A solitary nodule on the tongue

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CLINICAL FINDINGS

An 8-year-old child was presented with asymptomatic slowly growing oral lesion of 3 months duration. The patient had a history of similar lesion one year back, that was treated with cryotherapy and had decreased in size but did not completely disappear. Five months later, the lesion started to re-grow and slightly increased in size. There was no history of bleeding or pain. On examination, there was a solitary flesh colored pedunculated nodule on the ventral surface of the tongue (Fig. 1). The lesion measured about 0.6 cm in diameter. The lesion was soft with shiny smooth surface. Few telangectatic vessels were observed on the surface (Fig. 2). General physical examination was irrelevant, while routine investigations showed no significant abnormalities.

What is your clinical differential diagnosis?

Oral fibroma, Mucocele, Pyogenic granuloma, Lymphangioma, Venous lake and Dermoid cyst.

Pathological findings

An excision biopsy was performed and the histological examination showed multiple vacuolated spaces in the subepithelial tissue (Fig. 3). These spaces contained mixed inflammatory cells with numerous mast cells and neutrophils (Fig. 4). Special staining with alcian blue revealed feathery bluish materials in the cavity of the spaces indicating a mucin deposits (Fig. 5).

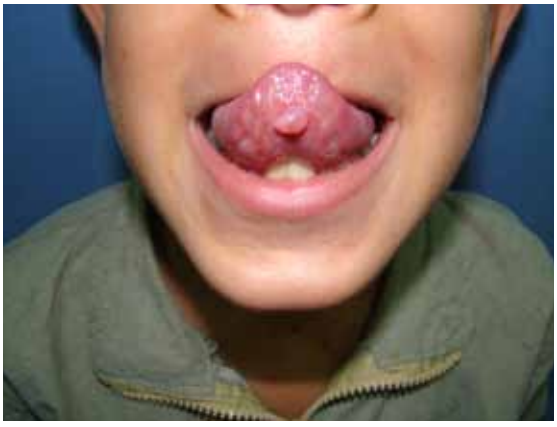

Fig 1 A solitary flesh colored pedunculated nodule, not tender not indurated, affecting the ventral surface of the tongue.

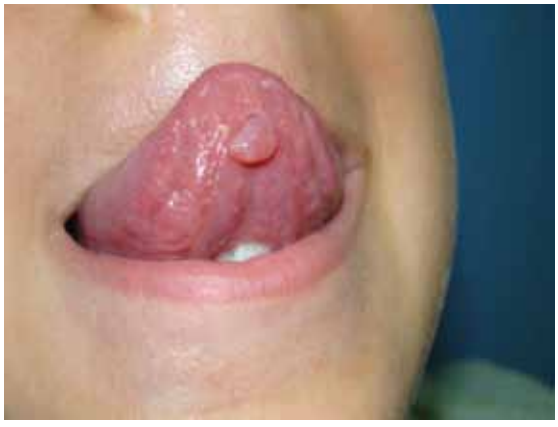

Fig 2 The nodule Measuring about 0.5 cm in diameter and smooth shiny surface that shows telangictasia.

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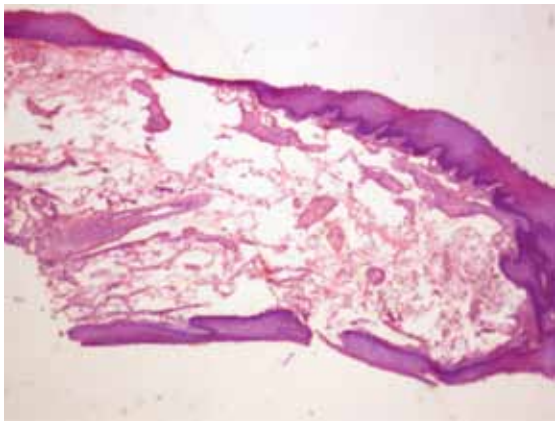

Fig. 3 Multiple vacuolated spaces on the subepithelial tissue (H&E x20).

