# Quality Resource Guide

First Edition

# Review of Common Oral Lesions and Conditions

## Author Acknowledgements

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Dr. Huber has no relevant financial relationships to disclose.

## Educational Objectives

Following this unit of instruction, the learner should be able to:

1. Compare the etiopathology and clinical features of the fibroma, the pyogenic granuloma, the peripheral ossifying fibroma, the peripheral giant cell granuloma, and the papilloma.
2. Describe the numerous risk factors predisposing to oral candidiasis and first-line therapies used for treatment.
3. Outline the use of preventive and therapeutic measures to manage dry mouth.
4. Discuss the signs and symptoms of erythema multiforme, its typical clinical course, appropriate supportive measures, and indications for referral.
5. Describe the strategies for managing primary herpetic gingivostomatitis, recurrent oral herpes, and zoster.
6. List the characteristic signs and symptoms of recurrent aphthous stomatitis, its three types, and common therapeutic strategies for management.

MetLife designates this activity for **2.0 continuing education credits** for the review of this Quality Resource Guide and successful completion of the post test.



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The content of this Guide is subject to change as new scientific information becomes available.

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## Introduction

This Quality Resource Guide briefly reviews oral lesions and conditions commonly encountered in contemporary dental practice. The practitioner is reminded to make every effort to determine the diagnosis before initiating treatment, and a referral to a specialist is warranted when the indicated therapeutic strategies are beyond the scope of the practitioner's expertise. Lesions and conditions discussed include:

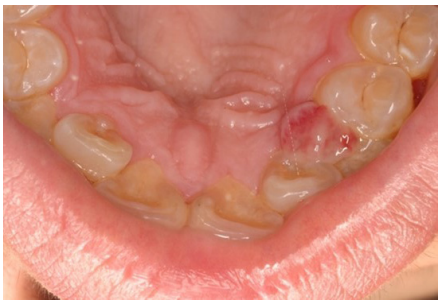
- **Lumps & Bumps**
  - Fibroma
  - Pyogenic Granuloma
  - Peripheral Ossifying Fibroma
  - Peripheral Giant Cell Granuloma
  - Papilloma
- **Actinic cheilosis**
- **Candidiasis**
- **Dry mouth**
- **Erythema Multiforme**
- **Herpes Virus Infections**
- **Oral Lichen Planus**
- **Recurrent Aphthous Stomatitis**
- **Stomatitis Areata Migrans**

## Lumps and Bumps

***Fibroma:*** Fibroma is the most common oral connective tissue growth that affects the oral cavity. It represents a reactive hyperplastic response to local irritation or trauma.[1] Fibroma typically presents as an asymptomatic sessile smooth-surface pink nodule on the buccal mucosa.

***Pyogenic Granuloma (PG):*** The PG represents an exuberant response to irritation or trauma.[1] The term is a misnomer, as PGs are neither pyogenic nor granulomatous. Most lesions arise from the gingiva and present as a red to purple pedunculated smooth or lobulated mass. Over time, the PG may undergo fibrous maturation to become a fibroma. PGs are commonly observed during pregnancy (*aka* pregnancy tumor or granuloma gravidarum), and it is postulated that the increased levels of estrogen and progesterone observed during pregnancy influence PG development and progression.

Pyogenic Granuloma

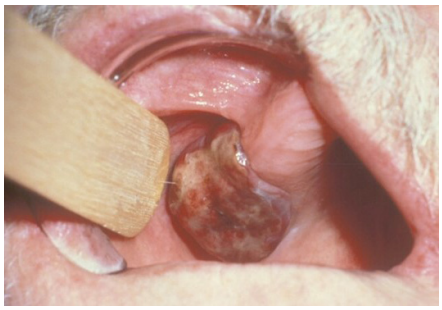


***Peripheral Ossifying Fibroma (POF):*** The POF most likely represents a fibrous maturation with calcification of a PG.[1] It occurs exclusively on the gingiva and usually presents as a red to pink nodular mass arising from the interdental papilla. Most POFs occur in teenagers and young adults, and female predilection is present. Over 50% of POFs affect the incisor/cuspid region.

***Peripheral Giant Cell Granuloma (PGCG):*** The PGCG is a reactive lesion caused by local irritation or trauma.[1] Like the POF, the PGCG only occurs within the gingival complex. It presents as a red to brown-purple pedunculated or sessile mass. "Cupping" resorption of the alveolar bone may be evident on radiographs.

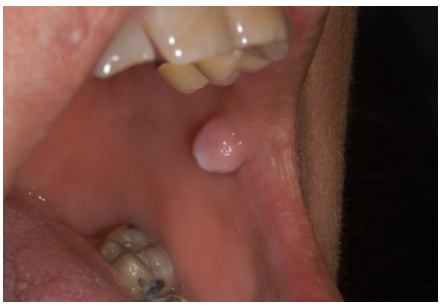
The treatment of choice for the fibroma, PG, POF, and PGCG is surgical excision.[1] The excised tissue should be submitted for microscopic examination to confirm the clinical diagnosis and rule out other benign or malignant conditions that may mimic the lesion. It should be noted that pregnancy tumors often undergo significant resolution post-partum; thus, the decision to perform surgery may be determined post-partum.

