Asymptomatic swelling of the tongue

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CLINICAL PRESENTATION

A 10-year-old boy presented to the pedodontics department with a chief complaint of swelling of unknown duration on the left ventrolateral surface of the tongue. The lesion was asymptomatic, and the patient was unaware of its presence. His mother noted it while giving him a bath. His medical, surgical, drug, and family history were not significant. Under physical examination, the patient appeared to be otherwise healthy. On local examination, a well-defined oval swelling was seen, measuring about 1 cm in diameter. On palpation, the swelling was firm, nontender, and freely movable; the overlying mucosa was yellowish (Figure 1). No anesthesia or paresthesia of the lingual nerve distribution was found. Oral hygiene of the patient was fair. Routine hematologic and urine analyses were normal.

DIFFERENTIAL DIAGNOSIS

Considering the clinical presentation and localization of the lesion, we included mucocele, reactive lesions such as giant cell fibroma or focal fibrous hyperplasia, lipoma, granular cell myoblastoma, neurofibroma, neurilemmoma, vascular leiomyoma, and benign salivary gland neoplasm in the differential diagnosis.

Mucocele is a common oral mucosal lesion originating from minor salivary glands. Clinically, it appears as a discrete, more or less soft, nonpainful swelling of the mucosa. The lower labial mucosa is the most frequent site of involvement, but mucocele may develop at virtually any location where minor salivary glands occur, including the soft palate, retromolar region, tongue, and buccal mucosa. The lesion typically consists of a subepithelial vesicle, typically only a few millimeters in diameter, filled with mucus.[1]

Reactive lesions

Giant cell fibroma is a non-neoplastic oral lesion that usually presents as an asymptomatic mass. It commonly occurs in patients younger than 30 years, has a slight female predilection, and is found commonly on the gingiva, the tongue, and the buccal mucosa.[2] Focal fibrous hyperplasia, or irritation fibroma, typically presents as a pink nodule with a smooth surface and has a color similar to that of the surrounding mucosa. The labial mucosa, tongue, and gingiva are common sites. The peak incidence is between the fourth and sixth decades of life.[3] This is a strong consideration in the present case, as the clinical presentation is of firm, nontender swelling that is asymptomatic and slow-growing in nature.

Lipoma is a benign neoplasm that seldom occurs in the oral cavity. The most frequent oral site is the buccal mucosa, followed by the tongue, floor of the mouth, buccal sulcus, palate, lips, and gingiva. The clinical presentation is a smooth and shiny swelling that is nontender on palpation, soft, and mobile, with well-defined edges. There may be a yellow hue seen through mucosa.[4]

Granular cell tumor is slow growing, usually asymptomatic, and often discovered incidentally. It usually presents as a small, single, submucosal nodular mass, about 1 to 3 cm in size, hard, and usually covered by intact mucosa.[5,6] Most granular cell tumors are found on the head and neck region, with the tongue as the most common location, comprising 23% to 28% of cases.[7] On the tongue, the granular cell tumor usually occurs on the posterolateral aspect, in a position similar to the usual site of occurrence of squamous cell carcinoma, and it may present with similar symptoms, especially when the surface of the lesion is ulcerated.[7]

Benign neural neoplasm

Neurofibroma is an uncommon benign tumor of the oral cavity derived from the cells that form the nerve sheath. Localized or solitary neurofibroma is the most common

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Fig. 1. Clinical presentation of the lesion.

manifestation and develops along a peripheral nerve as a focal mass with well-defined margins, but it is never encapsulated. The tongue, buccal mucosa, gingiva, and lips have been reported to be affected by neurofibromas, with the tongue being the most common intraoral site.[8]

Schwannomas are tumors that correspond to peripheral nerves originating in the nerve sheaths. These tumors are considered uncommon in the oral cavity, with only 1% of the extracranial schwannomas having an intraoral origin. The tongue is the most common site in this region.[9] They usually present as a slow-growing mass of long duration, producing few symptoms.

Leiomyoma is a benign smooth muscle tumor that is rare in the oral cavity. Oral leiomyomas may be seen in any age group, with a mean age of occurrence around 41 years. Most of the oral leiomyomas arise from the smooth muscle of the vasculature.[10] Clinically the oral leiomyoma is characterized by a small, slow-growing, solitary, nodular mass located principally in the tongue, lips, palate, and buccal mucosa. Frequently it is asymptomatic, but there may be symptoms such as pain, tooth mobility, or difficulty in chewing.[11]

Benign salivary tumor

Tumors of the salivary gland comprise 3% of all neoplasms. The majority of salivary gland neoplasms are benign, with pleomorphic adenomas being the most common. Pleomorphic adenoma accounts for 60% of all benign salivary gland tumors[12] and is the most common neoplasm of the minor salivary glands (39% of cases).[13] The most common site for a minor salivary gland pleomorphic adenoma is the palate (10%), and involvement of the tongue is extremely rare. Pleomorphic adenoma of the tongue ranked farther down in the differential diagnosis in the present case because of its rarity and its more frequent occurrence at the base of the tongue.

The possibility of this lesion representing a malignant tumor was considered highly unlikely because of the painless, slow-growing nature of the lesion and the presence of well-circumscribed margins. Based on the history and clinical examination, a provisional diagnosis of a benign pathology was made.

DIAGNOSIS AND MANAGEMENT

The lesion was planned for excisional biopsy under local anesthesia. A superficial incision was given on the mucosa over the swelling. Dissection was done and the lesion was exposed. The lesion shelled out easily and was nonadherent to the surrounding tissue. The tissue was firm on palpation (Figures 2 and 3).

Microscopically, a cystic cavity containing the larval form of *Taenia solium* (i.e., *Cysticercus cellulosae*) was seen in the excised specimen. Cysticercus is surrounded by fibrous tissue with an invaginated scolex and 2 suckers. The cyst wall away from the scolex is thick and thrown into projections. The scolex and epithelium-lined tortuous body canal are continuous with the outer cystic layer. The cystic wall has duct-like invaginations lined by an eosinophilic membrane, outer wavy membrane, and multiple tiny ovoid nuclei in a fibrillar stroma. The middle layer of the cystic wall is cellular (Figures 4 and 5).

Thus, the final diagnosis was of cysticercosis cellulosae of the tongue. The patient was immediately sent for a computed tomography scan to rule out neurocysticercosis and intracranial calcifications. No intracranial pathologic findings were detected.

DISCUSSION

Cysticercosis is a parasitic infection caused by *Taenia solium*.[14] *Cysticercus cellulosae*, the larval stage of *T solium*, resides in muscles and other tissues in pigs that serve as intermediate hosts.[14,15] Taenia eggs may be ingested through the consumption of raw or undercooked pork, contaminated water, or vegetables or by autoinfection caused by egg reflux in the stomach in people infected with adult *T solium*.[15,16] The eggs develop into oncospheres that penetrate the intestine wall and, by way of lymphatic or vascular circulation, reach a destination where the larvae develop and become the cysticerci or "bladder worm" cysts, which are fluid-filled cysts.[14-16] Once a person becomes the host of *Cysticercus cellulosae*, cysticercosis can develop in various organs and tissues.[16]

In humans, cysticerci are most commonly located within the central nervous system, where they produce a pleomorphic clinical disorder known as neurocysticercosis, but they may also localize in the subcutaneous layers, muscles, heart, liver, and lungs.[14] Despite the abundance of muscular tissue in the oral and maxillofacial region, this has not been a frequent site of occurrence for cysticercosis. In one dataset for the oral cavity, the most frequently involved site was the tongue (42.15%), followed by the lips (26.15%)—with the lower