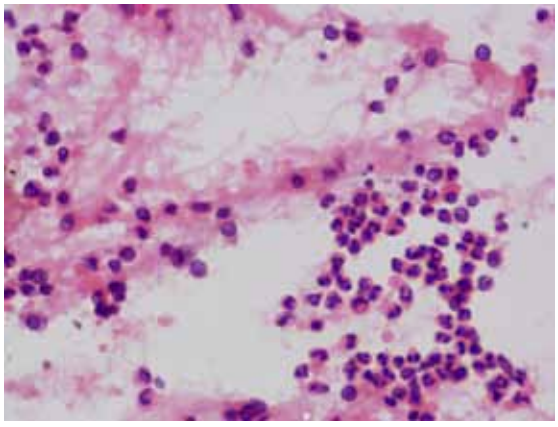

Fig. 4 Marked inflammatory infiltrate composed mainly of neutrophils and mast cells (H&E x200).

Fig. 5 Alcian blue stain shows positive deposit of mucin within the spaces (AB stain x400).

DIAGNOSIS

Oral Mucocele.

COMMENT

Oral mucoceles (OMs) are benign soft tissue masses and are clinically characterized by single or multiple, painless, soft, smooth, spherical, translucent, fluctuant nodule, which is usually asymptomatic. Mucoceles (muco - mucus and coele - cavity), by definition, are cavities filled with mucus. The prevalence of mucocele is 2.5 lesions per 1000 population in America, 0.11% in Sweden and 0.08% in Brazil. They represent the 17th most common lesion of oral cavity.[1]

Oral mucoceles are usually dome-shaped enlargement with intact epithelium. It is the most common minor (accessory) salivary gland lesion affecting the general population. Minor salivary glands are found in most parts of the oral cavity except the gingiva.[2] Oral mucoceles occur in varying locations on the oral mucosal surfaces overlying accessory minor salivary glands. Lower lip is most commonly affected by mucoceles. However, rare cases of mucoceles involving the upper lip, palate, retromolar region, buccal mucosa, lingual frenum and dorsal tongue have been reported.[3]

Oral mucoceles are believed to affect patients of all ages, with the highest incidence in the second decade of life. Teenagers and children are most commonly affected by mucoceles. It was reported that more than 65% of their patients with OMs were less than 20 years of age. Oral mucoceles are said to arise equally in both the sexes.[4]

The OMs located on the floor of mouth are termed as 'ranula', which usually arises in the body of the sublingual gland and occasionally in the ducts of Rivini or in the Wharton's duct. Ranulas are

considered a variant of mucoceles and the name is derived from the typical swelling that resembles the air sacs of the frog - 'rana tigrina'. A ranula manifests as a cup-shaped fluctuant bluish swelling on the floor of mouth and tends to be larger than mucoceles located in other regions of the mouth, reaching some centimeters in diameter.[5]

Oral mucoceles are classified as extravasation or retention type. The extravasation type is a pseudocyst without defined walls. It is caused due to mechanical trauma to the excretory duct of the gland leading to transection or rupture, with consequent extravasation of mucin into the connective tissue stroma and is seen frequently on lower labial mucosa, buccal mucosa and retromolar area; they are not lined by epithelial lining. The retention type is less common than extravasation, usually affects older individuals and is seen frequently on upper lip, hard palate, floor of mouth and maxillary sinus.[6]

Most of the OMs are devoid of the epithelial lining or are covered by granulation tissue. Oral mucoceles can be single or multiple often rupturing and leaving slightly painful erosions that usually heal within few days. The duration of lesion is not constant, from a few days to 3 years. The clinical presentation may vary depending on the depth of the lesion. The lesions are located directly under the mucous membrane (superficial mucocele) or in the upper submucosa (classical mucocele).[7]