Peripheral Giant Cell Granuloma

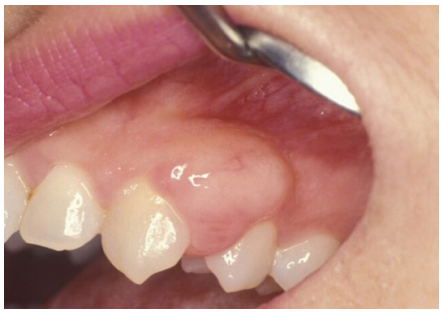


***Papilloma:*** The papilloma is a common benign human papilloma virus (HPV)-induced epithelial lesion that typically occurs on the palate and tongue.[2] The most frequently implicated HPV strain types are 6 and 11. The papilloma usually presents as a painless, pedunculated, papillated (cauliflower-like) nodule. The amount of keratinization dictates coloration and varies from pink to red to white.

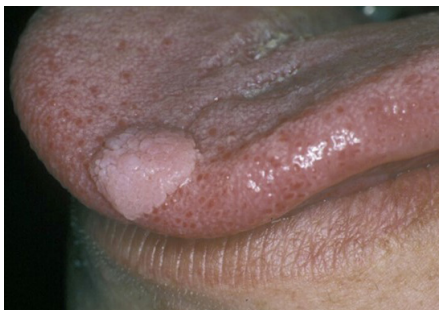
Fibroma



Peripheral Ossifying Fibroma

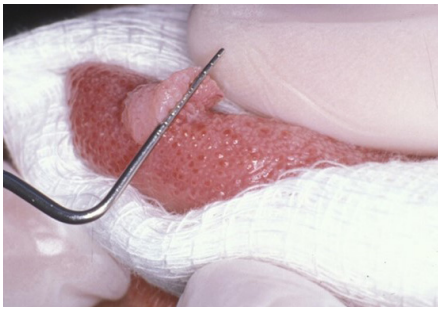


Papilloma



The treatment of choice is simple excision; however, untreated lesions pose a risk of HPV transmission. Since papillomas are caused by low-risk strains of HPV, there is no risk of progression to malignancy.

Papilloma



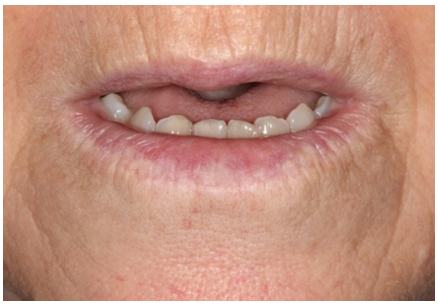
## Actinic Cheilosis (AC)

AC is an underappreciated premalignant disorder primarily affecting the lower lip vermilion.[3,4] An estimated 10% to 30% of AC cases become malignant. Chronic sun exposure is the most critical risk factor for AC. Additional risk factors include fair skin, male gender, increasing age, leisure and occupational activities involving intense sun exposure, genetic predisposition, and immunosuppression. Initially, AC presents as a dry, scaly, unobtrusive "chapped lip." More advanced AC manifests marked parallel fissuring, mottled white or gray plaques, erosion or ulceration along with crusting, and loss of elasticity. The demarcation between the lip vermilion and the surrounding skin can be blurred. The diagnosis of AC is straightforward and based on correlating a discerned history with characteristic clinical findings in an at-risk patient.

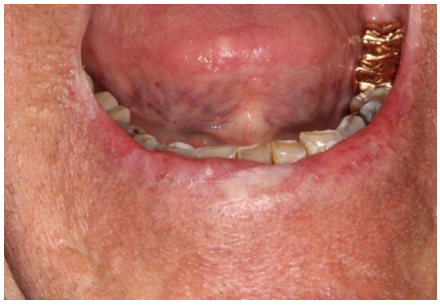
Early recognition and reducing sunlight exposure are critical measures to prevent AC progression.[4] The American Cancer Society recommends avoiding sun exposure, especially during midday hours, wearing a wide-brimmed hat to protect the head, face, and neck, and routinely using a broad-spectrum lip balm with an SPF of at least 30.[5] Patients with progressing or advanced AC should be referred to a specialist for further evaluation and management. Commonly used therapeutic options include surgery (vermilionectomy and Mohs surgery), ablation (cryotherapy, laser ablation, topical treatment using imiquimod, 5-fluorouracil, diclofenac, and ingenol mebutate), and photodynamic therapy.[4]

