

# HIV AIDS Clinical Care: Oral Health

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# Abbreviations for Dosing Terminology

**BID** = twice daily

**BIW** = twice weekly

**IM** = intramuscular (injection), intramuscularly

**IV** = intravenous (injection), intravenously

**PO** = oral, orally

**Q2H, Q4H, etc.** = every 2 hours, every 4 hours, etc.

**QAM** = every morning

**QH** = every hour

**QHS** = every night at bedtime

**QID** = four times daily

**QOD** = every other day

**QPM** = every evening

**TID** = three times daily

**TIW** = three times weekly

## Important Notice

The U.S. Department of Health and Human Services (HHS) HIV/AIDS Bureau is committed to providing accurate information on the care of HIV-infected persons. It is important to be aware that management options and protocols change over time. Forthcoming HHS guidance on certain topics may differ from recommendations contained in this *Guide*. Readers are encouraged to check for updates to treatment guidelines at AIDS Info ([aidsinfo.nih.gov](http://aidsinfo.nih.gov)) and for updates to drug information at Drugs@FDA ([www.accessdata.fda.gov/scripts/cder/drugsatfda](http://www.accessdata.fda.gov/scripts/cder/drugsatfda)).

# Oral Health

## Background

Examination of the oral cavity should be included in both the initial and interim physical examination of all HIV-infected patients. Patients with lesions suspected to be oral manifestations of HIV disease should be referred to an oral health expert with experience in treating oral lesions associated with HIV/AIDS. Other oral lesions may be a sign of a systemic disease, a side effect of medications, or a result of poor oral hygiene.

The following is an overview of conditions commonly seen in patients with HIV infection. See chapters *Oral Hairy Leukoplakia*, *Oral Warts*, *Oral Ulceration*, and *Necrotizing Ulcerative Periodontitis and Gingivitis* for more information about those conditions.

### HRSA HAB Performance Measures

Percentage of HIV-infected oral health patients who had a **dental and medical health history** (initial or updated) at least once in the measurement year

Percentage of HIV-infected oral health patients who had a **dental treatment plan** developed and/or updated at least once in the measurement year

Percentage of HIV-infected oral health patients who received **oral health education** at least once in the measurement year

Percentage of HIV-infected oral health patients who had a **periodontal screen or examination** at least once in the measurement year

Percentage of HIV-infected oral health patients with a **Phase 1 treatment plan** that is completed within 12 months

## Xerostomia (Dry Mouth)

### S: Subjective

The chief complaint may be a dry, “sticky,” or possibly a burning sensation in the mouth, or an inability to “taste” food. The patient may present with difficulty swallowing.

### O: Objective

The oral mucosal tissues appear dry and sometimes “shiny” in appearance. The lips may be dry and cracked, and the tongue is dry. Dental decay may be present on the cervical portion of the teeth (near the gingival margin or “gumline”). Oral candidiasis (thrush) may or may not be present.

### A: Assessment

The differential diagnosis for the cause of xerostomia includes but is not limited to medication side effects (e.g., from anticholinergics), systemic diseases (e.g., Sjögren syndrome), adverse effects of radiation therapy, and salivary gland diseases.

### P: Plan

Identify the cause of xerostomia and modify, if possible. Treat with artificial saliva products or oral lubricant products (e.g., Salivart, Biotene Oral Balance Dry Mouth Relief Moisturizing Gel, TheraSpray). Discourage sucking on hard candies with sugar that can promote caries (dental decay). Encourage patients to use sugar-free gums and candies to help promote salivary function. Promote good oral hygiene with flossing and brushing with a fluoride

toothpaste, and encourage regular (every 3-4 months) dental recall visits. Severe cases of xerostomia may be treated by prescribing cholinergic stimulants such as pilocarpine (Salagen).

## Burning Mouth Syndrome; Atrophic Glossitis

### S: Subjective

The patient may complain of a constant burning sensation in the mouth or a numbness or tingling feeling of the tongue. Eating certain foods or spices may trigger the burning sensation. The patient also may complain of dry mouth or a metallic taste in the mouth.

### O: Objective

The tongue and oral mucosal tissues may be normal in appearance or there may be a slight redness on the tip and lateral margins of the tongue. In other cases, the tongue may appear “bald,” owing to the loss of papillae on the dorsal surface, and it may be “beef red” in color.

