Clinical and radiographic diagnosis of Nasopalatine Duct cyst treated by total enucleation - Case report

Diagnóstico clínico e radiográfico de cisto do Ducto Nasopalatino tratado por enucleação total - Relato de caso

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ABSTRACT

The nasopalatine duct cyst presents as a cyst of non-odontogenic origin, whose etiology has not yet been defined. However is believed in the theory of the proliferation of embryonic remains of the nasopalatine duct that leads to its formation. It is often detected in routine radiological examinations, which shows characteristics of a radiolucent lesion, defined, with a radiopaque halo, with a heart format due to overlapping of the anterior nasal spine. Because of this, it can be easily confused with an inflammatory periapical cyst from the upper central incisors. Besides, clinically the patient may complain of pain and swelling in the anterior region of the hard palate. The pain, pus, and swelling are usually associated with secondary infection. The present study aims to report a successful clinical case, of the diagnosis of a nasopalatine duct cyst, where the pulp sensitivity test and computed tomography helped in the treatment, that consisted in palatal access and total enucleation of the lesion. The recurrence of this cyst is low and usually affects adults from the fourth to the sixth decade of life. Treatment consists of total enucleation for small cysts or marsupialization followed by enucleation for larger cysts. This way, the imaging exams, and the clinical exam assist in the correct diagnosis, enabling the correct treatment. In our case, the total enucleation of the lesion was satisfactory, since, it did not cause damage to the adjacent structures and was the definitive treatment in only one surgical time. The patient continues been followed up, not showing symptoms or recurrence.

Keywords: Non-odontogenic cysts, Nasopalatine duct cyst, Diagnosis.

RESUMO

O cisto do ducto nasopalatino se caracteriza como um cisto de origem não odontogênica, de etiologia não bem definida. Porém, acredita-se na teoria da proliferação de restos embrionários do ducto nasopalatino que levam a sua formação. Muitas vezes é descoberto em exames radiológicos de rotina, nos quais apresenta a característica de uma lesão radiolúcida, bem definida, com halo radiopaco, com formato de “coração”, devido à sobreposição da espinha nasal anterior. Devido a isto, é facilmente confundido com um cisto periapical inflamatório oriundo dos incisivos centrais superiores. Além disso, clinicamente o paciente pode se queixar de dor, gosto amargo na boca e tumefação na região anterior do palato duro. A dor, o pus e a tumefação geralmente estão associados à infecção secundária. O presente trabalho tem por objetivo relatar um caso clínico do diagnóstico de um cisto do ducto nasopalatino, onde o teste de sensibilidade pulpar e a tomografia computadorizada auxiliaram no tratamento, que consistiu em um acesso palatino para enucleação total da lesão. A recorrência desse cisto é baixa e geralmente acomete adultos da quarta a sexta década de vida. O tratamento consiste na enucleação total para cistos pequenos ou marsupialização seguido de enucleação para cistos maiores. Deste modo, os exames de imagem e o exame clínico auxiliam no correto diagnóstico, possibilitando o correto tratamento. Em nosso caso, a enucleação total da lesão se mostrou satisfatória, visto que, não causou danos às estruturas adjacentes e foi o tratamento definitivo em apenas um tempo cirúrgico. A paciente continua em acompanhamento não apresentando sintomatologia ou recidiva.

Palavras-chave: Cistos não odontogênicos, Cisto do ducto nasopalatino, Diagnóstico.
INTRODUCTION

The nasopalatine duct cyst (NDC) is the most common non-odontogenic cyst of the gnathic bones. It affects about 1% of the population and is preferred by the male sex between the fourth and sixth decade of life. It is classified as a developmental cyst whose etiology has not yet been well defined. It is believed that this cyst originates from the embryonic remnants of the nasopalatine duct, where irritating agents such as trauma and infection may be the trigger for this proliferation (NEVILLE et al., 2009).

The diagnosis can be made by association between clinical, radiographic and histopathological examination. The most common signs and symptoms include swelling in anterior region of the palate, drainage and pain, or the total absence of symptoms. In routine radiographic imaging it can be observed the characteristic of a radiolucent lesion, well-circumscribed near the midline of the anterior region of maxilla, between the apexes of the central incisors (NEVILLE et al., 2009; TSUNEKI et al., 2012; SHYLAJA, BALAJI, KRISHNA, 2013). Histopathological examination should always be performed, in order to rule out diagnostic hypotheses such as neoplasms and inflammatory periapical cyst from upper anterior teeth (NEVILLE et al., 2009; TSUNEKI et al., 2012; WU et al., 2015).

The treatment depends on the size of the lesion and the involvement of adjacent structures. In small lesions enucleation is recommended, however, for large lesions marsupialization followed by enucleation is suggested (NEVILLE et al., 2009). The conjuncture of physical examination, imaging and biopsy, bring a good perspective in relation to diagnosis and prognosis, where the lesion tends to present low recurrence rates (NEVILLE et al., 2009). This way, the aim of this study is to report a clinical case of a patient who was diagnosed with NDC and treated by total enucleation of the lesion, presenting good results.

CASE REPORT

A 35-year-old, female patient sought the Oral and Maxillofacial Surgery team, presenting pain complaints on the palate. Clinically in the anterior region of the palate, an orifice was observed through which there was passage of food. Was also noted, a discrete purulent drainage, and the presence of inflammation (Figure 01).
Figure 01 - Preoperative intraoral clinical examination, presenting an orifice in the anterior region of the palate.