Actinic Cheilosis

Moderate



Advanced

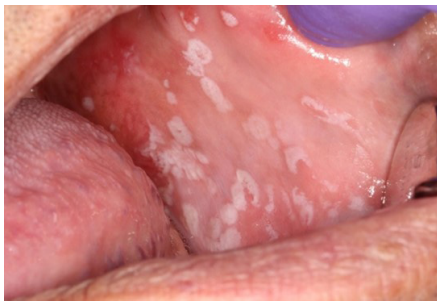


## Candidiasis

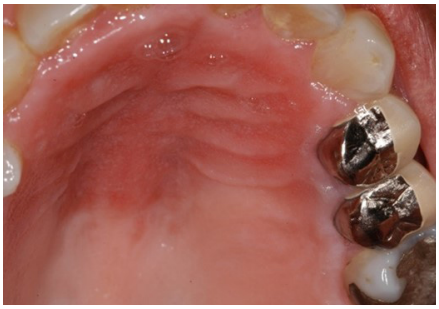
Of the more than 20 candida species, Candida albicans is the most frequently implicated cause of candidiasis. It is an opportunistic dimorphic yeast-like fungus carried as a component of the oral flora in 30% - 50% of individuals.[1] Numerous factors predispose to candidiasis, including medications (antibiotics, corticosteroids, medications that reduce salivary flow, and cytotoxic agents), dry mouth (Sjögren's, head and neck irradiation), immunosuppression (HIV, uncontrolled diabetes mellitus, cancer therapies), anemia, malnutrition, and poor oral hygiene.[6] Three clinical presentations are recognized, and there are three acknowledged associated specific lesions.[7]

Candidiasis Presentations

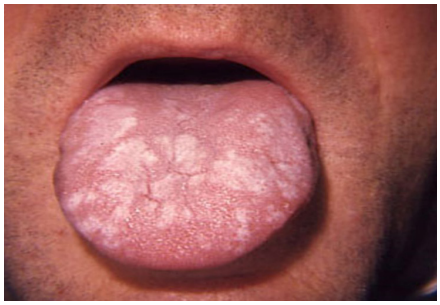
Pseudomembranous



Erythematous



Hyperplastic



| Candidiasis Presentations | |
|---|---|
| **Pseudomembranous** | Soft, white, slightly elevated plaques that can be wiped away |
| **Erythematous** | Focal or generalized areas of atrophic erythematous mucosa |
| **Hyperplastic** | Confluent white nodules or plaques that cannot be wiped away |
| **Candida Associated Lesions** | |
| **Angular Cheilitis** | Erythema, fissuring, ulceration, and crusting of the lip commissures/skin |
| **Denture Stomatitis** | Erythematous smooth or granular denture-bearing mucosa. It may be either asymptomatic or associated with burning |
| **Median Rhomboid Glossitis** | Elevated or smooth surfaced erythema at the junction of the anterior two-thirds and posterior one-third of the tongue |

The diagnosis of candidiasis is typically established by correlating the characteristic clinical findings with the patient's history. Equivocal cases should undergo cytological assessment or biopsy.[1] Therapy consists of risk factor elimination or reduction, and antifungal administration for fourteen days.[7,8] Persistence of predisposing factors is associated with recurrent infection. The historically used antifungal Nystatin is no longer recommended as first-line therapy.[8]

**Rx:** Clotrimazole (Mycelex) troches 10 mg
**Disp:** 70 troches
**Sig:** Let 1 troche dissolve in mouth five times daily. Do not chew.

**Rx:** Miconazole (Oravig) mucoadhesive tablet 50 mg
**Disp:** 14
**Sig:** Place 1 tablet to the maxillary canine fossa region qd.

**Rx:** Fluconazole (Diflucan) tablets 100 mg
**Disp:** 15
**Sig:** Take 2 tabs stat, then 1 tab daily.

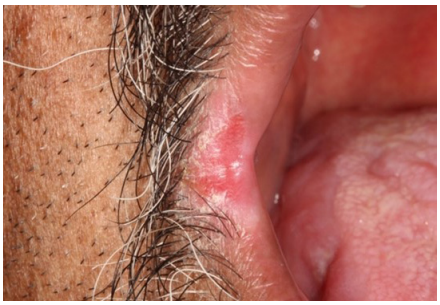
As there are limited agents to treat resistant forms of candida, patients unresponsive to the first-line therapies should be referred to a specialist for management.

### Candida Associated Lesions

***Angular Cheilitis:*** Angular cheilitis is typically a mixed infection of the microorganisms C*andida albicans, staphylococci,* and *streptococci*.[9] Potential etiologic factors include loss of vertical dimension, nutritional deficiencies (*e.g.,* iron, riboflavin, thiamine, and cobalamin), dry mouth, uncontrolled diabetes mellitus, smoking, and mouth breathing.[10] The diagnosis is straightforward and based on the characteristic clinical findings.

Predictable validated therapeutic interventions to manage persistent angular cheilitis are lacking. Some authorities recommend treatment with a topical antifungal combined with a corticosteroid.[10]

Angular Cheilitis

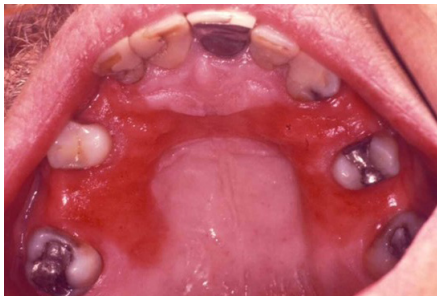


However, others caution that the steroid may contribute to increased bacterial and fungal colonization and thus recommend an antifungal with an antibiotic.[9]

**Rx:** Clotrimazole, 1% cream, mixed 1:1 with Mupirocin 2% cream*
**Disp:** 15 g tube
**Sig:** Apply to the affected area 2- 3 per day.
* Available at compounding pharmacies

