Mass Involving the Maxillary Right Posterior Edentulous Ridge

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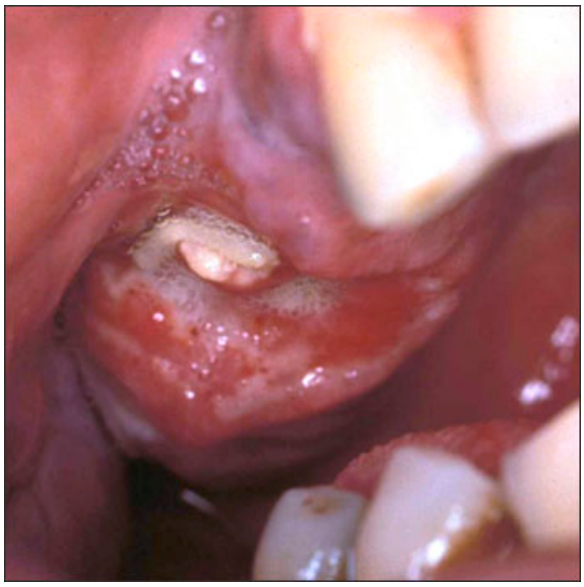
Online Case: *www.dentalcare.com/en-us/professional-education/case-challenges/case-challenge-057*



The following Case Challenge is provided in conjunction with the UT Health San Antonio School of Dentistry faculty.

A 37-year-old male presents with a large mass involving the maxillary right posterior edentulous ridge distal to #6.

After you have finished reviewing the available diagnostic information, make the diagnosis.

Diagnostic Information

History of Present Illness

Mr. Carl is a 37-year-old male who presents with a two month history of increasing pain involving the maxillary right posterior region. The patient complains of recent weight loss but is unsure of how much weight he has actually lost. He also complains of difficulty swallowing and a persistent cough that will not go away. He has had inconsistent dental care throughout his life and only visits a dentist when a "tooth needs to be pulled." His overall affect leads you to suspect his compliance is suspect. A review of his medical history reveals:

Medical History

- Adverse drug effects: no known drug allergies
- Medications: dolutegravir, abacavir, lamivudine
- Pertinent medical history: human immunodeficiency virus (HIV) seropositive
- Pertinent family history: paternal - unknown; maternal - IV drug abuser, currently in rehab for drug abuse
- Social history: IV drug abuser; 15 pack year history of cigarettes; 6-8 beers per day

Clinical Findings

Extraoral examination is unremarkable. Intraoral examination reveals a large mass involving the entire maxillary right posterior edentulous ridge distal to #6. The mass expands buccally and palatally. The surface is erythematous and demonstrates multiple ulcerations. An area of necrosis is noted in the center of the mass (Figure 1). An incisional biopsy is performed and the tissue submitted for histopathologic examination.

Histopathologic Findings

Histopathologic examination reveals ulcerated surface epithelium and subjacent connective tissue. The surface epithelium adjacent to the ulceration contains epithelial cells demonstrating enlarged multiple molded nuclei (Figure 2). The underlying connective tissue is well vascularized and contains an acute and chronic inflammatory infiltrate with numerous histiocytes. Small 6-8 µ circular structures are present within the histiocytes (Figure 3). The inflammatory infiltrate extends into the adjacent salivary gland lobules. The nuclei of several of the epithelial cells lining small ducts are enlarged, bright pink, and have a perinuclear clearing (Figure 4).and the tissue submitted for histopathologic examination.

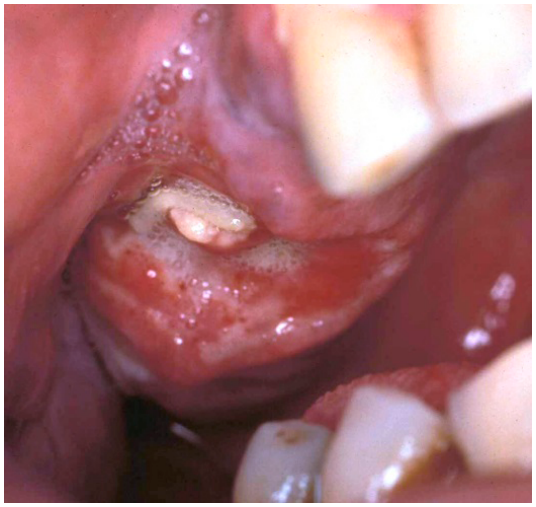


Figure 1. Large mass involving the maxillary right posterior edentulous ridge distal to #6.

