

Case Report

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Dermoid Cysts of the Floor of the Mouth: A Case Report

Marino R^{1*}, Pentenero M¹, Familiari U² and Gandolfo S¹

¹Department of Clinical and Biological Sciences, Oral Medicine and Oral Oncology Section, University of Turin, Italy ²SCDU Anatomia Patologica , AOU San Luigi Gonzaga, Orbassano (TO), Italy

Abstract

Epidermoid and dermoid cysts are malformations observed in the oral cavity, represent less than 0.01% of all oral cavity cysts. Histologically, they can be further classified as epidermoid, dermoid or teratoid. The cysts can be defined as epidermoid when the lining presents only epithelium dermoid cysts when skin adnexa are found and teratoid cysts when other tissue such as muscle, cartilage, and bone are present. We report a case in which a 15-year-old boy developed a dermoid cyst presented at our clinic with complaints of increasing dysphagia and globus sensation about 5 years. On examination, the patient revealed a massive swelling of the floor of the mouth, which had displaced the tongue cranially. MRI imaging showed the lesion to be a homogeneous, cystic lesion, clearly at a distance from the surrounding mucous tissue. Surgery was performed, and the tumor was resected completely. Histologic examination of the resected tissue was consistent with an epidermoid cyst located in the floor of the mouth. The patient did well postoperatively, and no recurrence was noticed at the 6-years of follow-up. Although epidermoid cysts are rarely located in the oral cavity, it should be included in differential diagnosis. Surgery is the treatment of choice.

Keywords: Dermoid cyst; Surgical treatment; Intraoral surgical approach

Abbreviations: MRI: Magnetic Resonance Imaging; FNA: Fine-Needle Aspiration

Introduction

Dermoid cysts result from defective embryonic development (dysontogenic) and represent cysts filled with keratinous sebum-like material with evidence of skin derivatives. Dermoid cysts of the floor of the mouth comprise only 1.6% to 6.5% of all body dermoid cysts and account for 23% to 34% of head and neck dermoids [1]. The floor of the mouth is the second most common site of dermoid cysts in the head and neck region after the lateral eyebrow. The vast majority of dermoid cysts of the floor of the mouth are located in the midline (sublingual 52%, submental 26%), 16% involve more than 1 of the 3 possible spaces in the floor of the mouth region (submental, sublingual, submandibular), and only 6% are situated exclusively in the submandibular space (i.e. appear to be lateral neck cysts). Midline (dermoid) cysts of the floor of the mouth are quite uncommon [2]. The pathogenesis of midline cysts of the floor of the mouth is not well established. Histologically, they can be further classified as epidermoid (lined with simple squamous epithelium), dermoid (when skin adnexa are found in the cyst wall) or teratoid (when other tissues, such as muscle, cartilage and bone are present). Although dermoid cysts represent a separate entity, the term "dermoid" is typically used to indicate all three categories [3].

Anatomically, it is possible to distinguish three different types of dermoid cysts: median genioglossal, median geniohyoid, and lateral, according to anatomic relationship between the cyst and the muscles of the floor of the mouth. Lateral cysts are very rare, and some authors consider them to be median cysts that have laterally expanded and not a separate entity. These cysts occur most often in patients in their second or third decade of life. Clinically, the lesion presents as a slowgrowing asymptomatic mass, usually located in the midline, above or below the mylohyoid muscle. When located above the muscle, the cyst manifests itself as a sublingual swelling; when below the muscle, the clinical aspect will be a submental swelling. Consequently, tongue elevation, speech alteration or double-chin development are frequent complaints. Because they are almost always asymptomatic, dermoid cysts are usually diagnosed only after they have reached a considerable size. Recommended treatment is surgical excision via intraoral or extra oral access, depending on the lesion's size and location [4,5].

In this report, we describe a man who presented with a cystic sublingual lesion occupying the entire floor of the mouth. We discuss the clinical steps required to achieve an accurate diagnosis, the differential diagnosis, useful imaging techniques and treatment of dermoid cysts.

Case Report

A 15-year-old boy presented a soft, painless, movable and touchable intra-oral swelling, which was initially small and increased in size over duration of 5 years. On examination of the oral cavity, there was a swelling in the middle of the floor of the mouth (Figure 1). Upon bimanual palpation can appreciate a hard swelling of elastic consistency. Tongue body displacement toward the pharyngeal wall with a severe reduction in airway sovraglottiche. The excretory ducts of submandibular and sublingual glands are located in the lateral posterior caudally direction from the normal anatomic site. The skin and mucosa



Figure 1: Intraoral mass in the floor of the mouth.

*Corresponding author: Roberto Marino, Department of Clinical and Biological Sciences, Oral Medicine and Oral Oncology Section, University of Turin, Gonzole 10, 10043 Orbassano (TO), Italy, Tel: +39-011-9026496; Fax: +39-011-3498154; E-mail: drslimjarboui@yahoo.fr

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over the swelling were intact and normal. The morpho-profile skin of the face is increased vertically in the lower third and has a convex course (Figure 2). There was no evidence of cervical lymphadenopathy. The patient complains about pain spontaneous and provoked.

Magnetic Resonance Imaging (MRI) showed a large lesion on the floor of the mouth about 4.5 cm in diameter (Figure 3). Body of the tongue appeared to be occupied by a voluminous cyst. The formation appeared encapsulated and caused a lifting of the body of the tongue dislocating caudal structures of the mouth floor.

Aspiratory function was carried out. This revealed the presence of epithelial remnants, desquamated tissue and cellular debris which pointed to a diagnostic hypothesis of epidermoid cyst.

