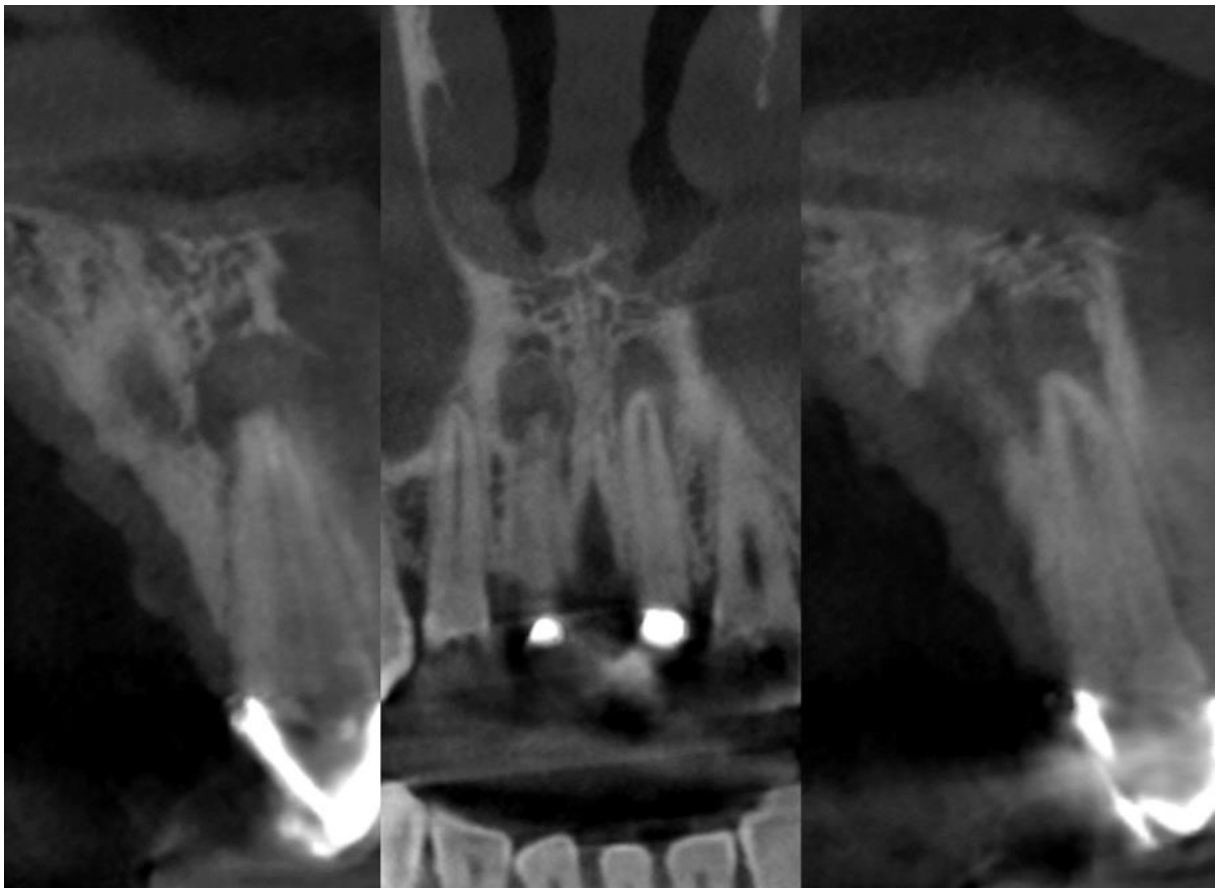

Figure 3. Cortical plate destructions at maxillary central incisor area.

Palpation of the relevant region revealed minor swelling and after the removal of the crowns, a vitality test was performed on both central incisor teeth in order to make a differential diagnosis between the radicular cyst and early periapical cemento-osseous dysplasia. Both teeth were necrotic so it was decided that two chronic periapical periodontitis were in contact with NPDC which is located at the palatal site. Following the differential diagnosis, root canal treatment was performed to both central incisors and then the NPDC was completely removed by surgical enucleation following the obtainment of informed consent.

