



Epidermoid Cyst: Case Report of an Unusual Location

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Authors' contributions

This work was carried out in collaboration between all authors. Author UR is the oral surgeon that treated the lesion. Authors GP and RLG wrote the manuscript. Authors GT and ADV managed the literature searches. Author AP designed the study. All authors read and approved the final manuscript.

Case Study

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ABSTRACT

Aim: The aim of this study is to describe an unusual case of an Epidermoid Cyst (EC) of the tongue treated by a Potassium Titanium Phosphate (KTP) laser.

Presentation of Case: A 38 young male patient came to our attention since a little painless swelling, yellowish, on the lateral left side of the tongue. After an accurate clinical examination, a surgical excision with a KTP laser was performed. Control at 7 and 21 days showed a complete healing of lesion and the histological diagnosis was EC.

Discussion: EC generally appear like a firm, usually painless swelling that sometimes raises the tongue. In the differential diagnosis of the EC the clinician has to consider a wide range of pathologic conditions that could be classified as development, neoplastic and infective pathologies. Surgical enucleation is the only effective treatment for these kinds of lesions and prognosis is very good, with a very low incidence of relapse.

Conclusion: Several techniques are reported in the literature but the use of KTP laser for the excisional biopsy of ORAL EC is very effective, since the relative ease and speed of execution, the compliance of patient, the absence of bleeding and suture.

Keywords: Epidermoid cyst; KTP laser; oral biopsy.

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1. INTRODUCTION

The term “dermoid cyst” in the floor of the mouth is used to describe three types of histologically related cysts: dermoid, epidermoid, and teratomata/teratoid cysts. EC generally appears in the floor of the mouth, where there is a firm, usually painless, swelling, which sometimes raises the tongue [1]. There are dysphagia and dysarthria and, when the lesions are quite large, dyspnea [2,3]. A double-chin appearance is also common if the EC develops below the mylohyoid muscle. Depending on the position of its development and the size of the cyst, it either manifests itself as an augmentation in the submental area or as an augmentation in the floor of the mouth of a usually dough-like constitution and a double chin. In the case of a sizeable cyst, there is discomfort in chewing and in speech (croaking) or even in breathing, while in the event of infection there is rubor and pain in the area [4].

2. PRESENTATION OF CASE

A male patient of 24 years old came to our observation since a yellowish formation, located on the lateral left side of the tongue, with a regular round shape and well defined edges constitutes of two lobes (Fig. 1), of about 1 cm of diameter. The lesion was there until six months before.



Fig. 1. Clinical aspect of the lesion of lateral left side of the tongue. To be noticed the yellowish aspect and the roundish shape, with well defined edges

The patient didn't remember any kind of traumatism or any surgical treatment in that area. At the feeling it has a homogeneous content of lax consistence, mobile on underlying tissue. Sub mental e submandibular lymph nodes were not singled out through palpation. Routine blood analysis were prescribed to the patient, with particular attention to the correct function of coagulation system and, since the lack of contraindications, a surgical excision with local anesthesia 95 was scheduled. After an infiltrative anesthesia without adrenaline, the immobilization of the lesion using a surgical thread of silk 3.0 was performed and finally the lesion was excised by a Potassium Titanium Phosphate laser (KTP, Smartlite®, DEKA, Italy)

laser at 1.6W Ton 100 ms Toff 100 ms, optical fiber 300 micron, 226 J/cm² (Fig. 2), making a circular incision around the lesion. Control at 30 days showed the complete healing of the surgical wound (Fig. 3). The post operative period lacked of negative events and the healing was perfect. The histological analysis of the surgical piece revealed a keratinized squamous epithelium, with the internal surface covered of keratin blades and the external surface of gingival tissue components and so a diagnosis of EC was performed (Fig. 4).

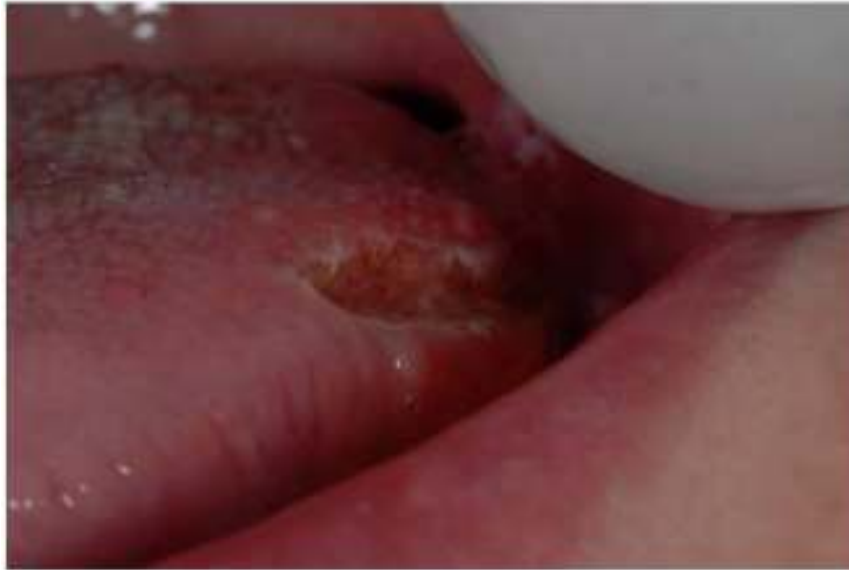


Fig. 2. The lesion is completely removed. The wound is in haemostasis, it doesn't need sutures