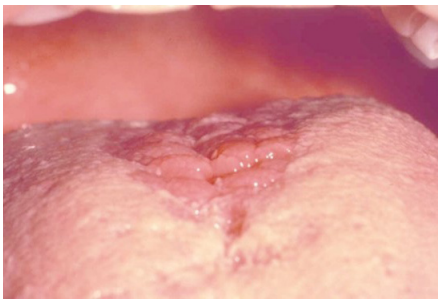
***Denture Stomatitis:*** Denture stomatitis is estimated to affect one-third of patients wearing removable prostheses.[6] It is usually asymptomatic, and common contributing factors include poor prosthesis fit, constant prosthesis wearing, and poor oral and prosthesis hygiene. Candidal infection is rarely noted and may be an incidental finding in denture stomatitis.[1] However, the poorly maintained prosthesis does serve as a reservoir for candida. Thus, the treatment of denture stomatitis focuses on correcting prosthesis fit, improving oral and prosthesis hygiene, and reducing wear time. Effectively disinfecting an acrylic prosthesis is problematic, and refabrication is often necessary.[9]

Denture Stomatitis



***Median Rhomboid Glossitis:*** Median rhomboid glossitis is typically asymptomatic and of little clinical consequence.[1] Therapy is generally not indicated.

Median Rhomboid Glossitis



## Dry Mouth

Oral dryness (*aka* xerostomia) is a commonly encountered condition, with a global prevalence of 23%.[11] Dry mouth risk increases with age and increases the risk of developing dental caries, periodontal disease, dysgeusia (altered taste), and functional deficits such as difficulty speaking and swallowing.[12] Causes of dry mouth include drugs, head and neck radiation therapy, dehydration, oral chronic graft-vs-host-disease, and Sjögren disease. The use of three oral drying medications daily increases the risk almost threefold.

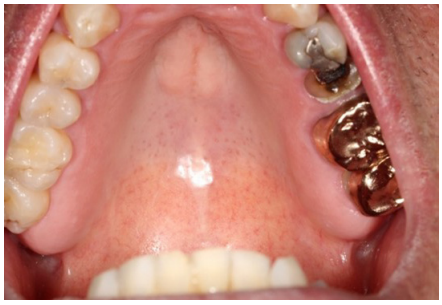
| Common Drug Categories Contributing to Dry Mouth |
|---|
| Anticholinergics |
| Antidepressants |
| Antihistamines |
| Antihypertensives |
| Antipsychotics |
| Immune Checkpoint Inhibitors |
| Sedatives |

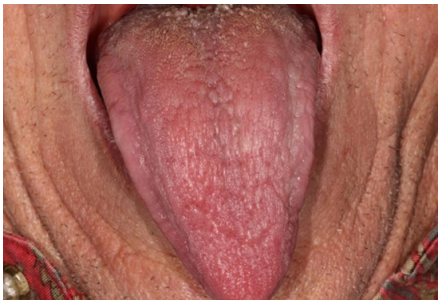
Signs of dry mouth include lip dryness/crusting, dry/sticky mucosa, atrophic mucosa, atrophic/fissured tongue, thick/ropey saliva, and lack of saliva pooling on the floor of the mouth. A thorough medical and dental history is needed to rule out potential causes of dry mouth. Frequent symptoms are increased thirst, altered taste perception,

sensitivity to spicy foods, burning, eating dryness, and difficulty swallowing. The diagnosis is typically straightforward, but a thorough medical and dental history is necessary to determine the cause. Sialometry is recommended to assess salivary function objectively. An unstimulated whole saliva flow rate equal to or less than 0.1mL per minute or a stimulated whole saliva flow rate equal to or less than 0.5 to 0.7mL per minute is diagnostic for hyposalivation.[13]

The goals in treating dry mouth are to alleviate symptoms and, when possible, reduce or remove contributory factors. Patients with severe dry mouth may require an accelerated examination and dental prophylaxis schedule. Standard measures include maintaining hydration, using a humidifier, gustatory stimulation (*e.g.,* sugar-free gums, candy), saliva substitutes, and medications.[12] OTC saliva substitutes may provide temporary relief, but efficacy varies widely among patients. Sialagogues may prove beneficial, but their use may be contraindicated by medical comorbidities (*e.g.,* respiratory diseases, cardiovascular diseases, urinary incontinence, and gastric disorders) and disrupting side effects (*e.g.*, sweating, headache, nausea, GI upset, urinary frequency, rhinitis).

Dry Mouth





Sialagogues:

**Rx:** Pilocarpine HCl (Salagen) tabs 5 mg
**Disp:** 84 tabs
**Sig:** Take 1 tab 30 minutes before meals. The dose may be titrated to 2 tabs three times daily.

**Rx:** Cevimeline (Evoxac) caps 30 mg
**Disp:** 84 tabs
**Sig:** Take 1 cap 30 minutes before meals, three times daily. The dose may be titrated to 2 tabs three times daily.