Oral mucoceles may be located either as a fluid-filled vesicle or blister in the superficial mucosa or as a fluctuant nodule deep within the connective tissue. Spontaneous drainage of the inspisatted mucin, especially in superficial lesions followed by subsequent recurrence, may occur. The surface of long-standing lesions may show fibrosis. The superficial lesions appear as thin-walled, bluish swellings that rupture easily while the deeper lesions are well circumscribed swellings usually covered by normal appearing oral mucosa.[8]

Histologically, in the extravasation form, the accumulation of saliva induces an acute foreign body reaction, with the recall, in the affected area, of macrophages and neutrophils; thereafter, these cells are replaced by granulation tissue and fibroblasts, which defines a pseudocapsule.[9] Due to the absence of a clear epithelial layer, extravasation mucocele may be considered a false cyst or pseudocyst. By contrast, retention mucocele can be considered a true cyst, due to the presence of an epithelial layer of ductal origin, of cylindrical or flat cells.[10]

Surgical excision represents the only treatment for this disease. In fact, if surgical excision is not performed, particularly in the extravasation type, it is possible to observe a cyclical increase and decrease in the size of the lesion, as a result of the breakage of the cyst and new production of mucin. Surgical excision must include the cyst, generally well-coated by a fibrous capsule, together with the minor salivary gland responsible for the mucocele, in order to avoid undesired recurrences.[11]

Different surgical techniques have been described, depending generally on the lesion's clinical features. In traditional scalpel surgery, it was proposed that complete excision is recommended for small lesions and un-roofing procedure for large mucoceles.[12] Laser surgery, regardless of wavelengths, can be considered helpful in oral mucocele management, offering technical and clinical advantages. However, it is important to choose the correct surgical technique according to the clinical features of the lesions.[13]

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The Clinicopathological challenges of oral mucocele

Diagnosis	Clinical	Pathological
Pyogenic granuloma	• Typical lesion involves the interproximal gingiva • Usually present as smooth or lobulated red-to-purple masses • Either pedunculated or sessile • Vary in size from a few millimeters to several centimeters • Painless and soft to palpation	• A lobulated proliferation of capillary-sized vessels • Deep lobules are compact and cellular, with small indistinct lumina • Lobules are separated by myxoid or fibrous connective tissue septa • Surface epithelium is attenuated, and the margins of the lesion show epidermal collarette
Oral fibroma	• Mostly gingival in location • Presents as a painless firm, well-circum-scribed, round to oval, or lobulated mass • Dental pits are common findings in the mouth	• Myxoid and/or collagenous stroma • Covered by stratified squamous epithelium which may show some swollen cells with vacuolation near the surface • The stroma sometimes contains atypical cells showing fibroblastic and myofibroblastic differentiation
Dermoid cyst	• Usually asymptomatic masses present at birth • Unilocular structures between 1 and 4 cm in diameter • Containing fine hair shafts admixed with variable amounts of thick yellowish sebum	• Lined by keratinizing squamous epithelium with attached pilosebaceous structures • Eccrine and apocrine glands, as well as smooth muscle, may be present in the wall • The lumen of which contains hair shafts and keratinous debris
Lymphangioma	• Typically presented as multiple scat-tered or grouped translucent vesicles and papulo-vesicles in an area of skin • Lesion may range from a minute vesicle to a small bulla-sized lesion • Surface may be clear or vary from pink to dark red • Often associated with verrucous changes, which give them a warty appearance	• The epidermis is elevated above the general level of the skin • The papillary dermis shows solitary or grouped ectatic lymphatics • The channels are closely on the overlying epidermis and are thin walled, consisting predominantly of an endothelial lining • The vessels may contain eosinophilic proteinaceous lymph or blood or thrombus
Venous lake	• Appear as soft, dark blue, often multiple, papules • Few millimeters in diameter • Minor trauma to the lesions may produce persistent bleeding	• A single large dilated vascular channel is present, in the upper dermis • It has a very thin fibrous wall and a flat endothelial lining • A thrombus is sometimes present in the lumen