

Nasopalatine Duct Cyst in a 31 Year-Old Male: Imaging Findings in Computed Tomography

Quiste del Canal Nasopalatino en un Hombre de 31 años:
Hallazgos en Imágenes de Tomografía Computarizada

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ABSTRACT: A 31-year-old man is presented and is evaluated by panoramic radiography. As a finding, an extensive lesion with a cystic appearance was detected in the anterior part of the maxilla. Computed tomography shows a lesion corresponding to the characteristics of a cyst. In the histology the combination of two types of epithelium is observed, pseudostratified columnar and stratified squamous, confirming that this was a nasopalatine duct cyst.

KEY WORDS: nasopalatine duct cyst, incisive canal cyst, maxillary cyst, computed tomography.

INTRODUCTION

The nasopalatine duct cyst (NDC) or incisive canal cyst is a non-odontogenic cyst that arises in the midline of the anterior maxilla, just posterior to the central incisors (Calvacante *et al.*, 2021; Speight, 2022). It arises from the proliferation of epithelial remnants of the nasopalatine duct in the incisive canal. It is the most common non-odontogenic cyst found in adults, with a broad age range, however, most cases occur between the fourth and sixth decades of life (Barros *et al.*, 2018; Speight, 2022).

The NDC is almost always located in the midline of the palate, but occasionally may be located laterally if it has arisen in a secondary canal (Barros *et al.*, 2018; Speight, 2022). In a significant proportion of patients the lesion is asymptomatic and may be located as an incidental finding in a radiological examination (Speight, 2022). In some cases the cyst can become infected and give clinical expression (Escoda Francolí *et al.*, 2008).

The radiographic image is a well-demarcated, round or oval hypodense lesion next to the central incisors roots (Speigh, 2022). The differential diagnoses

of NDC include radicular cyst, residual cyst, odontogenic keratocyst and a large incisive foramen, with a diameter of 6 mm in the upper limit of normal size (Lang *et al.*, 2021).

CASE REPORT

Panoramic X-ray was performed on a 31-year-old male for routine dental evaluation. In the image a large hypodense lesion was observed in the maxillary midline extending a little more to the left side.

The intraoral examination revealed an increase in volume in the anterior palate and in the buccal area of the anterior alveolar ridge that the patient had not noticed. The panoramic radiograph showed the left central incisor presents endodontic with apical overfilling (Fig. 1). Examination by computed tomography (CT) showed that the lesion extended laterally surpassing the midline (Fig. 2), in height shifts the nasal notch. Expansion in the vestibular and palatal cortical bone was observed (Fig. 3).

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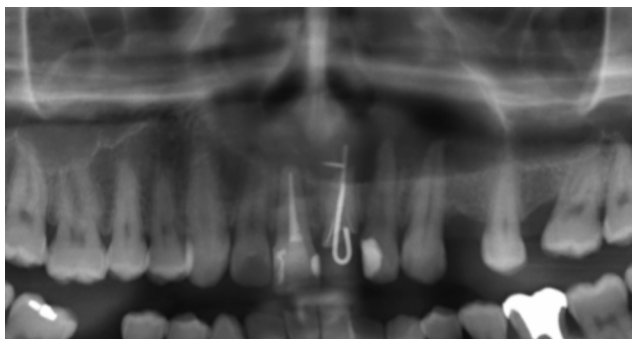


Fig. 1. Close up of panoramic radiography where extensive oval radiolucent lesion and corticalized limit on the anterior maxilla is observed. Central incisors with endodontic treatment and left has a metal pin.



Fig. 2. Coronal CT where extensive periapical lesion in anterior teeth area produces expansion of the nasal cortical bone and slightly in maxillary sinus cortical.