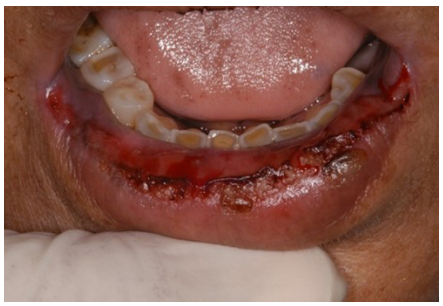
## Erythema Multiforme (EM)

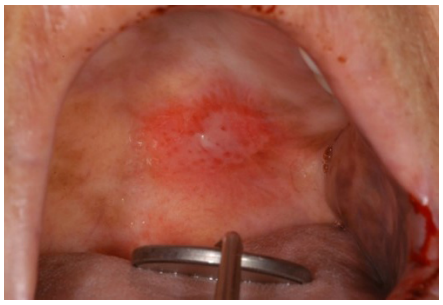
EM is an acute immune-mediated, self-limiting disorder affecting the skin or mucous membranes.[14,15] Antigen-antibody immune complexes target small blood vessels in the skin or mucosa.[15] Implicated antigens include infectious agents, drugs/toxins, and food additives. Herpes simplex virus is by far the most frequently implicated infectious agent (>50%); such cases are referred to as HAEM (herpes-associated EM).

As the term infers, the clinical characteristics of EM are variable.[14,15] The cutaneous target or iris lesions are highly characteristic. Oral mucosal lesions are present in about 70% of cases, often driving the patient to seek dental evaluation. Initial lesions are typically vesiculobullous and quickly break down to variably sized erosions and ulcerations. The most frequently affected sites are the buccal mucosa, palate, tongue, and lips. The lips often demonstrate a hemorrhagic crust, which is highly characteristic. The history of acute onset, combined with characteristic skin and mucous membrane lesions, supports the diagnosis of EM.[15]

Most cases of EM resolve within 4-6 weeks, and therapy is supportive.[15] The patient should maintain adequate nutritional intake and hydration; anti-inflammatory, anesthetic, or analgesic agents may be prescribed. Close monitoring for resolution is necessary. Patients with severe inability to ingest foods or worsening EM should be promptly referred to a dermatologist or oral surgeon for further assessment and management.

Erythema Multiforme





**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 100 mL
**Sig:** Rinse with 1 tsp (5 mL) for 2 min four times daily and spit out. Discontinue when lesions become asymptomatic.

**Rx:** Diphenhydramine elixir 12.5 mg/5 mL (OTC) 4 oz mixed with Kaopectate or Maalox (OTC) 4 oz (to make a 50% mixture by volume)
**Disp:** 8 oz
**Sig:** Rinse with 1 tbs (5 mL) and spit out qid.

Recurrence is possible if the triggering agent is either not identified or controlled. For HAEM, suppressive antiviral therapy is recommended.

**Rx:** Valacyclovir (Valtrex), 500 mg caplets
**Disp:** Sufficient quantity
**Sig:** Take bid

Of note, the historically referred to severe classifications of EM, Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are best considered to be distinct diseases.[16] SJS and TEN occur because of a delayed-type hypersensitivity

reaction to a drug or toxin. They manifest an "influenza-like" prodromal phase (malaise, fever), followed by painful cutaneous and mucous membrane (ocular, oral, and genital) lesions. The degree of skin involvement determines the classification: <10% for SJS, 10-30% for SJS/TEN overlap, and >30% for TEN. These disorders are potentially fatal and true medical emergencies. A patient presenting with signs and symptoms suggestive of SJS, SJS/TEN overlap, or TEN should be referred to a dermatologist and, if necessary, the emergency department.

## Herpes Virus Infections

Of the 80 identified herpes viruses, eight are known to infect humans.[17] Transmission occurs through direct contact with infested secretions and saliva. Latency is typical, and primary infections are often asymptomatic or mild. Oral involvement is most observed in HSV-1, HSV-2, and VZV patients.

### Herpes Viruses that Infect Humans

- Herpes Simplex type 1 (HSV-1)
- Herpes Simplex type-2 (HSV-2)
- Varicella Zoster virus (VZV)
- Epstein-Barr virus (EBV)
- Cytomegalovirus (CMV)
- Human Herpes virus 6 (HHV-6)
- Human Herpes virus 7 (HHV-7)
- Kaposi's Sarcoma Herpes virus (KSHV)

***Herpetic Gingivostomatitis*** refers to a clinically evident HSV-1, or less commonly, HSV-2 primary infection.[17] Most infections occur in childhood, and the overall prevalence rate for HSV-1 is about 48%.[18] Prodromal signs and symptoms of fever, headache, vomiting, and lymphadenopathy are common. Within a few days, widespread vesicular eruptions affecting intraoral mucosal surfaces occur. The pain varies from mild to severe and may impact the patient's ability to eat and drink. The characteristics of clinical presentation and history make for a straightforward diagnosis.

Herpetic gingivostomatitis is self-limiting in an otherwise healthy patient, with resolution noted in 7 – 14 days. However, immunocompromised patients may experience more severe disease and require medical referral for management. Latency is established via viral migration to the trigeminal and dorsal root ganglia.

Therapeutic strategies are supportive and consist of nutrition and hydration maintenance, fever control, and pain management.[17] An OTC nutritional supplement is recommended for those unable to eat comfortably. Anesthetic rinses may impair the protective gag reflex, and caution is warranted. The use of topical anesthetics such as benzocaine and lidocaine in children under the age of 4 years is associated with severe adverse effects (methemoglobinemia seizure) and is contraindicated.[19]

**Rx:** Diphenhydramine elixir 12.5 mg/5 mL (OTC) 4 oz mixed with Kaopectate or Maalox (OTC) 4 oz (to make a 50% mixture by volume)
**Disp:** 8 oz
**Sig:** Rinse with 1 tbs (5 mL) and spit out qid.