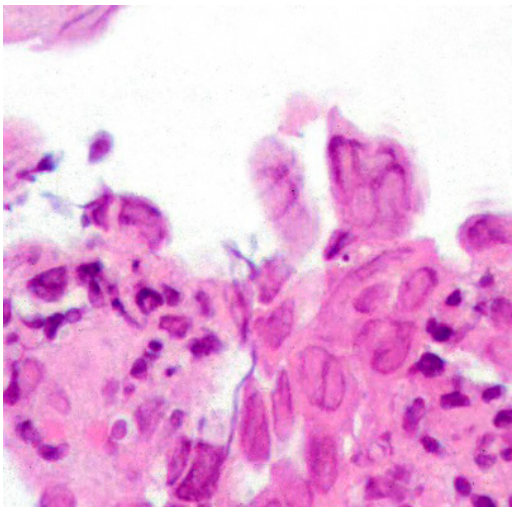


Figure 2. High power histologic image showing epithelium adjacent to the ulceration exhibiting viral cytopathic changes with multiple enlarged molded nuclei and homogenized chromatin.

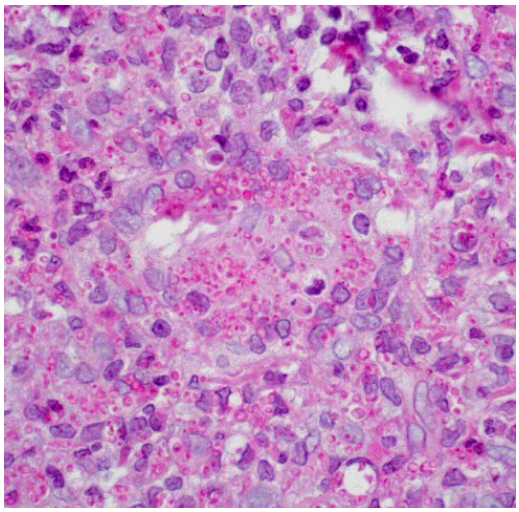


Figure 3. High power histologic image showing acute and chronically inflamed granulation tissue with numerous histiocytes containing small 6-8 µ intracytoplasmic circular organisms.

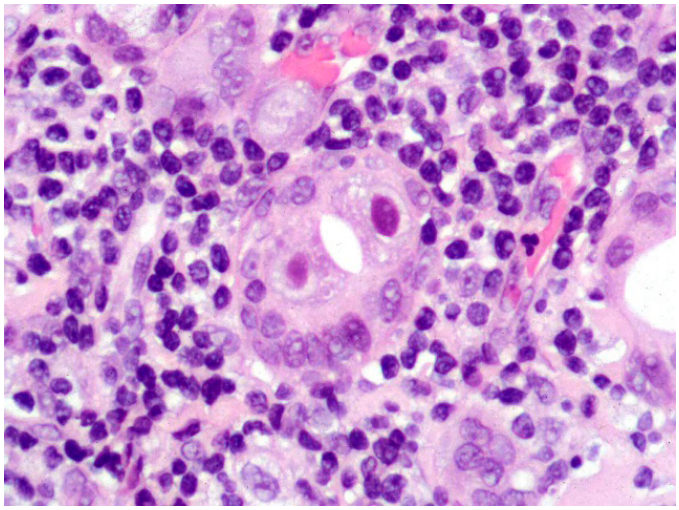
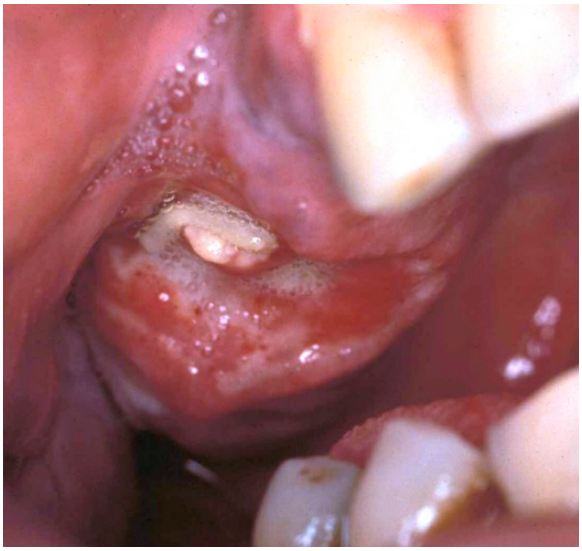


Figure 4. High power histologic image showing chronically inflamed salivary gland tissue. The salivary ductal epithelial cells are enlarged and exhibit viral cytopathic changes with large bright pink inclusions and perinuclear clearing.

Select Diagnosis

Can you make the diagnosis

A 37-year-old male presents with a large mass involving the maxillary right posterior edentulous ridge distal to #6.



Select the Correct Diagnosis

A. Non-Hodgkin lymphoma
B. Kaposi sarcoma
C. Traumatic ulceration
D. Infectious ulceration

Non-Hodgkin lymphoma

Choice A. Sorry, this is not the correct diagnosis.

Non-Hodgkin lymphoma (NHL) is a group of malignant neoplasms of lymphoid origin that arise in lymph nodes or in extranodal sites. Non-Hodgkin lymphoma is the most common malignancy in HIV seropositive individuals. Several histopathologic types are seen in the setting of HIV infection but the plasmablastic type is most often seen in this disease and is associated with Epstein-Barr virus (EBV or human herpesvirus type 4 or HHV-4) and possibly human herpesvirus type 8 (HHV-8) infection.[1-2] Most cases in HIV seropositive individuals are highly aggressive. The most common intraoral locations are the palate, tongue, and gingiva.[3] Histopathologic examination reveals a diffuse infiltrate of large lymphoid cells within the connective tissue. The cells are often poorly differentiated and show little cytoplasm. In the setting of HIV infection treatment consists of systemic chemotherapy along with highly antiretroviral therapy (ART).[4] The prognosis depends on the histopathologic subtype. The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

Kaposi sarcoma

Choice B. Sorry, this is not the correct diagnosis.