### A: Assessment

Possible systemic etiologies include nutritional and vitamin deficiencies (atrophic glossitis), chronic alcoholism, medication adverse effects, diabetes mellitus, and gastric reflux. Local etiologies include denture irritation, oral habits such as tongue or cheek biting, and excessive use of certain toothpastes or mouthwashes. Psychological factors and nerve damage also may cause burning mouth. Erythematous candidiasis also can present as a burning sensation.

### P: Plan

Identify the cause of the burning sensation, if possible, by review of the medical history and by performing diagnostic tests as indicated (e.g., complete blood count, biopsy, or oral cytological smears). Once the underlying cause is identified, treatment may be as simple as changing a dentifrice or eliminating the identified irritant, or the condition may require systemic treatment.

## Recurrent Aphthous Ulceration (RAU)

### S: Subjective

The patient complains of a painful ulcer or ulcers in the mouth that recur.

### O: Objective

The typical appearance of an aphthous ulcer is a “red raised border with a depressed, necrotic (white-to-yellow pseudomembrane) center.” Aphthous ulcers tend to present on nonkeratinized or nonfixed tissues such as the buccal mucosa or posterior oropharynx and may be small or large, solitary or in clusters, and can resemble intraoral herpetic lesions (although herpetic lesions tend to present on keratinized tissues such as the roof of the mouth and gingival tissues).

### A: Assessment

The differential diagnosis includes traumatic ulcers and herpes simplex virus ulcers.

### P: Plan

The diagnosis usually is based on appearance. For further information, see chapter *Oral Ulceration*.

## Recurrent Herpes Simplex

### S: Subjective

The patient complains of a locally painful ulcer or ulcers on the lips or intraoral areas.

### O: Objective

Herpes lesions are located on the lips, gingival tissues, or the hard palate. They may appear as small vesicular lesions that rupture, forming small ulcers. They may rupture and coalesce into larger lesions.

### A: Assessment

The differential diagnosis includes aphthous ulcer and traumatic ulcer.

### P: Plan

The diagnosis usually is based on appearance. For further information, see chapters *Oral Ulceration* and *Herpes Simplex, Mucocutaneous*.

## Periodontal Disease

The medical evaluation of patients with HIV infection should include assessment of periodontal health. Whereas the same type of plaque-induced periodontal diseases can be seen in both immunocompetent and immunosuppressed individuals, periodontal disease in HIV-infected patients can be a marker of HIV disease progression. In the HIV-infected patient with periodontal disease, it is important to distinguish whether the periodontitis represents an acute/aggressive or chronic presentation unique to those with HIV disease. In addition, it is important to determine whether the patient has an inflammatory oral disease process that may further compromise his or her health.

Various illnesses and systemic factors (e.g., diabetes mellitus, hormonal abnormalities, medications, and malnutrition) can complicate the clinical presentation of periodontal disease. If significant periodontal disease is suspected, refer to an experienced dentist for diagnosis and treatment. Gingivitis (gum disease), a milder form of periodontal disease, usually is reversible with proper professional and home oral health care. For further information on necrotizing ulcerative periodontitis or necrotizing ulcerative gingivitis, see chapter *Necrotizing Ulcerative Periodontitis and Gingivitis*.

### S: Subjective

The patient may complain of red, swollen, or painful gums, which may bleed spontaneously or with brushing; chronic bad breath or bad taste in the mouth; loose teeth or teeth that are separating; or a “bite” that feels abnormal.

### O: Objective

Examine the gingival tissues. Periodontitis appears as localized or generalized gingival inflammation. The gingivae appear bright red or reddish-purple, ulcerated, or necrotic. Spontaneous gingival hemorrhage and purulent discharge may be evident around the teeth, especially if pressure is applied to the gingivae. Gingiva may be pulling away from the teeth. Feter oris may be present.

### A: Assessment

The differential diagnosis includes gingivitis, periodontitis, trench mouth, and oral abscesses. Diagnosis usually is based on appearance. Patients with severe or recalcitrant disease should be referred to an oral health care provider for definitive diagnosis and treatment.

**P: Plan**

Treatment may include:

- Warm saline rinses
- Daily brushing and flossing
- Antimicrobial mouth rinse (e.g., Listerine, chlorhexidine)
- Antibiotic therapy

For further information, see chapter *Necrotizing Ulcerative Periodontitis and Gingivitis*.

## Dental Caries Caused by Methamphetamine and Cocaine Use

Dental decay seen in individuals who smoke methamphetamine or crack cocaine, or use cocaine orally, often is referred to as “meth mouth.”

