Abstract
The palate is a frequent site for oral lesions of different origins. The aim of this article is to present a case of a 62-year-old woman who was seen with a mass of the hard palate, and to discuss the differential diagnosis, diagnosis and management of the case.

Educational objectives
At the end of this program, participants will:
• Learn to develop an adequate differential diagnosis for masses of the hard palate,
• Understand the etiology, pathogenesis, and clinical manifestations of each disease included in the differential diagnosis, and
• Determine the optimal treatment options for each disease discussed in the differential diagnosis.
Case report

A 62-year-old woman sought care at Midwestern University’s Dental Institute for evaluation of a broken tooth and possible root-canal therapy. Medical history revealed back and shoulder pain, asthma and hypertension. The patient reported using albuterol, duloxetine, fluticasone, gabapentin, furosemide, lisinopril and tramadol. Extraoral examination showed posture and mobility abnormalities due to back, arm and shoulder pain. Intraoral examination revealed an asymptomatic, firm, well-defined, regular, sessile, predominantly pink but with a central red/purple hue, 1.0 x 0.8cm nodule of the hard palate, lateral to the midline (Fig. 1). The patient stated that the lesion had been present for approximately six months with minor changes in size, and could not recall any history of trauma.

Differential diagnosis

The palate contains abundant salivary gland tissue and is the most common intraoral site for salivary gland tumors. Thus, the clinical differential diagnosis for the current case included various lesions of salivary gland origin (reactive, benign and malignant). Additionally, a variety of tissue types (including vessels, nerves and muscle) are found in the palatal submucosa. Thus, the differential diagnosis of palatal masses should also include benign and malignant mesenchymal neoplasms. The clinical appearance, size and slow-growth history of the case described here favored a benign process, but as discussed below, low-grade malignant conditions may also exhibit similar features.

The consideration in the differential diagnosis was that the lesion represented a benign salivary gland tumor. The pleomorphic adenoma (PA) is the most common salivary gland tumor, accounting for 43 percent of palatal salivary gland tumors. The lesion usually presents as a slow-growing mass, with months or years of evolution. Patients of both genders and all ages can be affected, but PA is mostly seen in women between the ages of 30 and 60.

Malignant salivary gland tumors should also be considered in the differential diagnosis of hard-palate masses, because these tumors occasionally present borderline clinical behavior and characteristics that mimic benign neo-

First recognized in 1983, the PLGA is now considered one of the most common types of cancers of the minor salivary glands.
presents as an asymptomatic swelling, often with less than one year of evolution and less-aggressive clinical behavior.

The polymorphous low-grade adenocarcinoma (PLGA), a more recently described type of salivary gland malignancy, should also be included in the differential diagnosis of palate masses. First recognized in 1983, the PLGA is now considered one of the most common types of cancers of the minor salivary glands. The average age of affected patients is 59 years (range 50-79). Importantly, 65 percent of the cases occur in women and two-thirds of the cases occur on the hard and soft palate, where the lesion appears as a slow-growing, painless mass that may have been present for several months or years.

Occasionally, minor salivary gland tumors may show a blue or red color that can lead to a clinical impression of mucocele. Mucocele (also known as mucous extravasation phenomenon) is a common lesion of the mucosa, which results from rupture of a salivary gland duct and spillage of mucin into surrounding tissues. Patients commonly report trauma and a history of periodic rupture. Clinically, a bluish, translucent, fluid-filled, dome-shaped mucosal swelling is observed. Importantly, 80 percent of mucoceles occur in the lower lip, with only 1.4 percent appearing on the palate. Thus, clinical history, appearance and location of the patient’s lesion of the case described here did not favor the possibility of the lesion being a mucocele.

Besides lesions of salivary gland origin, the palate is a frequent location for mesenchymal tumors. Thus, leiomyoma, neurofibroma and schwannoma were also considered in the differential diagnoses for the current case. Considering the lesion’s clinical appearance and color, the most likely benign mesenchymal neoplasm would be a vascular leiomyoma. Vascular leiomyomas are rare lesions arising from smooth-muscle elements surrounding vessels. This lesion most commonly affects men in their fifth and sixth decades of life.

Malignant salivary gland tumors should also be considered in the differential diagnosis of hard-palate masses, because these tumors occasionally present borderline clinical behavior and characteristics that mimic benign neoplasms.

Lastly, Kaposi’s sarcoma (KS) should also be included in the differential diagnosis of palatal lesions, particularly when a red hue is present. KS is an unusual vascular neoplasm, caused by the human herpesvirus-8 (HHV-8). Any oral site can be affected, but the lesion is most common in the hard palate, gingiva and tongue. The disease develops initially as a patch, and with time evolves into a plaque and, finally, a nodule. Four types of KS have been described (classic, endemic, iatrogenic and AIDS-related). In the case reported here, the patient’s unremarkable medical history did not favor the possibility of the lesion representing a KS, although in certain occasions KS may be the first presenting sign of HIV disease.

