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Results of a Head and Neck Examination: Evaluation of a Tumor of the Floor of the Mouth

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Results of a Head and Neck Examination

Evaluation of a Tumor of the Floor of the Mouth

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ABSTRACT

This article reviews a solitary, well-defined tumor of the floor of the mouth. The tumor presented as a raised, elevated, sessile mass that was freely movable and soft to the touch. The case illustrates the importance of performing a thorough head and neck examination, and formulating a differential diagnosis if any abnormality is detected. The clinical features, histopathology and responsibility of the dental hygienist in performing a thorough head and neck examination is reviewed.

CLINICAL DESCRIPTION

During an intraoral and extraoral head and neck examination, a dental hygienist noted a 6.0 cm swelling in the floor of the mouth of a 69-year-old male (Figure 1). The tumor was sessile and palpable intraorally and extraorally. The patient noted he was aware of the "swelling" in the floor of his mouth, and had sought examination by a general surgeon "a few years ago." That examination was actually nine years ago, with the tumor considerably increasing in size since that time. Intraorally, the mass was yellowish in color, soft to the touch and well-defined. The tumor had a relative mobility over the underlying bone and soft tissues. No redness or inflammation of the surrounding oral mucosa was present and the tumor was not visible radiographically. The patient's medical and dental histories were within normal limits. The patient was referred to an oral surgeon for diagnosis and treatment.

Figure 1. Clinical photograph of the 6.0 cm mass detected in the floor of the mouth.

DIFFERENTIAL DIAGNOSIS

Prior to diagnosis, the following tumors would be considered in making a definitive diagnosis. The tumors are listed and categorized for clarity and organizational purposes:

Developmental tumors:
- Lymphoepithelial cyst.
- Thyroglossal tract cyst.
- Dermoid cyst or teratoma.

Reactive or inflammatory tumors:
- Mucocele.
- Ranula.

Salivary gland tumors:
- Pleomorphic adenoma.
- Mucoepidermoid carcinoma.
- Adenoid cystic carcinoma.

Benign-malignant tumors (of epithelial and connective tissue origin):
- Lipoma.
- Neurofibroma.
- Leiomyoma.

Developmental Tumors

The lymphoepithelial cyst is a relatively uncommon lesion in the oral cavity.[1] Its clinical presentation is usually a yellowish elevated mass, commonly found on the floor of the mouth. Histologically, the lesion consists of well-circumscribed lymphoid tissue in a cystic cavity lined with stratified squamous epithelium.[1]

The thyroglossal tract cyst occurs as a firm, cystic, mid-line mass in the floor of the mouth, or in the midline of the neck. It may be as large as a few centimeters. Histologically, the thyroglossal tract cyst is lined with stratified squamous epithelium, columnar epithelium, or even transitional epithelium, surrounding lymphoid tissue, thyroid tissue and mucous glands.[1]

The teratoma is a cystic tumor comprised of different types of tissue which are not native to the site at which it occurs.[1,2] The teratoma can occur in a variety of locations in the head and neck, including the floor of the mouth. This tumor may contain hair, teeth and sebaceous glands.

The dermoid cyst is a form of cystic teratoma, comprised primarily of embryonic germinal epithelium.[1,2] When located in the floor of the mouth, the lesion produces a bulge in the midline of the mouth. Histologically, the tumor varies in appearance. The cyst may be lined with stratified squamous epithelium and contain hair follicles, sweat glands and sebaceous glands.[1,2]

Reactive or Inflammatory Tumors

The mucocele (mucous retention phenomenon) is thought to have its etiology with trauma to the salivary glands and their ducts, such as with severence of a salivary duct.[1,2] The mucocele may be found throughout the oral cavity where salivary glands are present, but is most commonly seen on the lower lip, buccal mucosa or floor of the mouth. Clinically, the lesion appears as a raised, well-circumscribed mass, often with a bluish, translucent cast.