**S: Subjective**

The chief complaint may be pain in one or more teeth. However, if the condition is chronic, the patient may not complain of pain.

**O: Objective**

In meth mouth, the enamel on all teeth or multiple teeth is grayish-brown to black in color (owing to decay), and appears “soft” (this has been described as a “texture less like that of hard enamel and more like that of a piece of ripened fruit”). Oral mucosal tissues appear dry as a result of decreased salivary flow. The gingiva appears red or inflamed, and there may be spontaneous bleeding of the gingiva around the teeth.

Another pattern of dental decay can be seen in cocaine users who rub the drug along the gingiva in order to test its strength or purity. This can lead to localized dryness of the gingival tissues. Consequently, plaque sticks to the cervical portion of the teeth in the area where the cocaine is rubbed, resulting in dental caries along the cervical portion of the teeth.

**A: Assessment**

The differential diagnosis includes other causes of caries.

**P: Plan**

Refer to a dentist for appropriate care, which may involve restorative, endodontic therapy, periodontal care, and oral surgery. In severe cases, extraction of the involved teeth and replacement with a partial or complete denture may be necessary. Encourage proper oral hygiene; evaluate sucrose intake.

## Oral Cancer

**S: Subjective**

Oral malignancies may be symptomatic or asymptomatic. Data suggest two distinct pathways for the development of oropharyngeal cancer: one driven predominantly by the carcinogenic effects of tobacco or alcohol (or both), the other by genomic instability induced by human papillomavirus.

The patient may complain of a mouth sore that fails to heal or that bleeds easily, or a persistent white or red (or mixed) patch. The patient may note a lump, thickening, or soreness in the mouth, throat, or tongue; difficulty chewing or swallowing food; difficulty moving the jaw or tongue; chronic hoarseness; numbness of the tongue or other areas of the mouth; or a swelling of the jaw, causing dentures to fit poorly or become uncomfortable.

**O: Objective**

Perform a thorough evaluation of the oropharynx, as well as lymph nodes in the head and neck. Suspicious lesions may occur on the lips, tongue, floor of the mouth, palate, gingiva, or oral mucosa, and may appear as an ulcer or a soft-tissue mass or masses that can be pink, reddish, purple, white, or mixed red and white. The lesion typically is indurated and may be painful. It may enlarge rapidly between examinations.

**A: Assessment**

The differential diagnosis includes oral squamous cell carcinoma, lymphoma, Kaposi sarcoma, traumatic ulcer, hyperplasia, and hyperkeratosis.

**P: Plan**

An ulcerated lesion or symptom described above that is present for 2 weeks or longer should be evaluated promptly by a dentist or physician. If cancer is suspected, a biopsy should be obtained to make a definitive diagnosis. Treatment will be based on the specific diagnosis.

**Bruxism****S: Subjective**

The patient may complain of chronic facial or jaw pain, sensitive teeth, earache, or waking up with a headache or facial pain. Often, the patient is not aware that he or she is clenching or grinding the teeth. Bruxism very often is a result of increased stress or anxiety, causing the patient consciously or unconsciously to clench or grind the teeth. However, some people may be “nighttime bruxers” and grind their teeth while sleeping, often loudly enough to wake others sleeping in the same room.

**O: Objective**

Perform a focused evaluation of the oropharynx, jaw, and facial muscles. The teeth may appear shortened, flattened, or worn down as a result of chronic grinding or clenching of the teeth. There may be hyperkeratotic lesions on the inside of cheeks as a result of chronic grinding or biting. There may be tenderness with palpation of facial muscles.

**A: Assessment**

The differential diagnosis includes other causes of facial or jaw pain, such as caries, dental abscesses, and trauma.

**P: Plan**

Refer the patient to a dentist for treatment. Treatment may include wearing a bite guard or psychological or behavioral management therapy.

**Oral Piercing****S/O/A: Subjective/Objective/Assessment**

Jewelry worn in piercings in the tongue, lips, or cheeks can chip or fracture the teeth. Chronic rubbing of jewelry against the gingiva can cause the gingiva to recede, leading to periodontal problems. (These complications occur apart from procedure- or technique-associated complications associated with body piercing, such as inflammation and infection, bleeding, and transmission of bloodborne pathogens.)

**P: Plan**

Refer the patient to a dentist for treatment. Recommend plastic tongue jewelry as opposed to metal to prevent fracture of teeth. Removal of the jewelry may be warranted.