![Figure 01](image)

Source: the authors.

In imaging exams, the cone beam computed tomography in axial sections revealed a hypodense area, well delimited; measuring approximately 1 cm, with the presence of hyperdense halo with a "heart" shape (Figure 02), suggestive of an inflammatory periapical cyst or a nasopalatine duct cyst.
To better direct the diagnostic hypothesis, the cold sensitivity test was performed in teeth 11, 12, 21 and 22. They showed sensitivity, so the possibility of pulp necrosis was ruled out. For this, previous antibiotic therapy was prescribed, and after the remission of the infectious symptomatology an excisional biopsy of the lesion was planned.

The surgical procedure began with the opening of a palatine flap from canine to canine (Figure 03) and exploring the entire region of the incisive foramen, all the contents were curetted. The cavity was inspected and no additional therapy was performed due to the low recurrence of this cyst (Figure 04). Finally, the flap was repositioned and replaced with vicryl 4-0 (Figure 05). The specimen removed with approximately 1 cm in length was sent for histopathological analysis, which later confirmed the definitive diagnosis of nasopalatine duct cyst (Figure 06).

After two weeks, the patient was evaluated, presenting normality. The patient is currently 9 months of follow-up under radiographic control, showing no symptomatology or signs of recurrence.
Figure 03 - Palatine flap from canine to canine, cystic capsule and the incisive foramen.

Source: the authors.

Figure 04 - Appearance of the nasopalatine duct after cystic curettage.

Source: the authors.
3 DISCUSSION

The histopathological characteristics of NDC are variable, can present stratified squamous epithelium coating or in combination with pseudostratified columnar epithelium (with or without
cilia), in addition to simple columnar and cuboidal epithelium (WU et al., 2015; DEDHIA et al., 2013). The cystic wall usually contains nerves, arteries and veins. In addition, the parenchyma of salivary glands and small islands of cartilage can be found. An inflammatory response is also frequently observed (NEVILLE et al., 2009; TSUNEKI et al., 2012; WU et al., 2015).

The type of epithelial coating in the NDC will depend of the proximity of the lesion to the nasal cavity. The closer the lesion is to this site, the greater the characteristics of the ciliated respiratory epithelium, while a lower location will result in greater similarity with the squamous epithelium of the oral cavity (WU et al., 2015; DEDHIA et al., 2013). In our case, the histopathological report brings us a mixed epithelium, sometimes respiratory, sometimes squamous, and corroborating with the findings of the literature.

Studies report that NDC recurrence rates are relatively low, ranging from 2% to 11% and the most common complications of treatment include nose floor damage, oronasal communication, fistula, possible damage to adjacent teeth, infections, hemorrhage, and paresthesia (WU et al., 2015; BARROS et al., 2018). Thus, in our case, due to the little recurrence that presents this type of lesion, we did not perform osteotomies with drills to avoid lesions to adjacent structures. Currently, the patient is 9 months of follow-up and has no alterations.

By clinically presents an increase in volume in the anterior region of the palate and lip, in addition to dental displacement, the differential diagnosis of NDC includes the inflammatory periapical cyst, the odontogenic keratocyst and the nasolabial cyst. In addition, NDC has slow growth and often asymmetrically. However, pain is reported in 20% of cases. Rarely patients report the burning sensation in the anterior region of the maxilla that occasionally radiates to the nasal region and orbit (DANTAS et al., 2014; OLIVEIRA et al., 2017). The patient in the case reported mentioned acute pain confined in the anterior region of the palate, where purulent secretion and food passage were still flowing.

Due to the region where the NDC is located, the presence of inflammatory periapical cystic lesions or an enlarged incisive foramen should be considered prior to completion of the diagnosis. Periapical, panoramic and occlusal radiographic examinations should be ordered. For a more accurate localization and better visualization of the cyst's relationship with adjacent structures, radiographs with different horizontal angulations (Clark technique) or CBCT should be performed that provide more details of the region. However, the close relationship of the lesion with the periapical region of the upper anterior teeth may lead to doubts about the probable lesion etiology (PERUMAL et al., 2011). In the case reported, a panoramic radiograph was initially performed, but due to the overlap
of bone structures and root apexes, the lesion limits were not well visualized, so we chose to request a CBCT for planning and surgical approach.

The appropriate approach for the diagnosis of NDC always precedes the pulp vitality test, which will be positive, thus excluding the possibility of the existence of an inflammatory periapical cyst. In addition, the surgical approach can be performed by excision and curettage of the lesion, using a palatine or vestibular access, or the combination of both. All will depend on the size and location of the cyst (DANTAS et al., 2014; APARMA et al., 2014). This way, because it is a small cyst, we decided to follow the same protocol reported in the literature to apply in our case, but in cases of larger lesions, marsupialization can be indicated to reduce the size of the cystic lesion, followed by enucleation (DEDHIA et al., 2013; PERUMAL et al., 2011).

4 CONCLUSION

Although NDC affects more male individuals, we report a case of involvement in a female patient. With the advent of cone beam computed tomography, was possible to delimit the extent of the lesion, thus enabling the planning and execution of a surgical approach by total enucleation. This approach proved to be a satisfactory treatment, since the lesion was of small diameter.

The patient remains in follow-up with total remission of the signs and symptoms previously reported, with no recurrence.
REFERENCES