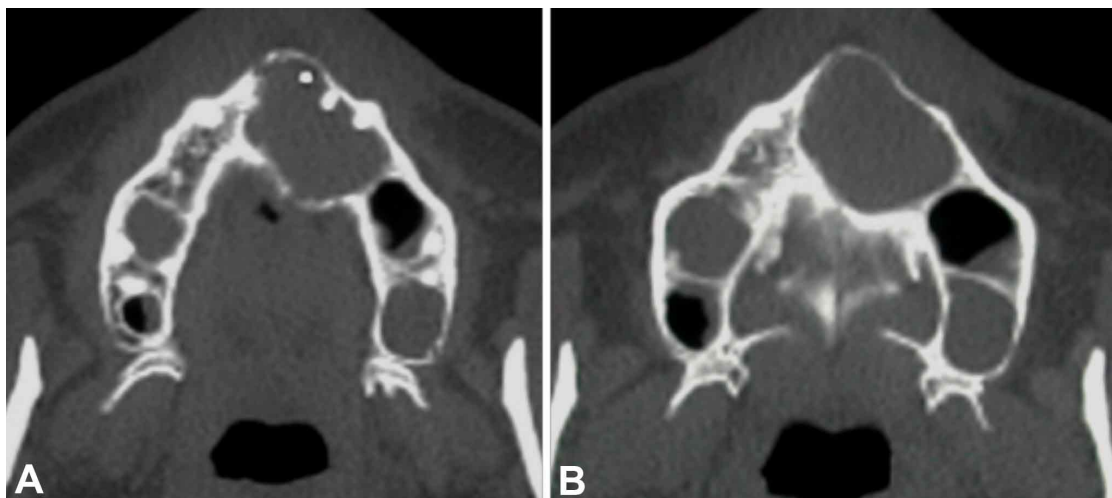


Fig. 3. A and B. Axial CT where showing expansion in the vestibular and palatal cortical bone. Incidentally, thickening of the mucosa of both maxillary sinuses is also observed.

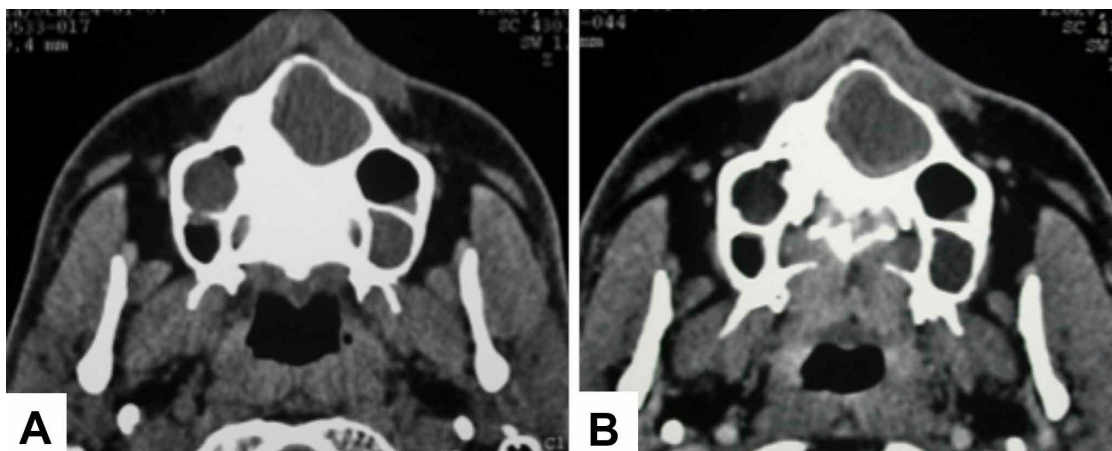


Fig. 4. Axial CT before (Fig. 4A) and after (Fig. 4B) injection of iodinated contrast. Post-contrast peripheral enhancement indicates the cystic nature of the lesion.

In CT axial sections peripheral reinforcement subsequent to injecting iodine contrast medium was observed, suggesting that this was a cyst (Fig. 4). No resorption or displacement of the affected tooth roots. Based on clinical and radiographic findings, diagnostic hypotheses of NDC or radicular cyst tooth 2.1. Biopsy and histopathological study was performed.

Histopathological examination showed a cyst, and the presence of a transitional epithelium, pseudostratified columnar epithelium to a stratified squamous epithelium (Fig. 5). There are cholesterol crystals, which was interpreted as the development of a long standing chronic inflammatory component.