## Maxillary Tori; Mandibular Tori

### S: Subjective

The patient may complain of a “lump” in the roof or floor of the mouth, or behind the lower front teeth.

### O: Objective

Exostosis of normal bone (covered by oral mucosal tissue) can appear as a nodular or lobulated protuberance centrally located on the hard palate (maxillary tori) or unilaterally or bilaterally located behind the mandibular incisors (mandibular tori). This develops slowly and the patient may become aware of exophytic growth only if the area is inadvertently traumatized.

### A: Assessment

Differential diagnosis includes other benign or malignant lesions, including oral cancer.

### P: Plan

No treatment is indicated unless the exostosis interferes with speech or swallowing, or removal is needed for fabrication of dentures or a partial denture. Tori are a variation of normal anatomy.

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# Oral Ulceration

## Background

Oral ulcerations appear as necrotic or eroded areas on the oral mucosa, including the tongue. Most such lesions are idiopathic (aphthous) or of viral etiology (e.g., herpes simplex virus [HSV]; rarely herpes zoster [VZV]). Oral ulcerations may be caused by fungal, parasitic, or bacteriologic pathogens; malignancy; or other systemic processes. This chapter will focus on herpetic and aphthous ulcers.

Herpetic ulcerations tend to appear on keratinized tissues such as the hard palate or gingiva. Recurrent aphthous ulcers tend to manifest on nonkeratinized tissues such as buccal mucosa, soft palate, and lingual (bottom) surface of the tongue, and, by definition, recur.

## S: Subjective

The patient complains of painful ulcerated areas in mouth. He or she may have difficulty eating, drinking, swallowing, or opening the mouth, and may complain of sore throat.

Inquire about previous occurrences of oral ulcerative disease as well as ulcerative gastrointestinal diseases, including HSV, cytomegalovirus (CMV), or histoplasmosis. Ask about recent sexual exposures. Inquire about recent trauma or burns. Note current medications and any recent changes in medications; obtain history of tobacco (smoked and chewed) and alcohol use.

## O: Objective

Look for red or white-bordered erosions or ulcerations varying in size from 1 mm to 2 cm on the buccal mucosa, oropharynx, tongue, lips, gingiva, and hard or soft palate. Lesions caused by HSV tend to be shallow and occur on keratinized tissues. HSV lesions may appear as clusters of vesicles that may coalesce into ulcerations with scalloped borders. Aphthous ulcers present with a white or gray pseudomembrane surrounded by a halo of inflammation.

## A: Assessment

Rule out syphilis and other suspected pathogens as well as trauma, seizure, and other physical injury.

## P: Plan

### Diagnostic Evaluation

The diagnosis of HSV and aphthous ulcers usually is made on the basis of characteristic lesions. Location, duration, and recurrence are key elements in determining the nature of the oral ulcer. As mentioned previously, HSV-related ulcers most often present on keratinized fixed tissues; aphthous ulcers appear on nonfixed tissues such as buccal mucosa, and have a tendency to recur. Check the absolute neutrophil count (ANC), as a low count ( $<500$  cells/ $\mu$ L) may be associated with nonresponsive ulcerative disease. If diagnosis is uncertain, it is possible to perform HSV culture or polymerase chain reaction (PCR) testing on oral ulcerations that appear on keratinized tissues or the dorsal and lateral surfaces of the tongue, scraping near the margin of the lesion or unroofing a fresh vesicle, if available, and scraping the base. The sensitivity of HSV testing decreases when collections are taken from older, resolving herpetic areas; herpetic lesions  $>72$  hours old usually will not yield a positive culture.

If other diagnoses are suspected, perform culture or biopsy as indicated. Also perform biopsy for ulcers that do not respond to therapy (in nonneutropenic patients).

Note that syphilis is very common among some HIV-infected populations. For patients in whom primary syphilis (manifested by an oral chancre) is suspected, perform (or refer for) darkfield examination; check Venereal Disease Research Laboratory (VDRL) or rapid plasma reagin (RPR) results (note that VDRL or RPR results may be negative in primary syphilis); see chapter *Syphilis* for further information. It is worth noting that, whereas chancres are described as painless, open sores in the mouth usually are associated with some degree of pain.