Due to the period of evolution, absence of pain and of infectious foci in the oral cavity the hypothesis of an infection was discarded. The hypothesis of a malignancy was also discarded due to the clinical aspect of the lesion and the absence of lymphadenopathy.

The surgery was performed under general anesthesia with tracheal intubation nose and given a prophylactic preoperative (amoxicillin and clavulanic acid 2.2 gr). A midline incision on the tongue abdomen was carried out, a second incision perpendicular to the first while preserving the outlets of the salivary glands (Figure 4). We proceeded to blunt dissection of perilesional tissue, without finding adhesions with the tissue muscle and glandular surrounding. The lesion was found sitting on top of the genioglossus muscle (Figure 5). After proper hemostasis of the vascular component the cyst is enucleation and a surgical access is sutured.









Figure 4: Intra-oral midline incision from the base of the tongue to the floor of the mouth.



Figure 5: Surgical excision of the lesion.





Histopathological examination revealed a cyst lined by keratinized stratified squamous epithelium (Figure 6). The diagnosis of dermoid cyst was made.

The patient is kept under a pharmacological coma for 24 hours to control the post surgical edema. The postoperative course in healing was free of complications. The patient was followed up for 6 years with clinical examination and no signs of recurrence.

Discussion

Midline dermoid cysts of the floor of the mouth are painless lesions that swell from the anterior portion of this region. Because they can displace the tongue, patients usually present with dysphagia, dysphonia, and dyspnea, and in the case of lower localization, they present a characteristic double chin. Dermoid cysts are generally diagnosed in young adults in the second and third decades of life; no sex correlation is demonstrated [6]. There are no rules regarding the timing for the operation; because dermoid cysts are mainly congenital, they can appear in every age of life, so when they appear, it is generally the right time to operate on them. Also, in very young patients, a problem can arise from the anesthesiologic risk, which is generally quite low in patients weighing more than 20 kg. Dermoid cysts may be classified as congenital or acquired, even if there is no difference between the two on presentation or histological [7]. Congenital cysts are dysembryogenetic lesions that arise from ectodermic elements entrapped during the midline fusion of the first and second branchial arches between the third and fourth weeks of intrauterine life; alternatively, they may arise from the tuberculum impar of his which, with each mandibular arch, forms the floor of the mouth and the body of the tongue. Acquired cysts derive from traumatic or iatrogenic inclusion of epithelial cells or from the occlusion of a sebaceous gland duct. Moreover, other authors proposed that midline cysts may represent a variant form of thyroglossal duct cyst [8]. Many other lesions, such as an infectious process, ranulas, or benign neoplasm of lipoid, salivary, neural, or vascular tissues, may involve the floor of the mouth, as they present a similar clinical appearance.

For this reason, bimanual palpation and conventional radiography are not always sufficient in making differential diagnoses. In these cases, it is necessary to use ultrasonography, computed tomography, or magnetic resonance imaging together with cytologic examination by Fine-Needle Aspiration (FNA) biopsy [9-12]. Second the cytologic examination is the only way to achieve a sure preoperative diagnosis; therefore, it is necessary to perform a fine-needle aspiration biopsy to complete the preoperative assessment. A FNA biopsy is also an appropriate diagnostic technique in the very rare case of malignant changes that can occur in teratoid cysts [13].

Surgical enucleation is the only effective treatment for these kinds of lesions. Several techniques are reported in the literature, which may be divided into intraoral and extra oral techniques depending on which approach is used. In the case of an intraoral approach, a midline vertical, mucosal incision is performed along the ventral surface of the tongue; however, only small cysts can be enucleated using this kind of incision [14].

Pan et al. [15] described a bilateral incision along the mandibular ridge crest, Brusati et al. [16] proposed a midline glossotomy and Di Francesco et al. [17] described a modification of this surgical technique consisting of an extension of the incision along the ventral surface of the tongue associated with partial evacuation of the cyst. The transcutaneous approach consists of a submental incision and a sharp, blunt dissection to reach and enucleate the lesion. McGregor describes a symphyseal mandibular osteotomy to enucleate a very large sublingual dermoid cyst [18].

The extra oral approach is generally preferred in the case of median geniohyoid or very large sublingual cysts, whereas the intraoral approach is typically used for smaller sublingual cysts [13]. Anesthesia generally did not present any difficulty, but in cases of a very large lesion, intubation can be a serious problem; in such cases, an endoscopic intubation may be necessary and should be planned, to avoid an emergency tracheotomy [19]. The postoperative course does not present any kind of problem because there is little alteration in function, edema is generally modest, and complications are unusual. In some cases, dermoid cysts of the floor of the mouth may become infected, with the formation of a sinus and intraoral or cutaneous fistulas. Prognosis is very good, with a very low incidence of relapse, usually related to bone remnant to the genial tubercles or to the hyoid bone [20]. Malignant changes have been recorded in dermoid cysts by New and Erich but not in the floor of the mouth, although a 5 percent rate of malignant transformation of oral dermoid cysts has been reported by other authors, but only for the teratoid type [21]. Malignant transformation within a dermoid cyst is a rare event. The most common transformation is to squamous cell carcinoma. Patients are often elderly and present with advanced disease. The prognosis tends to be very poor [22].

Conclusion

Dermoid cysts in the floor of the mouth are quite rare and need to be differentially diagnosed from several other diseases and conditions of the area. For their diagnosis, their clinical picture is essential involving a detailed examination of their size and anatomical location. Furthermore, invaluable assistance is provided by the magnetic resonance imaging and computed tomography of the area. This case report shows how the onset and progressive growth of a voluminous dermoid cyst of the floor before the completion of growth, may to interfere with normal development of the mandibular.

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