Mucoceles may range in size from a few millimeters to a centimeter or more. Histologically, the mucocele is comprised of a wall of fibroblasts and connective tissue surrounding a coagulum of leukocytes and mononuclear phagocytes.[1] However, this lining is not always present, a point which gives rise to controversy as to whether a mucocele (mucous retention phenomenon) constitutes a true cyst.

The ranula is a mucocele specifically found in the floor of the mouth.[1,2] It occurs on one side of the floor of the mouth, with the overlying tissue having a bluish appearance. Histologically, a ranula differs from a mucocele in that a definite epithelial lining (remnant cells of cervical sinus origin or cuboidal or columnar cells) may be present.[1]

Salivary Gland Tumors

Any type of salivary gland tumor should be considered, owing to the presence of the numerous minor salivary glands and the sublingual salivary gland in the floor of the mouth. Specific tumors that could be considered are: pleomorphic adenoma, mucoepidermoid carcinoma or adenoid cystic carcinoma. The pleomorphic adenoma ("mixed" tumor) is not a teratomatous tumor in nature, but instead owes its morphologic complexities to the differentiation of the tumor cells.[1,2] Cells commonly found in this tumor are fibrinous, osseous, hyalinized, myxoid or chondroid. The pleomorphic adenoma is the most common salivary gland tumor comprising more than 50% of all salivary gland tumors.[1,2]

Mucoepidermoid carcinoma, on a low grade level, as well as adenoid cystic carcinoma, would also be considerations in the differential diagnosis. Mucoepidermoid carcinoma is comprised of mucous secreting cells, and varying types of epidermoid-type cells. Mucoepidermoid carcinoma of salivary glands, if low grade, usually appears as slow-growing and may contain cysts filled with a viscous, mucoid material.[1,2] Adenoid cystic carcinoma, often involves salivary glands, and the cells, histologically, resemble basal cells.[1,2]

It should be noted that many salivary gland tumors, both benign and malignant, may be present seven or more years before diagnosis. Of course, if the tumor is malignant, metasteses would probably have already taken place, with the exception of adenoid cystic carcinoma which metastasizes late in the course of the tumor.[1]

Benign and Malignant Tumors (Of Epithelial or Connective Tissue Origin)

The lipoma is an intraoral tumor which can occur on the tongue, gingiva, buccal mucosa or floor of the mouth.[1,2] A yellowish appearance of this tumor is not uncommon. Histologically, a lipoma is composed of mature fat cells (adipose tissue).

Neurofibromas appear intraorally as nonulcerated nodules, which tend to be the same color as the normal mucosa. Neurofibromas intraorally are most commonly found on the palate, buccal mucosa, vestibule, tongue and alveolar ridge.[1]

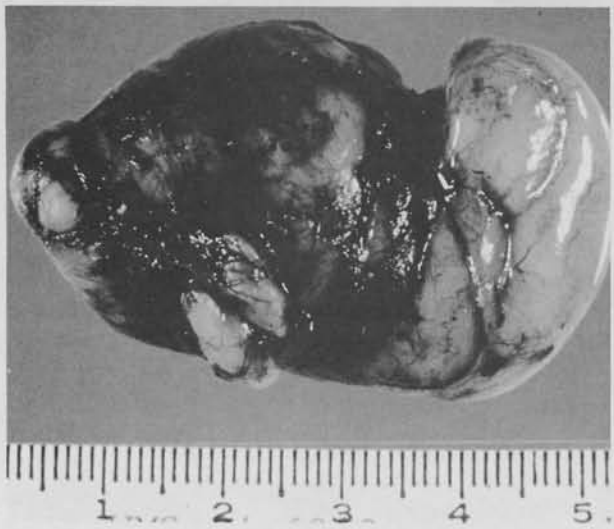

Figure 2. Gross specimen of the tumor after removal.