### Treatment

If HSV culture is positive, or if HSV is strongly suspected owing to the appearance of the lesions or the patient's history, treat with HSV antiviral medication (e.g., valacyclovir, famciclovir, or acyclovir) while waiting for results of culture. Do not use topical steroids without a concomitant oral HSV antiviral if the lesion is of possible herpetic etiology. Refer to chapter *Herpes Simplex, Mucocutaneous* for more information regarding management and treatment of HSV lesions.

Recalcitrant minor aphthous ulcerations should be treated with topical corticosteroids (e.g., fluocinonide 0.05% or clobetasol 0.05% ointments mixed 1:1 with Orabase). For multiple small lesions or lesions in areas where topical ointments are difficult to apply, consider dexamethasone elixir (0.5 mg/5 mL); the patient is to rinse TID with 5 mL for 1 minute, then expectorate. As with all oral topical steroids, patients should not drink or eat for 30 minutes after rinsing. Continue treatment for 1 week or until lesions resolve.

In some cases, recurrent aphthous ulcers may respond to one of the various “magic mouthwashes” that contain combinations of antibiotic, antifungal, corticosteroid, antihistamine, and anesthetic medication. The inclusion of an antihistamine (e.g., diphenhydramine) or an anesthetic (e.g., lidocaine) may be helpful in treating pain associated with these ulcers.

For large or extensive aphthous ulcers, systemic corticosteroids may be needed: prednisone 40-60 mg PO daily for 1 week followed by a taper should prove beneficial. If this is ineffective, refer for biopsy to rule out CMV, other infection, or neoplastic disease.

For patients with major oral aphthous ulcers that are recalcitrant to other therapies, thalidomide 200 mg daily for 2 weeks may be considered. Thalidomide is teratogenic and should not be used for women of childbearing potential without thorough patient education and two concomitant methods of birth control. Consult with an expert.

Pain control may be needed in order for the patient to maintain food intake and prevent weight loss. Most of the topical treatments noted above will ease pain as well as treat the ulcer. Additional considerations for pain control include the following:

- **Oral anesthetics:** Various products are available, including gels (e.g., Gelclair, an adherent oral rinse that acts as an oral bandage), viscous liquids, and sprays (e.g., benzocaine, lidocaine). These may be applied topically or swished and expectorated. They will provide temporary relief, but may lead to a temporary loss of taste sensation.
- **Systemic:** If topical treatments are inadequate, consider systemic analgesics (e.g., nonsteroidal antiinflammatory drugs or opiates). Refer to chapter *Pain Syndrome and Peripheral Neuropathy*.

Assess nutritional status and consider adding liquid food supplements, if indicated. Suggest soft, nonspicy, or salty foods if the ulcer is interfering with food intake. Refer to a registered dietitian if client is experiencing pain, problems eating, or weight loss.

Refer to an oral health specialist or an HIV-experienced dentist as needed.

## Patient Education

- Advise patients to report any oral pain or difficulty swallowing to their health care provider.
- Instruct patients in the application of topical ointments, and indicate that they may require assistance if the lesion is difficult for them to see on their own.
- It is important for patients to maintain good nutrition and food intake while their oral ulcers heal. Advise them to eat soft, bland foods, and refer to a nutritionist if they have difficulty.
- Antiretroviral therapy should be initiated or optimized to improve immune function in patients with recurrent aphthous ulcers.

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# Oral Warts

## Background

Oral warts are caused by human papillomavirus (HPV) and may appear anywhere within the oral cavity or on the lips. They occur more frequently and more extensively in people with HIV infection than in those with normal immune function, especially in patients with advancing immune suppression (CD4 counts of <200-300 cells/ $\mu$ L). Oral warts may be refractory to therapy. The frequency of oral warts may increase, at least temporarily, in patients treated with antiretroviral therapy.

It should be noted that HPV infection is strongly associated with oropharyngeal cancer among subjects with or without the established risk factors of tobacco and alcohol use, although oral warts normally are not caused by the HPV types that are associated with oncogenic changes. One analysis of stored samples suggests that the percentage of all oropharyngeal cancers that are HPV-positive has increased from about 20% to 60% since about 1980. Researchers also have reported that HPV-related oral cancers were among the most responsive to chemotherapy and radiation.

## S: Subjective

The patient notices raised lesions in the mouth or on the lips. Warts are not painful unless they have been traumatized.

## O: Objective

Examine the oral cavity carefully for abnormalities. Wart lesions may vary in appearance from smooth, small, and slightly raised lesions to cauliflower-like or spiked masses with prominent folds or projections. They may be single or multiple.