Management
Considering the lesion’s sign and a most likely possibility of the lesion...
representing a benign process, an excisional biopsy was performed at Midwestern University’s Oral Surgery suite. The patient was anesthetized using 16mg of lidocaine with 0.09mg of epinephrine locally infiltrated around the lesion. Following anesthesia, an elliptical incision with a No. 15 blade was performed to entirely excise the lesion. The surgical procedure was uneventful and hemostasis was properly achieved. The obtained specimen was included in a vial containing 10 percent formaldehyde and submitted to histopathological analysis. The patient was advised to avoid hot foods and drinks for the following 24 hours and to take ibuprofen (400mg every four hours) if in pain. The patient was advised to seek care if profuse bleeding occurred or if bleeding persisted for more than 24 hours.

**Final diagnosis**

Histopathologic examination revealed a mixture of glandular epithelium and myoepithelial cells within a mesenchyme-like background. The epithelium was forming ducts and cystic structures. Characteristic plasmacytoid myoepithelial cells were noted. The final diagnosis was pleomorphic adenoma (PA). The patient has been followed-up for three months, with no signs of recurrence.

**Discussion**

PA, also known as mixed tumor, is the most common salivary gland neoplasm. Different studies have shown that the tumor accounts for 53 percent to 77 percent of parotid tumors, 44 percent to 68 percent of submandibular tumors, and 33 percent to 43 percent of minor salivary gland tumors. In all sites, PA usually appears as a slow-growing, firm mass, as described in this report.

PA affects patients of all ages and a slight female predilection is noted. Patients are normally aware of the lesion for many months or years before seeking medical care. The average size on diagnosis is 3cm, although lesions can occasionally grow to grotesque sizes. However, because intraoral tumors tend to cause some degree of discomfort, these are usually smaller at the time of diagnosis. This situation was seen in the case described, where the tumor had been present for about six months and measured 1.0cm in its largest diameter.

The palate and the upper lip are the most common locations for PA affecting the minor salivary glands, accounting for about 50 percent and 27 percent of the cases, respectively. Palatal tumors tend to appear as smooth-surfaced, dome-shaped swellings of the posterior hard palate, lateral to the midline. The case described here showed the classical appearance of a PA.

PA is usually treated with surgical excision and, with adequate therapy, the prognosis is excellent. Rarely, malignant degeneration into a carcinoma ex pleomorphic carcinoma may occur. Factors associated with malignant transformation include delay in treatment, multiple recurrences and previous radiotherapy.

**Conclusion**

In summary, the case described here shows that the differential diagnosis for a nodule of the hard palate is varied. A meticulous clinical history, thorough examination and histopathologic examination are required to achieve an accurate diagnosis and implement appropriate management.

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**References**


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**Author Bio**

Dr. Bruno Jham is assistant professor and assistant dean for academic affairs at Midwestern University College of Dental Medicine—Illinois. Upon obtaining his DDS in Brazil, Dr. Jham pursued a certificate and an MS in oral medicine. He then completed a residency in oral and maxillofacial pathology and obtained a PhD in oral and experimental pathology, both at the University of Maryland at Baltimore. He is a fellow of the American Academy of Oral and Maxillofacial Pathology and a diplomate of the American Board of Oral and Maxillofacial Pathology.
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1) The most common benign salivary gland tumor is the:
   A) Pleomorphic adenoma  
   B) Monomorphic adenoma  
   C) Oncocytoma  
   D) Papillary cystadenoma lymphomatosum

2) The most common malignant salivary gland tumor is the:
   A) Papillary cystadenocarcinoma  
   B) Adenoid cystic carcinoma  
   C) Mucoepidermoid carcinoma  
   D) Polymorphous low-grade adenocarcinoma

3) Pleomorphic adenomas usually present as a(n):
   A) Ulcerated mass  
   B) Rapidly growing mass  
   C) Slow-growing mass  
   D) Pigmented mass

4) Pleomorphic adenomas show a predilection for:
   A) Children  
   B) Men  
   C) Women

5) The most common intraoral location for pleomorphic adenomas is the:
   A) Lower lip  
   B) Upper lip  
   C) Palate  
   D) Buccal mucosa

6) Pleomorphic adenomas may undergo malignant transformation.
   A) True  
   B) False

7) Low-grade malignant salivary gland tumors may mimic benign processes.
   A) True  
   B) False

8) Vascular leiomyomas are benign neoplasms originated from
   A) Lymphoid cells  
   B) Neural cells  
   C) Smooth muscle cells  
   D) Skeletal muscle cells

9) Neurofibromas and schwannomas are benign neoplasms which both show proliferation of:
   A) Lymphoid cells  
   B) Smooth muscle cells  
   C) Skeletal muscle cells  
   D) Schwann cells

10) Kaposi sarcomas are caused by the:
    A) Epstein-Barr virus  
    B) Varicella-zoster virus  
    C) Herpes virus simplex  
    D) Human herpesvirus-8

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Slow-Growing Nodule of the Hard Palate

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