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Nasopalatine duct cyst – Characteristic histopathological features

KEYWORDS

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The nasopalatine duct cyst (NPDC) is the most common non-odontogenic cyst of the oral cavity.^{1–5} Here, we presented a NPDC in the anterior maxilla of a 19-year-old female patient.

This 19-year-old female patient came to our dental clinic for treatment of a swelling at the anterior maxilla with slight pain for one month. Intraoral examination revealed a swelling at the middle line of the anterior hard palate. Periapical, occlusal, and panoramic radiographies showed a round radiolucent lesion near the periapical region of the teeth 11 and 21. The cystic lesion measured approximately 1.8 cm in greatest dimension. The electric pulp and cold tests demonstrated that both teeth 11 and 21 were vital. Therefore, the clinical diagnosis was a developmental odontogenic cyst or a NPDC. Because the cystic lesion was relatively small, the tentative treatment plan was the total enucleation of the lesion. After discussing with the patient and obtaining the signed informed consent, the cystic lesion was totally excised under local anesthesia. The removed soft tissue specimen was sent for histopathological examination. Microscopically, the cystic lesion was lined by the pseudostratified ciliated columnar epithelium with multiple cystic spaces, a very mild lymphoplasmic cell infiltrate in the fibrous cystic wall (Fig. 1A, B, C and D), and some trabeculae of calcified materials in the focal areas of the cystic lumen (Fig. 1A, B and D). There were several medium-sized nerve bundles (Fig. 1E), a small lobule of minor mucous glands (Fig. 1F), and the small- and medium-sized venules and arterioles (Fig. 1G and H) in the surrounded fibrous cystic wall. The above-mentioned

characteristic microscopic features and the specific contents in the fibrous cystic wall finally confirmed the histopathological diagnosis of a NPDC.^{1–5}

The epithelial lining of the NPDCs is highly variable. The stratified squamous epithelium is the most common type of the lining epithelium, which is present in approximately three-fourths of all NPDCs.¹ The pseudostratified columnar epithelium is the second common type of the lining epithelium that has been reported in from one-third to three-fourths of all NPDCs. The simple columnar or cuboidal epithelium is discovered less frequently. However, more than one epithelial type is generally discovered in the same NPDC.¹ For the diagnosis of the NPDC, although the content of the fibrous cystic wall can be a useful diagnostic aid,³ the clinical findings such as the location of the cystic lesion in the jaw bones, the vitality status of the associated tooth or teeth, and the relation of the cystic lesion to the associated tooth or teeth may also help to confirm the diagnosis of a NPDC.^{1–5}

The NPDC is the most common cyst of non-odontogenic origin in the maxilla.^{1–5} Swanson et al.⁴ reviewed 334 NPDCs and found that the overall mean age of the patients at diagnosis is 42.5 years, and there is a slight male predilection (54%). The mean radiographic diameter of the NPDCs is 17.1 mm. Symptoms are present in at least 70% of the NPDCs. Because the NPDC arises within the incisive canal, medium-sized nerves and small muscular arteries and veins are often found in the fibrous wall of the cyst.¹ Barros et al.⁵ reported the content of the fibrous cystic wall of 30 NPDCs. They discovered nerve bundles in 15 (50%)

