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CBCT imaging of extensive nasopalatine duct cyst: A case report

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ABSTRACT
The nasopalatine duct cyst (incisive canal cyst) (NPDC) is the most common non-odontogenic cyst in the oral cacity, occuring approximately 1% of the population. It is an uncommon condition that generally occurs in the maxillofacial bones. This lesion may be clinically silent for years without any symptoms. On examination, painless swelling, which was tender and fluctuant, was confirmed in the midline of his anterior hard palate. The overlying mucosa appeared normal in color. We performed CBCT to better identify lesion.This case demonstrates the typical clinical and radiographical features of a NPDC. CBCT can provide high-resolution images, short scanning time, and reduced radiation dose. CBCT therefore provides the opportunity for multiplanar imaging and three-dimensional (3D) information.
Keywords: CBCT, nasopalatine duct cyst, diagnosis.

INTRODUCTION

Nasopalatine duct cysts (NPDC) are classified among the epithelial non-odontogenic cysts and are a developmental lesion which arises from the epithelial remnants of the nasopalatine duct which connects the nasal and oral cavities in the embrio.[1,2] The aetiology of the nasopalatine duct cysts unknow, but possible causes include trauma, infection and spontaneous proliferation.[1]
In many cases are asymptomatic and diagnosed during routine examination.[1,3] Clinical symptoms include drainage, swelling and pain.[1,4] Radiographically, NPDC is usullay appear as a round or ovaid radiolucency in the anterior palate.[1] It is easy to estimate that extensive large NPDC.

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In this report, we show a rare case of extensive large NPDC with nasolabial protrusion located on the maxilla by threedimensional (3D) computed tomography (CT) evaluation.

CASE REPORT

A 62-year-old male patient was visited to Atatürk University Faculty of Dentistry, Department of Oral Diagnosis and Radiology for palatal swelling. On examination, painless swelling, which was tender and fluctuant, was confirmed in the midline of his anterior hard palate. The overlying mucosa appeared normal in color. Painless swelling was appeared at the mucolabial fold. The maxillary permanent incisors responded positively to thermal sensibility testing. There was no previous history of trauma to produce these symptoms. There was no lymphadenopathy in extra-oral examination. We decided to perform a cone beam computerized tomography (CBCT) (New Tom FP; Quantitative Radiology, Verona, Italy) scan for definition of this lesion. The axial

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CT scan showed a well-circumscribed ovoid radiolucent area that included both sides of the incisive canals in the center of the hard palate (Figure 1a). A coronal scan showed the largest diameter was 30 mm (Figure 1b). In addition, reconstruction images were obtained to evaluate its 3D dimensions and relation to surrounding structures (Figure 1c). A sagital scan showed anterior maxillary cortex and the palatal bone was resorbed (Figures 2a-d).

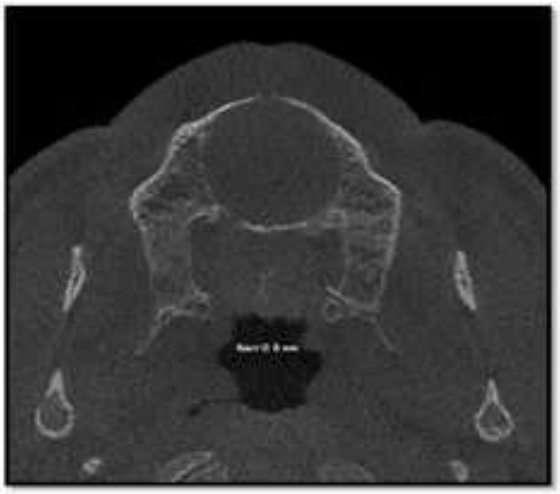

Figure 1. a; Axial CT of the patient showing the radiolucent area attached to the mandibular notch (arrows).

Figure 1. b; Coronal CT scan demonstrating medial and lateral dimensions of the radiolucent area (arrows).

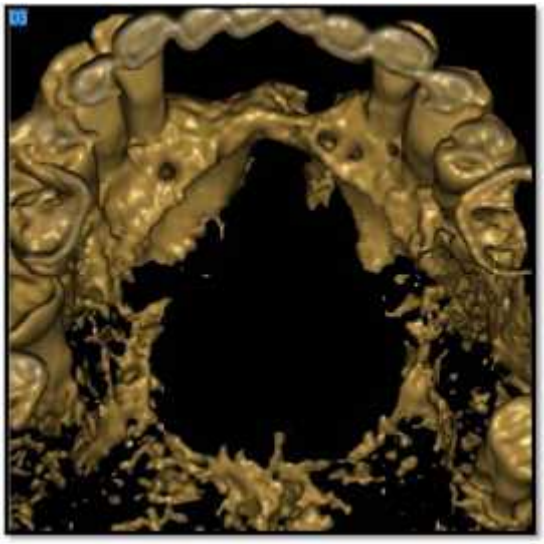

Figure 1. c; Medial and lateral dimensions of the radiolucent area (arrows) on the inferior view of the 3D CT image.

