CASE REPORT

NASOPALATINE DUCT CYST- DIAGNOSIS AND SURGICAL MANAGEMENT: A CASE REPORT

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Abstract

A nasopalatine duct cyst (NPDC) is a fluid-filled sac in the roof of the maxilla, near the incisive foramen, usually between the roots of the maxillary central incisors. It is one of the most common nonodontogenic cysts of the oral area. The aim of this article was to present a case of an unusually large nasopalatine duct cyst in a 35-year-old female patient with chief complaint of painless swelling over the palate and anterior maxilla. The swelling was gradually increasing in size over the past 3 months without associated displacement of maxillary central incisors. There was no associated history of trauma, loose teeth, previous treatment or pain in the region. After the clinical examination and the radiographic diagnosis of NPDC, a surgical enucleation under i.v. sedation and local anesthesia was undertaken, and the specimen was sent to the Institute of Pathology in Skopje. Histopathological examination confirmed the diagnosis of a NPDC. Recovery was uneventful, with primary healing of the incision site. Although NPDC is a rare clinical entity, it is an important consideration in the differential diagnosis of anterior maxillary radiolucency.

ПРИКАЗ НА СЛУЧАЈ

ЦИСТА НА НАЗОПАЛАТИНАЛНИОТ КАНАЛ – ДИЈАГНОЗА И ХИРУРШКИ ТРЕТМАН: ПРИКАЗ НА СЛУЧАЈ

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Клучни зборови: циста на назопалатинален канал, дијагноза, хируршки третман

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Печатарски права: ©2026 Марко Зафировски, Александар Илиев, Антонио Кирков, Александар Стаматоски, Зоран Шушак, Гордана Петрушевска. Оваа статија е со отворен пристап дистрибуирана под условите на нелокализирана лиценца, која овозможува неограничена употреба, дистрибуција и репродукција на било кој медиум, доколку се цитираа ториганалниот(ите) автор(и) и изворот.

Конкурентски интереси: Авторот изјавува дека нема конкурентски интереси.

Извадок

Назопалатиналната циста (НПДЦ) претставува цистична лезија исполнета со течност, сместена во базата на максилата, во близина на инцизивниот форамен помеѓу корените на максиларните централни инцизиви. Таа е една од најчестите неодонтогени цисти во оралната регија. Целта на овој труд беше да се прикаже случај на невообичаено голема циста на назопалатиналниот канал кај 35-годишна пациентка со безболен оток над палатумот во предната третина. Отокот постепено се зголемувал во последните 3 месеци без последователно поместување на максиларните централни инцизиви. Во медицинската историја на пациентката немаше информации за потврдена траума, расклатени заби, претходен стоматолошки третман или болка во истата регија. По клиничкиот преглед и радиографската дијагноза на НПДЦ (ОПГ и ЦБЦТ скен), беше изведена хируршка енуклеација на цистата со и.в. седација и локална анестезија, а примерокот беше испратен на Институтот за патологија во Скопје. Хистопатолошкиот наод ја потврди дијагнозата на НПЦ. Закрепнувањето одеше непречено, со примарно заздравување на местото на инцизијата. НПДЦ иако е редок клинички ентитет, треба да се има предвид во диференцијалната дијагноза на предната максиларна радиолуценција.

Introduction

A nasopalatine duct cyst is a fluid-filled sac in the roof of the maxilla that arises from embryologic remnants present in the nasopalatine duct. It is one of the most common nonodontogenic cysts of the oral area occurring in about 1 % of the population and it was first described by Meyer in 1914[1]. The nasopalatine duct cyst (NPDC) occurs in the median of the palate, usually anterior to first molars, near the incisive foramen, usually between the roots of the maxillary central incisors. It is seen as radiolucency, between central incisors and must usually be larger than 6 mm to distinguish cyst from incisive foramen, which is a normal anatomical feature. Root resorption and tooth displacement may be present. Radiographically, it may often appear as a solitary well-defined, oval or round unilocular heart-shaped radiolucency if the anterior nasal spine is superimposed. NPDCs are usually symmetrical, although some may be displaced to one side. The cyst can be distinguished from a normal but widened canal and from periapical granuloma or radicular cyst associated with the roots of anterior teeth. These cysts are not cancerous, and their removal can reduce the risk of progressive enlargement that could lead to displacement of teeth. Its removal also prevents the cyst from becoming infected and causing discomfort or pain. Patients may be asymptomatic and discovered on routine radiographic examination. If one or more symptoms are present, complaints are often found to be associated with secondary infection of a previously asymptomatic nasopalatine duct cysts and include primarily swelling, drainage, and pain[2]. A correct diagnosis can only be made after proper clinical, radiographic, and histopathologic examination. Treatment, if required, is surgical and consists of local curettage. This almost inevitably requires the sacrifice of the nasopalatine vessels and nerves, which results in a small area of anesthesia over the anterior palate behind the upper incisor teeth. Some patients (particularly more elderly patients) find this particularly troublesome in the articulation of some words. Recurrence rate is very low after treatment[3].

Case report

A case of a nasopalatine duct cyst in a 35-year-old female patient with chief complaint of painless swelling over the palate and anterior maxilla is presented. CBCT scan in the three references planes - sagittal, axial and frontal (coronal) - showed a well-defined, round radiolucency in the region of incisive canal, measuring 2.2 cm × 1.5 cm × 0.4 cm, with corticated margins in the midline and between the central incisors. These were the typical radiographic features of NPDC (Fig. 1).