Kaposi sarcoma (KS) is a malignant neoplasm of endothelial cell origin caused by human herpesvirus type 8 (HHV-8). Several clinical types are recognized including presentation in immunosuppressed individuals. Kaposi sarcoma evolves through three clinical stages: patch, plaque, and nodular.[2] The patch stage is flat while the plaque and nodular stages are more exophytic. The stage correlates with tumor bulk. Kaposi sarcoma begins as a red to purple macule which, with time, assumes a nodular appearance. The overlying surface may be intact or ulcerated. Histopathologic examination reveals a proliferation of atypical spindle shaped cells arranged in fascicles within the connective tissue. Slit-like spaces are made although they do not represent true vessels. Extravasated red blood cells and hemosiderin pigment are common. Depending upon location and the medical status of the patient, treatment varies from surgical excision to chemoradiation. In immunosuppressed individuals the prognosis is guarded.[5-7] The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

Traumatic ulceration

Choice C. Sorry, this is not the correct diagnosis.

A traumatic ulceration appears as an area of ulceration secondary to a source of trauma. These lesions most commonly arise on the lateral border of the tongue, lips, and buccal mucosa and are often due to trauma from a fractured cusp, a broken clasp on a partial denture, or bite trauma. Another common name for this ulceration is an eosinophilic ulceration due to the numerous eosinophils found on histopathologic examination. A traumatic ulceration may occur at any age and a male sex predilection is noted.[2] Of clinical significance is that these lesions may be quite large and mimic the appearance of a squamous cell carcinoma. Therefore, a biopsy is mandatory in order to establish a definitive diagnosis. Histopathologic examination reveals ulcerated surface epithelium and underlying connective tissue. The connective tissue is well vascularized and contains a dense acute and chronic inflammatory infiltrate including numerous eosinophils. The eosinophils often extend into the striated muscle bundles. Treatment consists of surgical excision of the ulceration and addressing/removing the underlying cause. The prognosis is good.[8-9] The histopathologic findings in this case do not support this diagnosis.

Please re-evaluate the information about this case.

Infectious ulceration

Choice D. Congratulations! You are correct.

The infectious ulceration noted is this case was unusual in that three infectious agents were found in the specimen. The surface epithelial cells contained herpes simplex virus (HSV) cytopathic changes (Figure 2), the underlying connective tissue had a diffuse infiltrate of histiocytes with histoplasmosis in the cytoplasm (Figure 3), and the ductal epithelial cells exhibited cytomegalovirus (CMV) changes (Figure 4). HSV and CMV are both viral infections and are members of the human herpesvirus (HHV) family. HSV is also known as HHV-1 or HHV-2, and CMV is also known as HHV-5. Both viruses are common in immunosuppressed individuals including those who are HIV seropositive. Histoplasmosis is a deep fungal infection caused by *Histoplasma capsulatum*. This infectious disease is common in the Midwestern United States and is thought to be due to inhalation of organisms that grow in soil contaminated with bird and bat excrement. The organisms germinate in the lungs and typically remain there. During periods of immunosuppression the organisms may spread to extrapulmonary sites, including the oral mucosa. The typical clinical presentation in the oral mucosa is a non-healing ulceration.[2,7,10] Histopathologic examination of HSV infection includes multiple, molded nuclei in squamous epithelial cells. CMV infection occurs typically in ductal epithelial cells or endothelial cells. An enlarged, eosinophilic nucleus and perinuclear clearing is noted. Histoplasmosis appears as numerous 6-8 μ yeasts within the cytoplasm of histiocytes found in the connective tissue.[2,7] In an immunosuppressed patient treatment of HSV and CMV requires systemic antiviral drugs while treatment of histoplasmosis requires systemic antifungal medications. Due to the severe immunosuppression in our patient, he expired shortly after the diagnosis was established. The cause of death was disseminated HSV and histoplasmosis.

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Anne Cale Jones graduated from the University of Alabama in 1981 with the Bachelor of Science degree (Magna Cum Laude) in Natural Sciences. She received a Doctor of Dental Surgery degree (Magna Cum Laude) from the Medical College of Virginia, Virginia Commonwealth University in 1986. Following a three-year residency program in Oral and Maxillofacial Pathology at Booth Memorial Medical Center in Queens, New York, Dr. Jones joined the faculty at the University of Florida, College of Dentistry. In 1998, she became a faculty member at The University of Texas Health Science Center at San Antonio. She is currently a Distinguished Teaching Professor in the Department of Pathology and is board certified by the American Board of Oral and Maxillofacial Pathology.

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