For surgical excision of NPDC, an envelope flap was raised at the palatal region under local anesthesia (Ultracaine DS). Following the excision of NPDC, a trapezoidal flap was raised for apical resections of both maxillary left and right central incisors. MTA was applied retrogradely following the resections. Vertical incisions were sutured with basic suture and circular incisions were sutured with a vertical mattress. 2 root apexes were excised and the lesion which was prediagnosed as NPDC was put in different containers with 10% formalin solution and sent to the histopathology laboratory. A broad-spectrum oral antibiotic (Augmentin 1000mg), a flurbiprofen NSAID (Majezik 100mg), and a Benzydamine mouthwash (Andorex Mouthwash 200mL) were prescribed to the patient. It was told the patient should take the antibiotic and NSAID twice a day and should use the mouthwash three times a day starting from the following day of the operation. The sutures were removed after 1 week. A histopathological examination verified the lesion as NPDC and intensive infection was observed at the specimen which was taken from the root apices.

Discussion

NPDC is the most common non-odontogenic cyst which is seen in the oral and maxillofacial complex. Although higher incidence was found among males in some studies, equal gender distribution was observed by da Silva Barros et al. in their clinical research (da Silva Barros et al., 2018). Most cases are diagnosed during the routine

clinical and radiographic examination, as in our case. Usually, there are no clinical symptoms except for a small swelling behind the palatine papilla (Faitaroni et al.).

When NPDC is associated with apical periodontitis, false treatments may be performed due to the difficulty of diagnosis. Therefore, correct diagnosis of apical periodontitis before starting the treatment of endodontic infections is an important step in establishing a treatment plan (Faitaroni et al., 2011). Although it is believed that NPDC originates from the nasopalatine canal or palatal soft tissue residues, it has been reported that it may also be associated with periodontal periodontitis originating from remnants of the Malassez epithelium. Additionally, trauma and infection may be initiating factors for the development of NPDC (da Silva Barros et al., 2018).

CBCT is of great importance in preventing misdiagnosis of NPDCs as apical periodontitis. In the present case, based on the radiological and clinical findings obtained, it is thought that the primary cause of endodontic infection is bacterial, and NPDC developed independently and is secondarily infected with an apical periodontitis lesion. After histopathological evaluation, histomorphological findings were consistent with inflammatory non-odontogenic cysts were reported.

Conclusion

Nasopalatine duct cysts are the most common non-odontogenic cysts of the oral cavity in the general population and should be differentiated from other maxillary anterior radiolucencies based on clinical and radiographic examination. To avoid unnecessary endodontic treatment, the vitality test of the teeth adjacent to the cyst-like lesion is mandatory and the definitive diagnosis can only be made after histopathological analysis. Although some authors recommend Marsupialization of large NPDCs followed by enucleation, the preferred treatment is surgical excision of the cyst.

Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the authors.

References

Conte Neto, N., Bastos, A. S., Dantas, J. F. D. O., Carvalho, W. R. S. D., Andrade, C. R. D., & Vieira, E. H. (2010). Nasopalatine duct cyst: a case report within 3 years follow-up. IJD. *International Journal of Dentistry*, *9*(3), 155-159.

da Silva Barros, C. C., de Pontes Santos, H. B., Cavalcante, I. L., Rolim, L. S. A., Pinto, L. P., & de Souza, L. B. (2018). Clinical and histopathological features of nasopalatine duct cyst: A 47-year retrospective study and review of current concepts. *Journal of Cranio-Maxillofacial Surgery*, *46*(2), 264-268.

Faitaroni, L. A., Bueno, M. R., Carvalhosa, A. A., Mendonça, E. F., & Estrela, C. (2011). Differential diagnosis of apical periodontitis and nasopalatine duct cyst. *Journal of endodontics*, *37*(3), 403-410.

Garg, R., Rathi, A., Mittal, G., Sharma, S., Agarwal, A., & Dwivedi, P. (2019). Nasopalatine duct cyst: A case report.

Kobashi, H., Ishii, S., & Yakushiji, N. (2017). Huge nasopalatine duct cyst treatment with the help of cystectomy and bilateral fenestration surgery of the nasal cavity: A case report. *Oral and Maxillofacial Surgery Cases*, *3*(4), 112-115.

Srivastava, S., Misra, N., Agarwal, R., & Pandey, P. (2013). Nasopalatine canal cyst: often missed. Case Reports, 2013, bcr2012007548.

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