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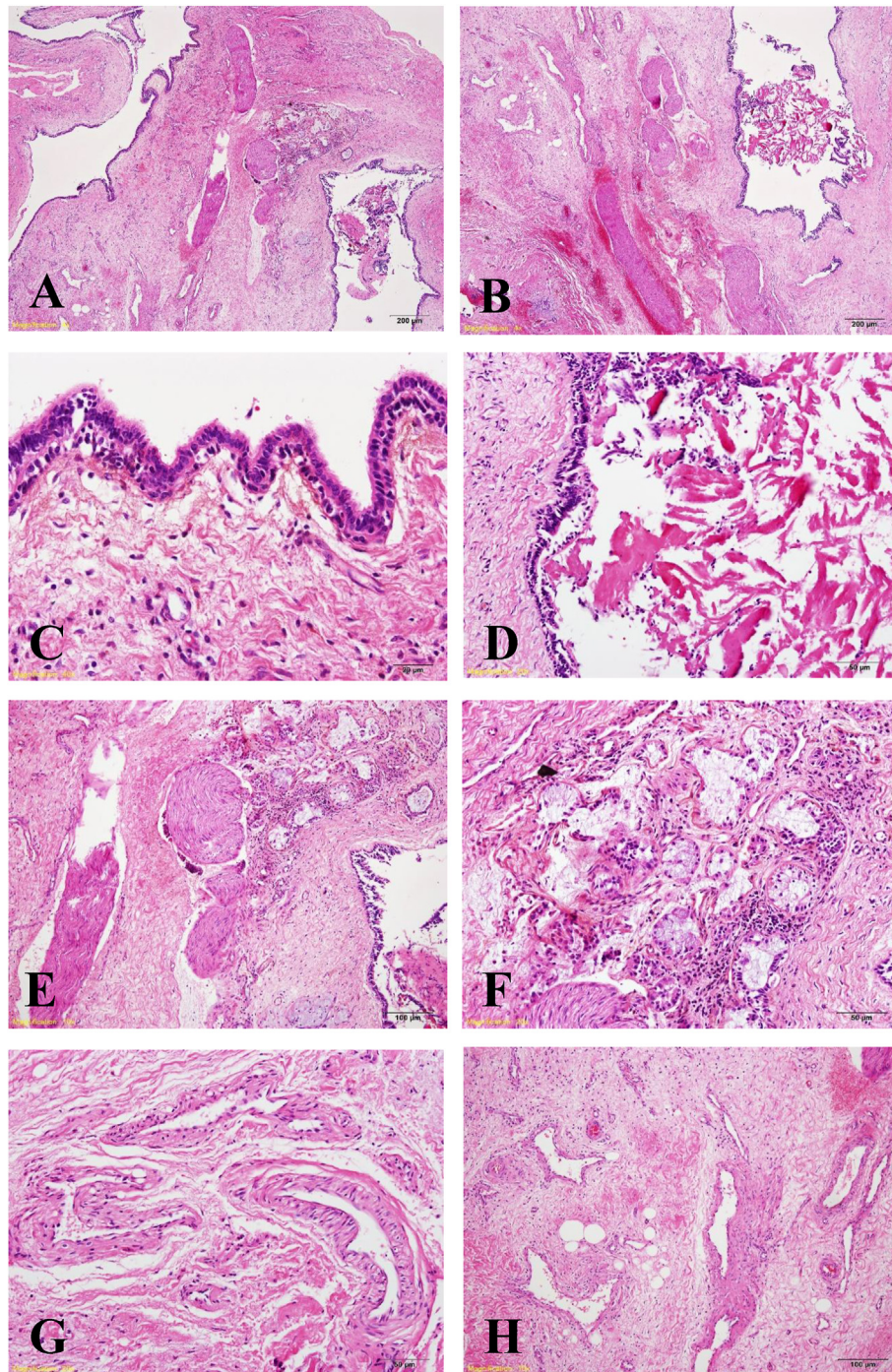


Figure 1 Histopathological photomicrographs of our case of the nasopalatine duct cyst. (A, B, C and D) Low- and high-power photomicrographs exhibiting a cystic lesion lined by the pseudostratified ciliated columnar epithelium with multiple cystic spaces, a very mild lymphoplasmic cell infiltrate in the fibrous cystic wall, and some trabeculae of calcified materials in the focal areas of the cystic lumen (A, B and D). (E, F, G and H) Medium- and high-power photomicrographs demonstrating several medium-sized nerve bundles (E), a small lobule of minor mucous glands (F), and the small- and medium-sized venules and arterioles (G and H) in the surrounded fibrous cystic wall. (Hematoxylin and eosin stain; original magnification, A and B, $4\times$; C, $40\times$; D, F and G, $20\times$; E and H, $10\times$).

NPDCs and minor mucous glands in 7 (23.3%) NPDCs. The small islands of hyaline cartilage are found only occasionally.¹ NPDCs are often treated by the total enucleation. Recurrence is noted in only 2% of the NPDCs.⁴

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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