Clinical examination revealed a palatal expansion on the anterior hard palate. The swelling was gradually increasing in size over the past 3 months without associated



Figure 1: Preoperative CBCT scan in sagittal, axial and frontal (coronal) reference planes showing a well-defined radiolucency in the anterior maxilla.

displacement of maxillary central incisors. There was no associated history of trauma, loose teeth, previous treatment or pain in the region. After the clinical examination and the radiographic diagnosis of NPDC, a surgical enucleation under i.v. sedation and local anesthesia was undertaken, and the specimen was sent to the Institute of Pathology in Skopje.



Figure 2: Intraoral photo of the surgical cavity after cyst removal.

Histopathological examination confirmed the diagnosis of an NPDC. Gross examination revealed a whitish, soft consistency fragment measuring 2.2 cm × 1.5 cm × 0.4 cm (Fig. 3). The recovery was uneventful, with primary healing of the incision site.

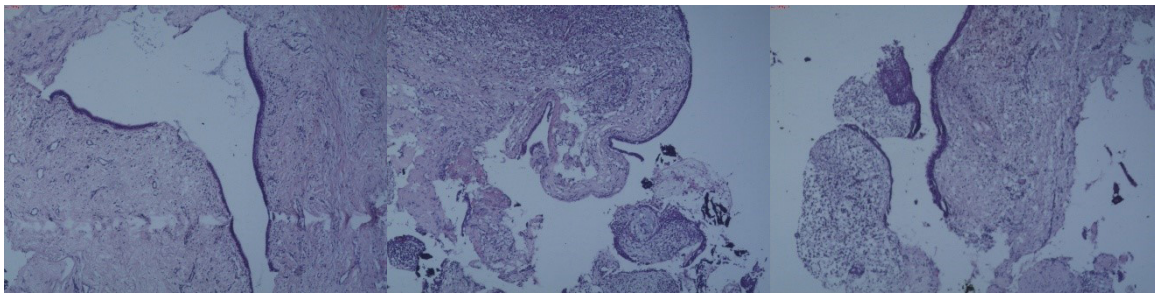


Figure 3: IHistologic features of the biopsy specimen.

Discussion

NPDC is the most common non-odontogenic cyst developing from the proliferation of embryological epithelial remnants of nasopalatine duct[4]. Most studies show a higher incidence of NPDC among males than females[5]. NPDCs are usually central or unilateral with no prevalence of side occurrence. Radiographically, they are seen as well-defined round or oval radiolucencies in the midline, although some lesions may appear heart-shaped[6], either because

they become notched by the nasal septum during their expansion or because the nasal spine is superimposed on the radiolucent area. Due to similar signs and symptoms, the NPDC may be easily misdiagnosed by the clinicians as a periapical lesion. This is why many authors believe that its prevalence is actually higher than presented in the literature[7]. Most of these cysts are asymptomatic or cause such minor symptoms being tolerated for very long periods. Nearly 40 % of the cases are totally asymptomatic and found only during routine clinical examination. In one study, the authors reported that 87 % of cases were asymptomatic[7]. Our patient reported few symptoms despite the size of the lesion. If this lesion was left untreated for an extended period, it could have abnormal growth. NPDC may be delined by a variety of different types of epithelium that ranges from stratified squamous to pseudostratified columnar, or a combination of these. A reported 71.8 % of NPDCs have squamous, columnar, cuboidal, or some combination of these epithelial types; respiratory epithelium has been found in only 9.8 %[8,9]. The connective tissue wall contains small arteries and nerves, representing the nasopalatine neurovascular bundle. Collections of mucous glands and scattered chronic inflammatory cell infiltrate are frequently present. In this case, the squamous epithelium was present with stratification. A correct diagnosis can only be made after proper clinical, radiographic, and histopathologic examination[10]. General imaging differential considerations include: periapical granuloma /periapical cyst, schwannoma in the incisive canal region, nasolabial cyst, median palatine cyst and enlarged nasopalatine duct. The present case had typical clinical, radiographic, and histopathological features of a nasopalatine duct cyst. The importance of this case lies in the diagnosis of NPDC, as these lesions can easily be misinterpreted as periapical cysts and inadvertent root canal therapy of adjacent vital teeth can be avoided. The treatment of choice is enucleation. Excision must be total to avoid relapse, and postoperative long term follow-up is essential. Marsupialization may be recommended for a large cyst without bony architecture, which has the risk of developing a postsurgical permanent fistula. Recurrence rate is low and ranges from 0% to 11%, depending on the study. Paresthesia of anterior palate may occur in fewer than 10 % of the cases, which can happen when branches of nasopalatine nerve are removed during surgery. Only after histological examination, the definitive diagnosis can be established[11-13].

Conclusion

Nasopalatine duct cysts are the most common nonodontogenic cysts of the oral cavity seen in the general population. In the case of asymptomatic apical radiolucency located in the anterior maxilla, differential diagnosis must distinguish NPDC from other maxillary

anterior radiolucencies. Vitality testing of teeth adjacent to or involved with a cyst-like lesion is mandatory and the final diagnosis could only be performed after histological analysis. It is important that practitioners are aware of the features of the NPDC.

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