

Painful Ulcerations 9 Months After Immediate Denture Placement

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Online Case: www.dentalcare.com/en-us/professional-education/case-challenges/case-challenge-062



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

A 79-year-old male presents with painful mouth sores under his lower denture.

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

Diagnostic Information

History of Present Illness

Mr. Chappin is a 79-year-old white male who presents for an evaluation of his "mouth sores." He first noticed having difficulty wearing his lower denture about one month ago and it has progressively gotten worse. He points to the molar area of his lower left mandibular ridge. He had an immediate denture placed nine months ago and up until a month ago he was doing fine. A review of his medical history reveals:

Medical History

- Adverse drug effects: none
- Medications: zoledronic acid 4mg q 3 months, Lupron Depot 22.5mg q 3 months, spironolactone 100mg qd, losartan 50mg qd, aspirin 81mg qd, Centrum Silver qd.
- Pertinent medical history: metastatic prostate cancer x 3 years with metastases to pelvis, right hip and lower back (managed with irradiation/chemotherapy); HTN x 20 years
- Pertinent family history: paternal – prostate cancer, died at age 66; maternal – fatal stroke age 82; brother nonfatal MI at age 72
- Social history: 20 pack year history of cigarettes, stopped age 35; 1 glass of wine per night x 40 years; denies recreational drug use

Clinical Findings

Extraoral examination is unremarkable. Intraoral examination reveals a 3 x 3mm ulceration with exposure of alveolar bone and evident purulence on the facial aspect of the lower left alveolar ridge #20 area (Figure 1). Approximately 1 cm distal to this lesion is a small parulis from which pus is easily expressed when applying gentle pressure (Figure 2). Both areas are tender to palpation. The panorex reveals sclerotic healing socket sites and a slight cupping of the alveolar bone in the lower left mandibular molar area (Figure 3). A biopsy and debridement of the areas in questions were accomplished under local anesthesia.



Figure 1. Small purulent ulceration with osseous exposure.



Figure 2. Purulence expressed from parulis distal to area of osseous exposure.



Figure 3. Panoramic image; note sclerotic healing socket sites and slight cupping of alveolar bone #20 area.

Histopathologic Findings

Histologic sections of the biopsy show a segment of necrotic bone exhibiting empty osteocyte lacunae, ragged peripheral resorptive defects, and heavy surface overgrowth of bacteria. There are associated portions of soft tissue consisting of acute and chronically inflamed edematous, congested, granulation tissue containing interspersed vascular channels lined by plump reactive endothelial cells. The soft tissue is focally surfaced by reactive hyperplastic, spongiotic, stratified squamous epithelium exhibiting neutrophilic exocytosis.

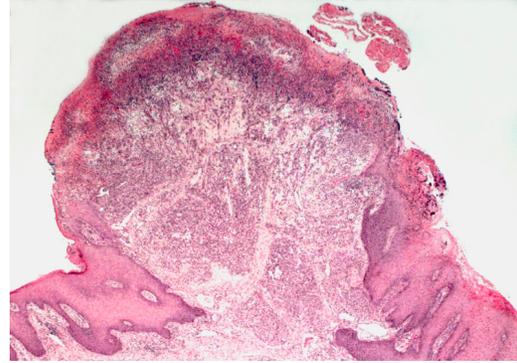


Figure 4. Histologic image of associated acute and chronically inflamed granulation tissue with interspersed congested vascular channels lined by plump reactive endothelial cells. There is a portion of reactive squamous epithelium exhibiting neutrophilic exocytosis.

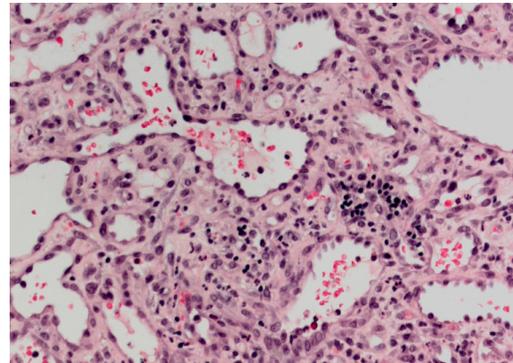


Figure 5. Histologic image showing a fragment of nonvital lamellar bone exhibiting empty osteocyte lacunae, ragged peripheral resorptive defects and heavy surface overgrowth of bacteria.

Select Diagnosis

Can you make the diagnosis

Painful ulcerations 9 months after immediate denture placement.