Review recent CD4 counts. In patients with oral warts, the CD4 count usually is <300 cells/ $\mu$ L.

## A: Assessment

A partial differential diagnosis includes: squamous cell carcinoma, lichen planus, and traumatic hyperkeratinized areas resulting from cheek biting or tongue thrusting.

## P: Plan

### Diagnostic Evaluation

- The diagnosis of oral warts usually is based on the appearance of the lesions. If lesions are unusual in appearance, are ulcerated, or have grown rapidly, perform biopsy to rule out cancer. If there is suspicion of other causes, perform other diagnostic evaluations as indicated.
- HPV may be demonstrated with electron microscopy or in situ hybridization; this testing is not routinely required.
- Observation of these lesions is important because of the potential, however minimal, for development of squamous cell carcinoma.

## Treatment

- Treatment is difficult, as these lesions tend to recur. Treatment options include cryosurgery and surgical or laser excision. Care must be taken when using laser excision, as HPV can survive in an aerosol. Extraoral lesions (lip or corner of mouth) may be treated with topical agents such as podofilox topical solution (Condylox) or fluorouracil 5% topical (Efudex). Imiquimod 5% cream (Aldara) may help to prevent recurrence once the lesions have resolved.
- Refer to an oral health specialist or dentist for treatment.

## Patient Education

- Instruct patients to comply with regular dental and medical care regimens.
- Instruct patients to use medications exactly as prescribed.

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# Oral Hairy Leukoplakia

## Background

Oral hairy leukoplakia (OHL) is an oral infection caused by Epstein-Barr virus (EBV). It appears as white corrugated lesions (sometimes “hairy” in appearance) primarily on the lateral aspects of the tongue. The infection may spread across the entire dorsal surface onto the ventral surface of the tongue, and occasionally may be found on buccal mucosa. It is common in people with HIV infection, particularly in those with advanced immunosuppression (CD4 count <200 cells/ $\mu$ L), and may serve as a marker of HIV.

## S: Subjective

The patient notices new, white lesions on the tongue that cannot be wiped off or removed by scraping or brushing. The OHL lesions usually are asymptomatic, but occasionally may cause alteration in taste, discomfort, or other symptoms.

## O: Objective

Perform a focused examination of the oropharynx. OHL appears as unilateral or bilateral white plaques or papillary lesions on the lateral, dorsal, or ventral surfaces of the tongue or on buccal mucosa. The lesions may vary in appearance from smooth, flat, small lesions to irregular, “hairy” or “verrucous” lesions with prominent vertical folds or projections.

## A: Assessment

A partial differential diagnosis for OHL includes:

- Oral candidiasis
- Squamous cell carcinoma
- Geographic tongue
- Lichen planus
- Smoker’s leukoplakia
- Epithelial dysplasia
- White sponge nevus
- Irritation leukoplakia

## P: Plan

### Diagnostic Evaluation

A presumptive diagnosis of OHL usually is made on the basis of the clinical appearance of the lesions. OHL often is confused with candidiasis; the diagnosis of OHL should be considered for lesions that do not wipe away, as would be the case for pseudomembranous candidiasis. Definitive diagnosis of OHL requires biopsy and demonstration of EBV.

- Perform biopsy of lesions only if they are ulcerated or unusual in appearance, to distinguish OHL from cancer or other causes.

### Treatment

- Because OHL usually is asymptomatic, specific treatment generally is not necessary.
- Immune system reconstitution through antiretroviral therapy will resolve OHL; encourage initiation of HIV treatment if the patient is not yet on antiretroviral therapy.
- If specific treatment is required, the following options may be considered. Relapse is common after discontinuation of treatment.
  - Acyclovir 800 mg PO 5 times per day for 2 weeks; famciclovir and valacyclovir may be considered.
  - Topical tretinoin (Retin-A) 0.025-0.05% solution, podophyllin 25% in tincture of benzoin, and other treatments also have been used.

- For relapse of severe OHL, consider maintenance therapy with high-dose acyclovir, famciclovir, or valacyclovir.
- For severe symptomatic cases, surgical treatment (e.g., cryosurgery, excision) may provide temporary resolution.
- Candidiasis may be present concurrently; treat candidiasis if it is present (see chapter *Candidiasis, Oral and Esophageal*).

## Patient Education

- Advise patients that OHL rarely is a problem in itself, but may be a marker of HIV progression.
- Encourage patients to start antiretroviral therapy.
- Advise patients to contact their care providers if new symptoms develop.
- Instruct patients to comply with regular dental and medical care regimens.