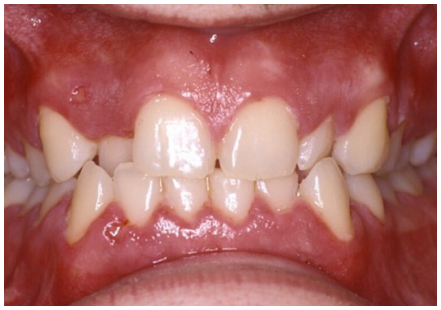
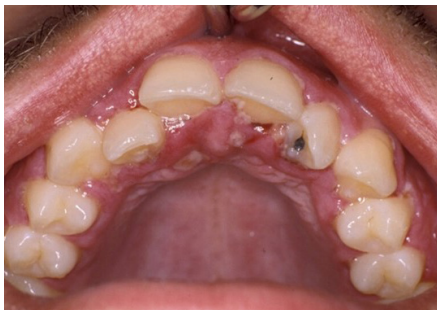
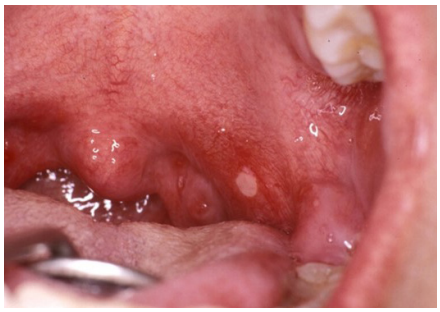
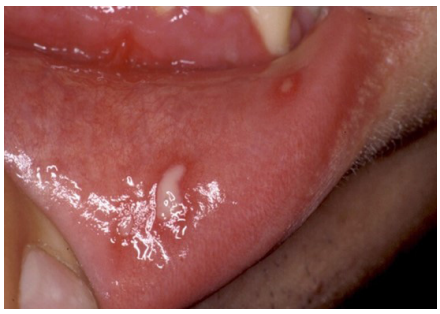
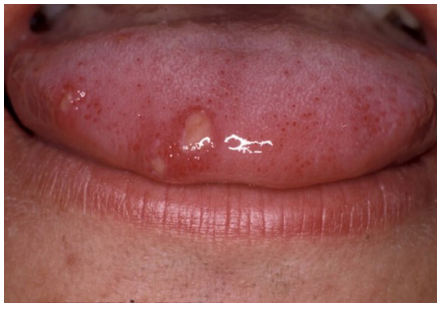
**Rx:** Lidocaine viscous 2%
**Disp:** 100 mL
**Sig:** Rinse with 15 mL for 1 minute q 3 hrs and spit out.

If the patient presents for care within 3 days of symptom onset, antiviral therapy may be helpful to accelerate lesion healing.[1,17] Adult antiviral dosing is provided below.

**Rx:** Valacyclovir (Valtrex) caplets 500 mg
**Disp:** 28 caplets
**Sig:** Take 2 caplets twice daily for 7 days.

**Rx:** Acyclovir (Zovirax) caps 200 mg
**Disp:** 42 caps
**Sig:** Take 2 caps three times daily for 7 days.

### Herpetic Gingivostomatitis

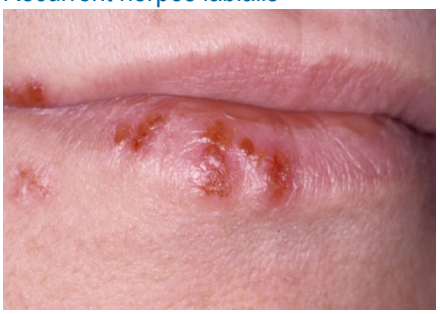






***HSV-1 Recurrence:*** An estimated one-third of patients with latent HSV-1 infection will experience at least one orofacial recurrence, with many experiencing multiple episodes throughout their lives.[1] There are three recognized forms of orofacial recurrence: recurrent herpes labialis (RHL *aka* fever blister), recurrent intraoral herpes (RIH), and intraoral recurrence mimicking a primary infection.[17] Precipitating triggers include fever, stress, exposure to sunlight, cold, wind, trauma, and hormonal alterations.

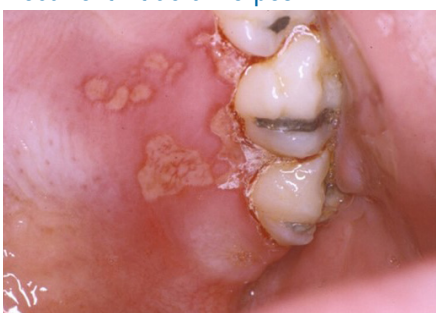
RHL is the most common form of recurrence and presents as clusters of vesicles on the lips and perioral region that quickly rupture and crust. Prodromal signs and symptoms of pain, burning, itching, tingling, warmth and erythema at the eruption site are commonly related.[1] RIH typically manifests as single or small clusters of vesicles that rupture to form painful ulcers. They usually only occur on the keratinized tissue of the hard palate and gingiva. Resolution of RHL and RIH occurs within 7-10 days. Infections mimicking a primary infection are less common and more likely in an immunosuppressed patient.[17]

HSV-1 Recurrence

Recurrent herpes labialis



Recurrent intraoral herpes



The liberal use of a sun-protective lip balm can effectively prevent sun-induced RHL. Therapies to manage RHL include topical and systemic antivirals, supplements, self-applied cryotherapy (ice), and low-level laser therapy.[20] A prophylactic two-dose course of valacyclovir is recommended from a convenience and compliance perspective.