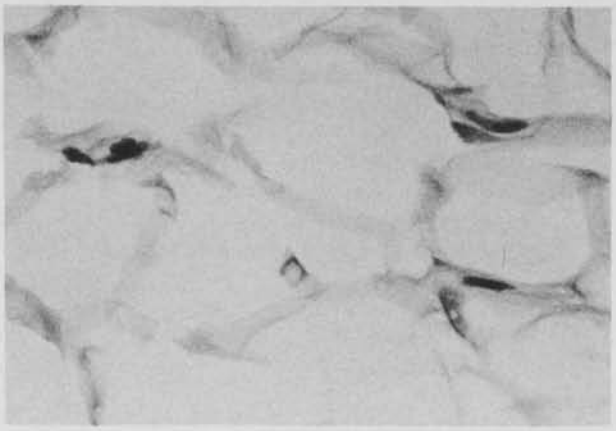

Figure 3. Photomicrograph of the tumor, demonstrating mature fat cells (adipose tissue) supported by fibrous connective tissue and divided into lobules. Collectively the tumor cells are surrounded by a fibrous tissue capsule.

Histologically, the neurofibroma is composed, generally, of spindle cells intermingled with neurites and connective tissue.[1]

Leiomyomas are benign tumors derived from smooth muscle.[1,2] It is an uncommon intraoral tumor, but when occurring there, it is most commonly found on the tongue, palate, cheeks, lips and salivary glands. The leiomyoma is a slow-growing, painless lesion. It is a nonulcerated mass, with normal color and texture.[1] Histologically, the leiomyoma is composed of smooth muscle fibers and fibrous connective tissue.[1,2]

Any malignant tumor which occurs in the floor of the mouth would have to be considered in formulating a differential diagnosis. Even though this lesion was present nine years, malignant lesions could be present many years before detection, increasing the chance of metastasis, and lessening the chance of successful treatment.

RESULTS OF THE DIAGNOSIS AND DISCUSSION

A preoperative diagnosis of lipoma was made. After surgical excision of the tumor (Figure 2), the tissue was evaluated histologically, and a final diagnosis of lipoma was made. The clinical examination of any of the tumors considered in the differential diagnosis could be similar. Only histologic examination could reveal the definitive diagnosis. The treatment for the tumors listed in the differential diagnosis varies dramatically from simple surgical excision to radical.

The lipoma is a rare tumor of the oral cavity,[1,3,4] comprising only 1% to 4% of all benign tumors of the oral cavity.[3] The etiology is unknown.[3]

Oral lipomas are present as yellow, pedunculated or sessile swellings.[4] The overlying epithelium is thin and the tumor is soft to palpation. The tumor may have such liquid mobility that it is mistaken for a cyst.[1] Lipomas are asymptomatic and the history of the tumor is usually poorly remembered by the patient due to its benign, slow-growing nature.[3] The tumor occurs more frequently in the fifth and sixth decades of life, with no familial or sex predilection.[3,4]

Histologically, the tumor is composed of mature fat cells that differ metabolically from normal fat cells, in that a person on a diet would loose fat from normal fat depots, but not from the lipoma (Figure 3).[1,3]

THE DENTAL HYGIENIST AND THE HEAD AND NECK EXAMINATION

The importance of the role of the dental hygienist in the performance of a head and neck examination cannot be overemphasized. The dental hygienist may be the first or only health care provider that the patient sees while presenting an oral abnormality. The dental hygienist must assume the responsibility for the referral of the patient for diagnosis and treatment, especially with laws changing that govern the practice settings and the type of supervision for the dental hygienist.

Certainly the dental hygienist should be familiar with the normal limits of appearances and textures or normal oral and related structures. All anatomical structures and features of the head and neck region must be examined, using visual, radiographic and tactile procedures, including bimanual and bidigital examination. The importance of the examination of the structures comprising the cancer horseshoe (the lingual anterior gingiva, the lateral borders of the tongue, the floor of the mouth and the retromolar areas) is critical and potentially life-saving.[6]

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