Fig. 3. Healing of the wound after 30 days

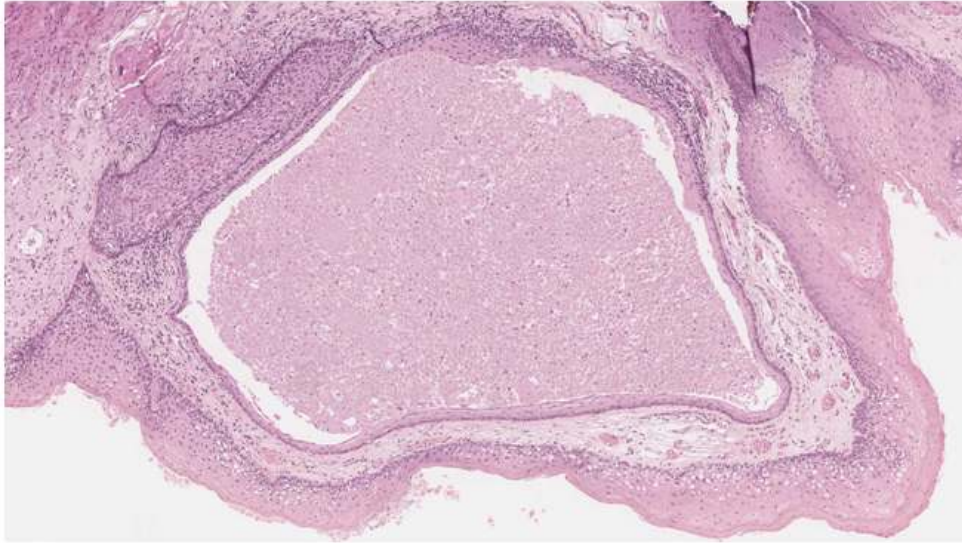


Fig. 4. Histopathology showed areas of both stratified squamous and pseudostratified columnar epithelium in the cystic lining without skin appendages which is consistent with the diagnosis of epidermoid cyst (10X)

3. RESULTS AND DISCUSSION

Dermoid and epidermoid cysts within the oral cavity are not very common; they represent just the 0,01% of all the cyst of oral cavity [5]. Most of the cases have been noticed in ovary, in testicles, and also in hands and feet, with a particular predilection for the areas where embryological structures merge themselves. In a study carried out by Mayo Clinic (1937), in a total of 1495 dermoid cysts of the body, 103 (6.9%) concerned the head and neck and only 24 (1.6%) the floor of the mouth [6]. In another study [7], of a total of 541 evident dermoid cysts of the body, 184 (34%) occurred in the head and neck and 35 (6.5%) of these in the floor of the mouth. Their incidence is 7.0% in the head and neck region and only 1.6% in the oral cavity, where they mostly present in the floor of the mouth. These cysts occur most often in patients in their second or third decade of life. There is no predominant sex in the recent literature, regardless of some evidence which showed a male prevalence. Dermoid cysts in the floor of the mouth have been the subject of many researches. Jourdain (1778) called them sublingual dermoid cysts. Roser (1859) maintained that many cases of ranula and sebaceous cysts on the base of the tongue were dermoid cysts. Bytlin (1885) was preoccupied with their description but also with their differentiation from other similar lesions of this area, while Chairi (1891) proposed that the tumors in the floor of the mouth originated from the entrapment of epidermoid cells at the embryonic age. Such cysts are often slow-growing masses and they cause symptoms only after they enlarge sufficiently or when they are infected.

EC is classified between the dermoid cysts, in which we recognize three different categories:

1. Epidermoid cyst, in which the cavity is covered with epithelium lacking of skin appendages;

2. Dermoid cyst, in which the cystic cavity presents skin appendages like hairy follicles, sebaceous and sweat glands;
3. Teratoids cyst which beyond the skin appendages presents elements of the mesoderm as muscular and skeletal tissues, but also gastrointestinal and respiratory ones; only this kind of cyst could have a malignant degeneration.

