REVIEW

A case of large dermoid cyst of the tongue

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Received 29 July 2011; accepted 22 October 2011
Available online 25 November 2011

KEYWORDS
Dermoid cyst;
Tongue;
Magnetic resonance imaging;
Surgery

Abstract  Objective: We report a case of a large dermoid cyst of the tongue with a review of the literature.

Case report: We present a 14-year-old boy who presented an enlarging tongue with slight difficulty of speech. Complete excision of the cyst through an intra-oral approach was possible when aspiration of the fluid cyst was done at the moment of surgery.

Discussion: Dermoid cysts are squamous epithelial-lined cavities with variable number of skin adnexae in the capsule. We discuss clinical, radiological and histological presentation, aetiology, and surgical management of these rare entities in head and neck.

Conclusion: Although dermoid cysts are rare they should be part of the differential diagnosis of tongue masses. The surgical management depends on the size and the extension of the intra-lingual cyst in the floor of the mouth. The aspiration of the fluid cyst to reduce its size is helpful without any complication.

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1. Introduction

Dermoid cysts are uncommon lesions in the head and neck, with approximately 7% of dermoid cysts presenting in this region, usually observed in the lateral third of the eyebrow, followed by the floor of the mouth and rarely in the tongue with only 8 cases reported in the literature. The aetiology of these cysts is still controversy. Usually lingual dermoid cysts are discovered at birth or at the first year of life. However when they are developed in the ventral base of the tongue, their clinical appearance will be later, at childhood or at early adult life. The only effective treatment of dermoid cyst of the tongue is the complete enucleation. The histological examination distinguishes this entities from epidermoid cyst and teratoid cyst.

We report a case of a 14-year-old male presenting a large intra-glossal dermoid cyst, who underwent surgical excision.

2. Case report

A 14-year-old boy was referred with a gradually swelling of the ventral base of the tongue without any protrusion. The mass was covered by a normal mucosa. Normal saliva could be expressed from the orifices of Wharton’s ducts. Despite this, there was only a slight difficulty in speech.

The lesion was heterogeneous, and had a predominant low signal in T1-weighted images on MRI and a high signal on T2-weighted images which containing some area with low signal. That means the presence of a fat component in the tumour. The lesion didn’t enhance with gadolinium. It is localized in the tongue pushing the floor of the mouth without any extension under the mylohyoid muscle (Figs. 1 and 2).

The patient was operated under general anesthesia with nasotracheal intubation. A mucosal incision was performed just above the level of wharton’s orifices and extending along

Figure 1  T1-weighted coronal MRI shows an heterogeneous intra-lingual mass.

Figure 2  T2-weighted axial MRI shows a predominant high signal.

Figure 3  Peroperative view: intra-oral approach, the specimen and the aspirated fluid cyst.
the ventral surface of the tongue with a V shaped incision. The roof of the cyst was identified and once the dissection of the upper pole of the cyst was completed, we aspirated the cystic fluid reducing the mass of the lesion surrounded by the fibers of the genio-glossus muscles that were displacing laterally, and the genio-hyoid muscles inferiorly. Then a blunt dissection was continued until a finger could be inserted behind the cyst so that it could be completely removed (Fig. 3). The wound was closed after a meticulous hemostasis with vicryl 4/0 without using a drainage tube. The patient recovered without complication and was discharged 3 days after operation.

Histological examination concluded to a typical dermoid cyst (Figs. 4 and 5). There was no recurrence at 18 months follow-up.

3. Discussion

The anterior two third of the tongue develops from fusion of three swellings of primitive mesenchyme: two lateral swellings (the lateral processes) and a median swelling (the tuberculum impar of Hiss). During the fourth week of embryonic development, the two lateral processes migrate medially to fuse over the tuberculum impar forming the corpus of the tongue. The musculature of the tongue is formed three weeks later and originates from the migration of occipital somites. During this fusion, entrapment and proliferation of epithelial debris form dermoid cyst. This is the most popular theory for the etiopathogeny of congenital dermoid cyst. A second hypothesis states that acquired dermoid cyst arise from epidermal and dermal cells trapped following trauma.

Shafer postulated that some of the cells enclaved during these fusion processes are totipotent blastomeres and, therefore, derivatives of the three basic germ layers may be present. This can explain the histological classification of Meyer that distinguish dermoid, epidermoid and teratoid cyst.

The epidermoid cyst is lined with simple squamous epithelium and surrounding connective tissue without any skin appendages. The dermoid type, which our case had, is an epithelial lined cavity with skin appendages of hair follicles, sebaceous glands, sweat glands. The cavity is filled with desquamative cells, keratin and hair. The teratoid type is also an epithelial lined cavity that contains skin appendages and connective tissues derivatives such as muscle, bone, teeth and mucous membrane. However cysts of this type are commonly confined to the ovaries and testes.

Dermoid cysts in the mouth account for less then 0.01% of all oral cysts. Usually located in the sublingual region but rarely within the tongue. A simultaneous dermoid cyst of the tongue and the midline of the neck has been reported. Most cases reported of lingual dermoid cyst follow a bimodal distribution with a peak during the adolescence and a smaller peak during the first year of life. Male and female are affected equally.

Clinically dermoid cyst may be asymptomatic, often discovered by a painless swelling growing slowly and surrounding by a normal mucosa. The cyst can enlarge to a point that the patient present difficulty of articulation, mastication and deglutition and airway compromise. He can also be unable to close his mouth with sometimes lingual displacement. Recurrent infections can occur dissecting the tongue muscles in the zone of low resistance and opening up the midline of the dorsum of the tongue forming a sinus tract. Although an embryologic theorie stipulate that the sinus is like the cyst, an epithelial remnant persisting after midline closure. It allows drainage of the keratin and glandular products. On the other side, the sinus tract is an entry for organisms of the oral flora. Malignant transformation of a dermoid cyst to squamous cell carcinoma is exceptionally rare in head and neck. Only one case in the litterature of sublingual dermoid cyst has been malignant transformation but never a lingual dermoid cyst.

The differential diagnosis of a painless swelling in the midline of the tongue include cystichygroma, lymphatic cyst, neurofibroma, haemangioma, lingual thyroid, enteric duplication cyst and dermoid cyst. Magnetic resonance imaging (MRI) is an accurate, non-invasive modality for the diagnosis and procure follow-up evaluation for lingual dermoid cyst. It has the advantage to delineate the cyst and precise its possible extension through the floor of the mouth. Dermoid cysts are iso- or hypointense to muscle on T1-weighted images and hyperintense or heterogeneous on T2-weighted images. The diagnosis is suggested when a fat component exist in the tumour on MRI, like in our case.

Complete removal of the cyst is the effective treatment. An intra-orally approach with a mucosal incision usually through
the ventral surface of the tongue is appropriated. The surgeon should give a lot of care to avoid submandibular ducts. When the cyst is so large or extending under the mylohyoid muscle, an extra-oral approach is required. Some authors described the advantage of aspiration of the fluid cyst at the moment of surgery. This can provide easier access of large cyst with only an intra-oral approach. We didn’t note, as documented in the literature, any complication neither recurrence after aspiration. Because of the consequent thickness of dermoid cyst, blunt dissection is safe to remove the entire cyst.20–22

Recurrence would be rare although another cyst can arise from cyst fragments or sinus tract left by surgery. Other authors suggest an unlikely alternative that a daughter cyst can be detached from the main one and grows separately until its discovery, of course, after the first operation of the main cyst.7,14,23

References