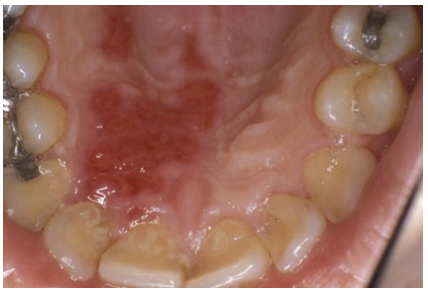
| | |
|---|---|
| **Rx:** | Valacyclovir (Valtrex) caplets 500 mg |
| **Disp:** | 4 caplets |
| **Sig:** | Take 2 caplets at onset of prodrome and 2 caplets 12 hrs later. |

***VZV primary (Varicella, aka chicken pox), and recurrent (Zoster, aka shingles) infections:*** Oral vesicles and ulcers may be present in Varicella, but these lesions are generally inconsequential.[17]

VVZV latency in the trigeminal ganglion places the patient at risk for orofacial zoster, and the risk increases with age. Zoster presents a discrete dermatome-defined vesicular eruption that characteristically stops at the midline. A prodrome of intense pain in the affected dermatome is noted in 90% of cases.[1] The primary concern with zoster is the risk of developing post-herpetic neuralgia, a condition of persistent intractable pain.[1,21] Treatment of zoster entails promptly administering antiviral and supportive measures to control itching and discomfort. Valacyclovir, 1000 mg 3x per day, for seven days is recommended.[20]

Vaccination to prevent or reduce the severity of both Varicella and zoster is highly recommended.[22,23] Two live attenuated varicella virus vaccines (single-antigen varicella vaccine VARIVAX® and combination MMRV vaccine ProQuad®) are available for Varicella. VARIVAX® is recommended for children aged >12 months, adolescents, and adults without evidence of immunity. ProQuad® is approved for use among healthy children aged 12 months through 12 years.[22] For zoster prevention, the recombinant, adjuvanted VZV glycoprotein E subunit vaccine (Shingrix®) is recommended for adults ≥ 50 years of age and immunosuppressed adults aged ≥19 years of age.[23]

Zoster



## Oral Lichen Planus (OLP)

Oral lichen planus (OLP) is recognized as a common, noninfectious, chronic inflammatory dermatologic disease of unknown etiology that affects the oral mucosa.[24] Proposed etiologic theories entail dysregulated T-cell-mediation of exogenous triggers or dysregulated response to autologous (self) keratinocyte antigens. The prevalence of OLP is 0.5% - 2.2%, and there is a female predilection.[25] Concurrent cutaneous LP lesions are typically not present. OLP is an oral potentially malignant disorder (OPMD), and the risk of malignant conversion is estimated at 1.4%.[26]

OLP presents a variable appearance that may be broadly classified as either reticular or erosive, and the most commonly affected site is the buccal mucosa.[1] Reticular OLP is most common and characterized by asymptomatic interlacing keratotic striations (*aka* Wickham striae) or papules. Erosive OLP manifests areas of atrophic, erythematous, and, at times, ulcerated mucosa. OLP of the gingiva often presents as desquamative gingivitis, a clinical term used to describe the painful, fragile, erythematous, and peeling gingival tissues. While reticular OLP is often the sole manifestation, erosive OLP usually presents with a concurrent peripheral reticular component. OLP is dynamic, and its appearance and severity wax and wane.

The diagnosis of classic reticular OLP is straightforward; however, erosive presentations should be biopsied to confirm the clinical

impression and rule out other conditions, such as lupus erythematosus, pemphigus, and carcinoma. Common mimicking conditions are "lichenoid" lesions.[25] Oral lichenoid contact lesions (OLCLs) occur due to a delayed immune-mediated hypersensitivity to a contact trigger (dental restorative materials, foods, spices). Oral lichenoid drug reactions (OLDRs) occur in temporal association with drug administration (oral hypoglycemics, ACE inhibitors, NSAIDs).

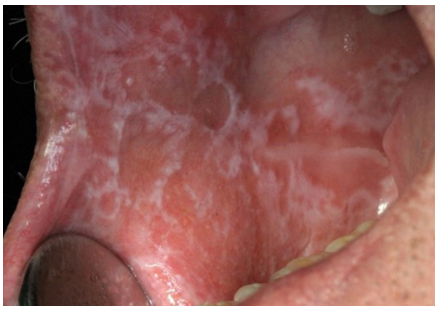
There is no cure for OLP, and therapy is targeted to improve patient comfort and reduce exacerbations.[1] Asymptomatic OLP requires no treatment but should be monitored every 6-12 months for a change in appearance. Topical corticosteroids are the first-line option to manage symptomatic OLP. A steroid gel is appropriate to manage a few discrete lesions, while a corticosteroid rinse is recommended for widespread lesions. Once symptom relief is attained, the patient is instructed to gradually titrate the dosing frequency to determine the minimum necessary to maintain comfort. Corticosteroids increase the risk of candidiasis, and antifungal therapy may need to be provided. Patients unresponsive to topical treatment are best referred to an oral medicine specialist for management.