Select the Correct Diagnosis

- A. Osteoradionecrosis
- B. Metastatic prostate cancer
- C. Denture sore spots
- D. Medication-related osteonecrosis of the jaw (MRONJ)

Osteoradionecrosis

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

Osteoradionecrosis (ORN) of the jaw is defined as a persistent (> 3months) nonhealing bony exposure and necrosis in a patient who has undergone previous radiation therapy to the head and neck.^{1,2} It is typically associated with cumulative radiation doses exceeding 50Gy. It is believed the radiation damage to the bone renders the osseous tissues hypoxic, hypocellular, and hypovascular. While any osseous tissue “within” the radiation portal is at risk, the mandible is affected an estimated 24 times more frequently than the maxilla.¹ This is most likely due to the mandible being less vascularized than the maxilla.² Most cases of ORN occur within 3 years after the completion of radiotherapy, but the risk is considered lifelong. The onset of ORN usually occurs after a traumatic event affecting the oral tissues (e.g. tooth extraction, oral ulceration), but spontaneous cases can occur. Depending on the extent of involvement and the intensity of the inflammatory response, a patient with ORN may be asymptomatic or present with variable pain, swelling, lymphadenopathy and fever. Histologic findings consist of nonvital bone, empty lacunae, bacterial colonization and peripheral inflammatory response. While the histologic findings are similar to this case, the patient has no history of radiation to the head and neck, thus excluding this diagnosis.

Please re-evaluate the information about this case.

Metastatic prostate cancer

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

Metastatic solid tumors to the oral cavity are rare.^{1,3} The most frequent site is the mandible and the most frequently sited tumors that metastasize to the jaws are the breast, lung, thyroid, prostate, and kidney.¹ Presenting signs and symptoms may include jaw pain, toothache, soft tissue lesion (either as a mass or an ulceration), tooth mobility, trismus, paresthesia, and numbness.^{1,3} Radiographic findings are variable and may be either radiolucent or radiopaque, or mixed. An ill-defined or “moth-eaten” appearance to the involved bone is often noted. The histologic findings are widely variable and dependent on the tumor source and differentiation. The histopathologic findings presented do not support this diagnosis.

Please re-evaluate the information about this case.

Denture sore spots

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

Denture sore spots occur as a consequence of trauma to the mucosa underlying a removable prosthesis. Conditions such as poor prosthetic adaptation, flange overextension, grossly resorbed ridges, knife edge ridges, ridges with severe undercuts, or depressed irregular ridges increase the risk.^{4,5} Denture sore spots are most commonly observed during the adaptation period following delivery of a new denture and present as focal areas of mucosal irritation, erosion, or ulceration. The histologic characteristics of a denture sore spot consist of a nonspecific ulceration with inflammatory infiltrate. Careful adjustment of the intaglio surface corresponding to denture sore spot usually leads to resolution, but some cases will require the denture to be either relined or remade.^{4,5} The histopathologic findings presented do not support this diagnosis.

Please re-evaluate the information about this case.

Medication-related osteonecrosis of the jaw (MRONJ)

Choice D. Congratulations! You are correct.

Medication-related osteonecrosis of the jaw (MRONJ) is defined as the presence of exposed bone, or bone that can be probed through an intraoral or extraoral fistula, in the maxillofacial region that has persisted for longer than 8 weeks in a patient with current or previous treatment with antiresorptive or antiangiogenic agents. These patients have no history of radiation therapy to the jaws or obvious metastatic disease to the jaws.^{1,6,7} The bisphosphonate class of antiresorptive agents is most frequently implicated but the RANKL inhibitor agent denosumab and some antiangiogenic therapies are associated with MRONJ. The risk of developing MRONJ is directly related to the intensity and duration of exposure to at-risk medications and further influenced by patient comorbidities. The risk is generally considered highest for patients prescribed antiresorptive agents in the oncologic setting to reduce pathologic fracture risk. Patients prescribed antiresorptive agents for osteoporosis are considered to be 100 times less likely to develop MRONJ compared to oncology patients.^{1,6} The pathophysiology of MRONJ remains unknown with proposed mechanisms including disrupted bone remodeling or over suppression of bone resorption, microtrauma, angiogenesis inhibition, and inflammation or infection.⁶ Histologic findings reveal necrotic bone exhibiting empty osteocyte lacunae, ragged peripheral resorptive defects, and heavy surface overgrowth of bacteria. The patient with established MRONJ is best managed by an oral and maxillofacial surgeon, in coordination with the managing physician. The goals of therapy are to eliminate pain, control infection of the soft and hard tissues, and minimize the progression or occurrence of bone necrosis.⁶ The prognosis of MRONJ is generally favorable.

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