## References

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# Necrotizing Ulcerative Periodontitis and Gingivitis

## Background

Necrotizing ulcerating periodontitis (NUP) is a marker of severe immunosuppression that affects gingival tissues (gums) and extends to the underlying bone or periodontium. It may or may not be distinct from necrotizing ulcerative gingivitis (NUG), which is considered to be confined to the gingiva. This discussion will focus primarily on NUP, but the microbial profiles and treatment recommendations for these two periodontal diseases are similar.

NUP in HIV-infected individuals is believed to be an endogenous infection that progresses to necrosis of the gingiva. Pathogens may include anaerobic bacteria and fungi. NUP usually presents as “blunting” or ulceration of the interdental papillae, but rapidly progresses to destruction of underlying alveolar bone. It usually is associated with severe pain and spontaneous bleeding. Several case reports have described extensive destruction leading to exfoliation of teeth within 3-6 months of onset, with sequestration of necrotic alveolar bone and necrotic involvement of the adjacent mandible and maxilla. Patients may present with concomitant malnutrition resulting from inability to take food by mouth. The prevalence of NUP in the HIV-infected population has been reported as 0-5%. NUP is the most serious form of periodontal disease associated with HIV.

## S: Subjective

The patient complains of painful, spontaneously bleeding gums, diminished or metallic taste, bad breath, or loose teeth (with a prevalence toward anterior teeth and first molars). “Deep jaw pain” is a common complaint and may reflect extension to adjacent mucosa.

## O: Objective

Examine the oral cavity carefully. NUP and NUG present with fiery red, ulcerated gingival tissues, and grayish exudate. Teeth may be very loose or missing and there will be a fetid odor from the mouth. The ulcerated tissues can extend past the attached gingiva to the adjacent mucosa. Necrosis of adjacent bone also is common.

## A: Assessment

The differential diagnosis includes other causes of gingival ulceration, such as herpes simplex

virus, herpes zoster, and cytomegalovirus. (See relevant chapters on these conditions.)

## P: Plan Treatment

Treatment usually is divided into the acute phase and the maintenance phase. The primary concern in the acute phase is pain control. For the maintenance phase, treatment is directed toward reducing the burden of potential pathogens, preventing further tissue destruction, and promoting healing.

- For uncomplicated NUP or NUG, the primary care provider should prescribe an antimicrobial rinse (see below), antibiotic therapy (see below), medications for pain management, and nutritional supplementation; the patient should be referred to a dental health care professional.
- Chlorhexidine gluconate rinse (0.12%) twice daily after brushing and flossing (an alcohol-free preparation is preferred).

- Antibiotic therapy (preferably narrow spectrum, to leave gram-positive aerobic flora unperturbed).
  - Metronidazole is the drug of choice, 500 mg PO BID for 7-10 days.
  - If the patient cannot tolerate metronidazole: clindamycin 150 mg QID or amoxicillin-clavulanate (Augmentin) 875 mg PO BID for 7-10 days, if no hypersensitivity or allergy to either drug exists.
- Refer to a dentist for the following:
  - Removal of plaque and debris from the site of infection and inflammation.
  - Debridement of necrotic hard and soft tissues, with a 0.12% chlorhexidine gluconate or povidone-iodine lavage.
  - Regular deep cleaning.

## Patient Education

- Advise the patient of the following: Good oral hygiene is critical for arresting gingival infection and tooth loss. Avoid smoking and try to eliminate emotional stress. When primary stabilization is achieved, resume daily brushing and flossing after every meal. This may be difficult during the acute phase, but it is very important to keep the mouth as clean as possible. Nutrition education and supplements (liquid diet, plus vitamins/minerals) are recommended.
- Frequent professional cleaning (every 3 months) may be needed during the maintenance phase.
- Patients taking metronidazole should not drink alcohol for at least 24-48 hours after taking the last dose, in order to avoid severe nausea and vomiting from a disulfiram-like reaction.
- Instruct patients not to drink or eat for 30 minutes after rinsing with chlorhexidine.

- HIV (and hepatitis C) may (rarely) be transmitted from bleeding gums during “deep kissing” or other activities (oral-genital contact). Advise patients/clients to avoid exposing partners to HIV by taking all necessary precautions, including abstinence from risky activities until this condition is healed and stable (no oozing of oral fluids).

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