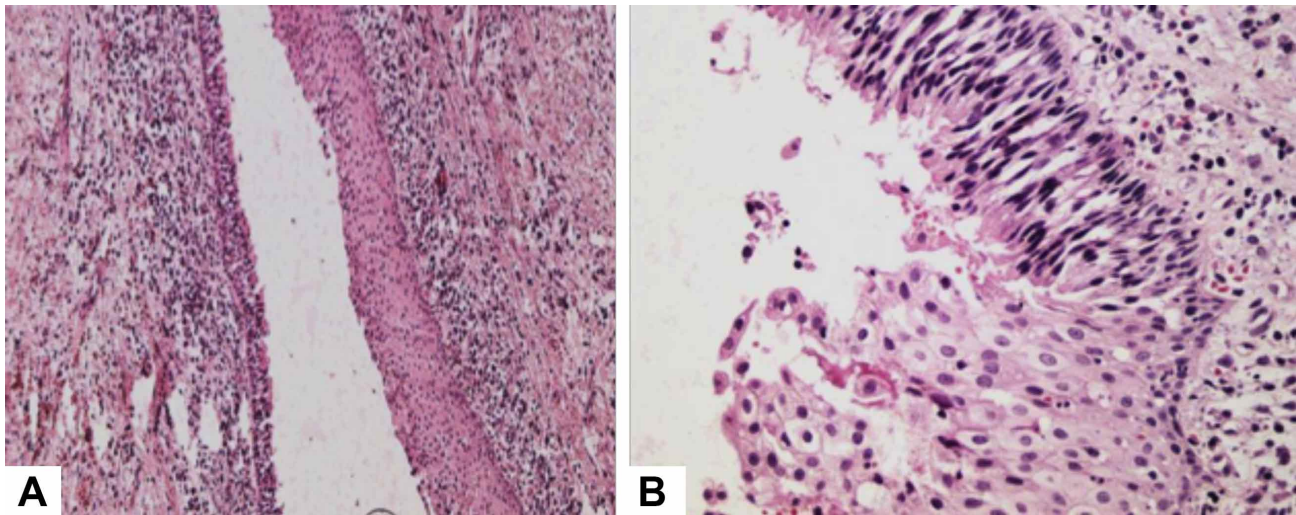


Fig. 5. A and B. Histology shows a cyst with transitional epithelium; pseudostratified columnar epithelium to a stratified squamous epithelium.

DISCUSSION

The NDC is the most common development of non odontogenic cyst in the jaws. It occurs in about 1 % of the population (Righini *et al.*, 2004; Tsuneki *et al.*, 2013). The age distribution is wide, but is seen most often between the fourth and sixth decades of life. Despite being a development cyst is rarely seen in the first decade of life (Nelson & Linfesty, 2010).

The NDC develops from remnants of embryonic epithelial cells. Some authors mention the possibility of trauma and bacterial infection having a role in presentation. It is also suggested that the mucous glands can cause the formation of cysts as a result of mucin secretion. Radicular cyst associated with a non-vital central incisor, residual cyst and odontogenic tumor keratoquistic should be considered as a differential diagnosis (Tsuneki *et al.*, 2013; Barros *et al.*, 2018; Philbert & Sandhu, 2020; Speight, 2022).

Radiological examinations indicate an extensive hypodense maxillary cystic lesion, relative to the midline, round or oval shape with cortical limits next to the apex

of the maxillary central incisors. Intact lamina dura is observed in the central incisors. The diameter can range from 6 mm to 6 cm, making it difficult to distinguish between small NDC or a large incisive foramen. The normal size of the incisive foramen accepted is 6 mm. Larger lesions show marked strain palate cortical, where the floor of the nasal cavity can be moved. The incisive papilla cyst is a variant of the NDC that is only committed to the incisive papilla without affecting the bone (Hisatomi *et al.*, 2003; Calvacante *et al.*, 2021; Speight, 2022).

The epithelial lining of the incisive canal cyst is highly variable and due to its location (palatal, nasal or intermediate) and inflammation. Combinations of more than one type of epithelium can even be found. The most common is the stratified squamous epithelium and then the pseudostratified columnar epithelium. Less common are the simple cuboidal epithelium, and simple columnar epithelium. Inflammatory response can be found associated with the cyst, which is usually chronic type (Tsuneki *et al.*, 2013; Calvacante *et al.*, 2021; Speight, 2022).

In the case presented, almost all the characteristics described are met. Radiographic images show an expansive cystic lesion in the maxillary midline, while histology shows the combination of two types of epithelium: pseudostratified columnar and stratified squamous.

Treatment of complete removal of the lesion under local anesthesia was performed, with careful dissection of the neurovascular bundle of the incisive canal avoiding the formation of a submucosal hematoma. This injury recurrence is rare (Nelson & Linfesty, 2010; Tsuneki *et al.*, 2013; Calvacante *et al.*, 2021; Speight, 2022).

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RESUMEN: Se presenta el caso de un hombre de 31 años, evaluado mediante radiografía panorámica. Como hallazgo se detecta una extensa lesión de aspecto quístico en la parte anterior del maxilar. En la tomografía computada se observa una lesión que corresponde a las características de un quiste. La histología muestra una combinación de dos tipos de epitelio, pseudostratificado columnar y estratificado escamoso, confirmando que se trataba de un quiste del canal nasopalatino.

PALABRAS CLAVE: quiste canal nasopalatino. quiste canal incisivo, quiste maxilar, tomografía computarizada.

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