DISCUSSION

Nasopalatine duct cysts (NPDCs) are the most common non-odontogenic cyst of the gnathic bones and are affect approximately one out of every one hundred persons.[5] The NPDC is considered a fissural cyst originating from the epithelium trapped during the fusion of the embryonic processes between the nasal cavity and anterior maxilla in the developing fetus.[5,7]

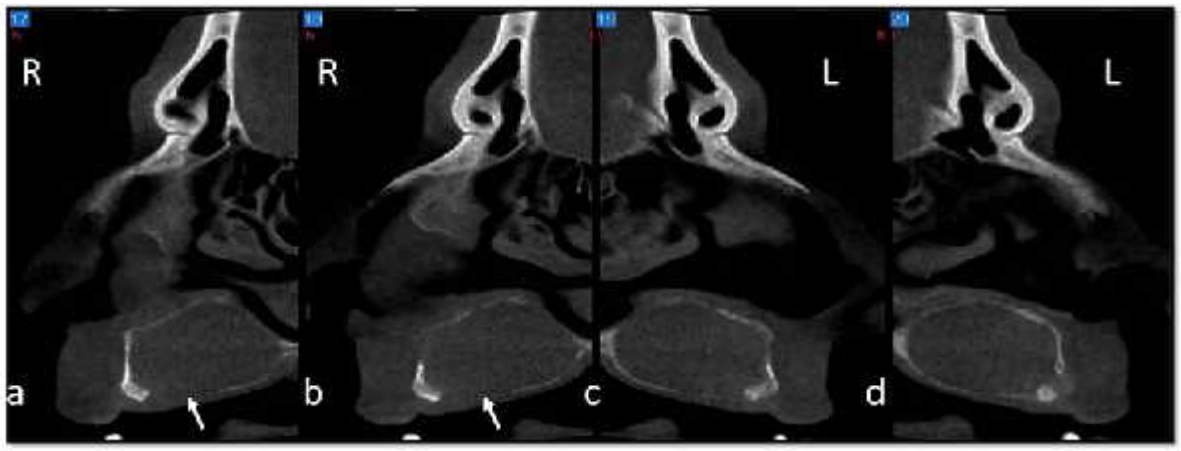

Figure 2. Expansions and perforation (arrows) of incisive canal cysts is seen on the sequential crossectional slices (a, b, c, d).

Nasopalatine duct cysts affect a wide age range, however, most present in the forth through sixth decades of life. There is a slight male predilection.[5] Vasconcelos et al. found a higher incidence of NPDC among males than among females.[6]

The aetiology of the nasopalatine duct cysts include trauma, infection and spontaneous proliferation.[1] No history of trauma and infection was recorded in our case. Most patients with NPDCs are not aware of any marked clinical symptoms and the cyst is usually detected during routine clinical and/or radiographic examination.[6] Despite the majority of cases being asymptomatic, we have detected swelling, which was tender and fluctuant, during clinical examination. Pain is an uncommon symptom in cases of NPDC and Vasconcelos et al. found that none of the patients reported pain at presentation.[6] The most common symptom of this lesion has been reported as palatal and/or labial swelling and following resorption of the maxillary bone like our presented case.[3] Although the size of NPDC is varied, this lesion is commonly observed to be less than 20 mm in diameter.[1] The largest diameter was 30 mm in our case.

Radiographically, NPDCs usullay appear as a round or ovaid radiolucency in the anterior palate.[1,7] The larger lesions often cause dislocations of neighboring incisors but seldom root resorption.[3] But our case did not reveal this symptom. In our case, CBCT examination showed the typical clinical and radiographical features of a NPDC and anterior maxillary cortex and the palatal bone was resorbed. In our case, the cyst did not cause root resorption. This situation can be seen in CBCT. CBCT can provide high-resolution images, short scanning time, and reduced radiation dose. CBCT therefore provides the opportunity for multiplanar imaging and three-dimensional (3D) information.[8,9]

Conventional radiography might not produce sufficient information about the upper extension of the lesion. It is important that surgeons find the upper limit of lesions in order to plan treatment before operating. This information will be helpful to see the surgeons, perforation of the nasal mucosa and resorption of the palatal bone. CBCT examinations are, thus, often performed to obtain such information.[2] Also, the risk of recurrence or of insufficient bone regeneration can be seen in large cases.[3]

In conclusion, the demographic, clinical data of the NPDC in our case is similar to previous studies. But careful long radiographic observations will be necessary with progressive size of the cyst the risk for postsurgical complications.

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