Epidermoid cysts at CT are thin walled, unilocular masses filled with a homogeneous, hypoattenuating (0–18 HU) fluid material and are hypointense on T1-weighted images and hyperintense on T2-weighted images of MRI, following the signal intensity of fluid. An epidermoid cyst located entirely within the sublingual space may be difficult to distinguish from other cystic lesions in the floor of mouth (eg, a simple ranula) on the basis of imaging criteria alone [8]. Fine needle aspiration is a safe cost effective and reliable tool for preoperative diagnosis of epidermoid cyst. It should be emphasized that it is not possible to determine the specific histological subtype through FNAB, MRI or CT scans, even if this preoperative evaluation techniques are necessary in the management of the EC arising in deeper localization such as tongue base or submental area; microscopic examination will always be required.

In the differential diagnosis of the EC the clinician has to consider a wide range of pathologic conditions, starting from the swelling of the oral area like odontogenous infections, the infection of the masseter and buccal area and the other kind of dermoid cyst. These lesions could be classified as development pathologies, neoplastic pathologies and infective pathologies (Table 1). EC arising in the lateral side of the tongue should be accurately differentiated from lymphoepithelial cyst. This cyst is an uncommon lesion that rises inside the lymphatic system of oral cavity. It could be found near to the Waldeyer's ring and appears like a smooth, yellowish, hard asymptomatic small mass (less of 1 cm). Inside of its lumen cheesy yellowish material could be encountered. Certain diagnosis in our case was determined by histological exam.

Table 1. Differential diagnosis of epidermoid cyst

Differential Diagnosis	
Pathology	Clinical Aspect
Infective processes	Warm overlying skin If bigger: fever, discomfort Recede at antibiotic therapy
Mucocele	Blue gray coloured mucosa Generally arises on lower lip or sublingual area (ranula)
Neoplastic lesions	Irregular shape Enlarged lymphnodes High dimensions
Lymphoepithelial cyst	Onset area near to Waldeyer's ring Small dimension (less of 1 cm) Histopathologic aspect

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 extraoral techniques depending on which approach is used. The extraoral approach is generally preferred only when the cyst lies under the geniohyoid muscle or in case of very large sublingual cysts, whereas the intraoral approach must be preferred, even if dealing with

large cyst [9]. In most cases, the enucleation can be carried out intraorally leading to good cosmetic and functional results, by a genioglossal median mucosal incision or a median glossotomy. In case of very large median genioglossal cyst, a combination of intra and extra oral technique could be used, performing an extended median glossotomy with partial evacuation of the cyst and a submental (extraoral) access. In a review of international bibliography, among 194 cases of EC of which 120 surgically treated, 70 (58%) were done intraorally, 37 (31%) extraorally, and 13 (11%) via a combination of intra- and extraoral approaches [6].

Prognosis is very good, with a very low incidence of relapse, usually related to the genial tubercles or to the hyoid bone. Even if the EC rarely presents malignant aspect, premalignant conditions were found in its structure, like Bowen disease, Paget disease and squamous cell carcinoma. Dini et al. describe a patient with a basal cell carcinoma in the wall of an EC. Lopez-Rios et al. describe a patient with a squamous cell carcinoma developing in the wall of another normal epidermoid cyst. In these cases an accurate diagnosis is important, because if the lesion is completely excised, the treatment is definitive. The use of laser for the excisional biopsy of these lesions in the intraoral approach allows reaching a wide range of goals, which improve the surgical treatment and the post operative period. The effect of KTP laser on the soft oral tissue is linked to the transformation of the energy of light in thermal energy, which warms the tissue and produces the wished effects. Differently from the scalpel, KTP laser beam is characterized by a natural decontamination of the tissues and by a minimal bleeding during operative procedures, due to the coagulation of blood vessel. Moreover, this technology is really useful in some areas of the oral cavity, such as lingual and labial area, where it allows reaching a complete recovery without using stitches, which cause severe discomfort to the patient during post operative period. The advantages of the employment of the KTP laser in oral soft tissue surgery are its high cutting ability, the bloodless operative field, its relative ease and rapidity of use, and the reduced use of infiltrative anaesthesia. Clean cuts and excellent haemostasis are achieved by moving the beam across the surgical site. Some in vitro studies [10-11] have tested for potential peripheral damage by KTP, Diode, Erbium and Nd:YAG lasers on pig tongues or mandibles, and have shown that with the parameters normally used, thermal damage preventing a clear histological examination does not occur. In particular, KTP specimens showed always an almost absent thermal damage, because its cut is very superficial and precise: at power of 3 W, Ton 50 ms, Toff 50 ms, irradiance $4,200 \text{ W/cm}^2$, fluence 212 J/cm^2 , samples showed almost intact epithelium and signs of cellular damage were limited to $200 \mu\text{m}$. In fact, even in this case, where a very little lesion was present, an adequate specimen and correct histological diagnosis were smoothly obtained.

4. CONCLUSION

EC is a rare lesion that could involve oral cavity, when it occurs, a surgical excision is mandatory. In this case, laser technology was very useful, great recovery of tissue and minimal bleeding during surgical treatment was reached. Fine cutting property of KTP laser allowed obtaining an adequate specimen of the lesion.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist

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