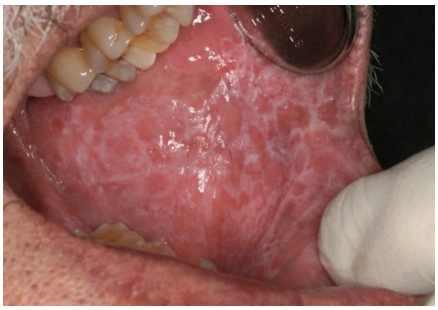
**Rx:** Fluocinonide (Lidex) gel 0.05%
**Disp:** 30 g tube
**Sig:** Coat the lesion with a thin film after each meal and at bedtime.

**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 200 mL
**Sig:** Rinse with 1 tsp (5 mL) for 2 min four times daily and spit out.

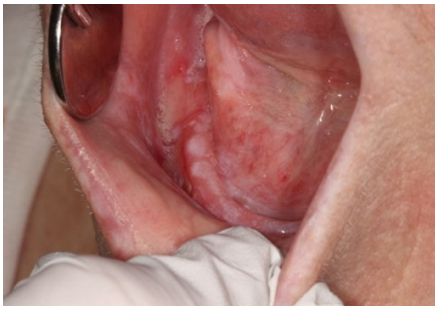
## Oral Lichen Planus

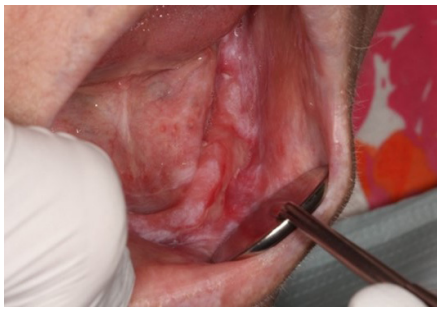
### Reticular OLP



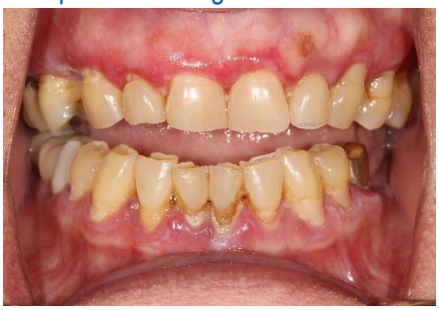


### Erosive OLP

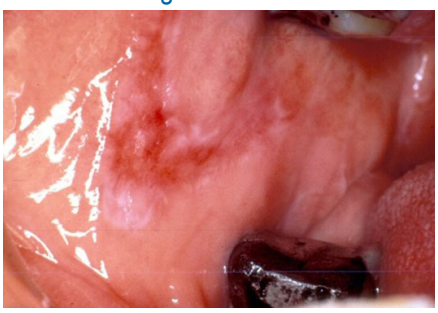




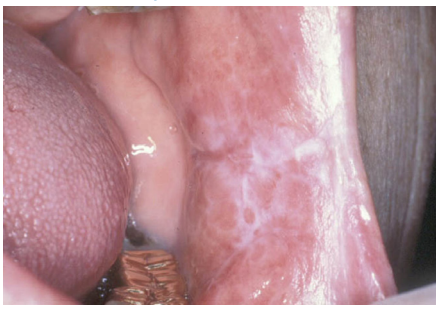
### Desquamative Gingivitis



### OLCL to Amalgam



### OLDR to Allopurinol



## Recurrent Aphthous Stomatitis (RAS)

RAS (*aka* canker sores) is a common recurring ulcerative condition affecting about 20% of the population.[27] It typically presents as multiple, small, round or ovoid, shallow ulcers with a yellow or grey pseudomembrane coating circumscribed by an erythematous margin.[1,27] RAS typically first appears in childhood or adolescence, and recurrence frequency decreases with age. Three main types have been described:

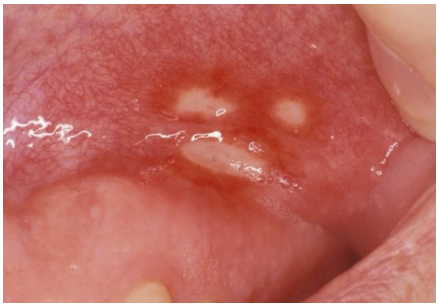
| Recurrent Aphthous Types | |
|---|---|
| Minor | Ulcers < 5 mm in diameter; healing in 7-14 days; 80% of all aphthae |
| Major | Ulcers > 5 mm in diameter; healing slowly over weeks or months, with scarring |
| Herpetiform | Multiple pinpoint "herpes-like" ulcers; healing within one month |

RAS is a T cell-mediated phenomenon, but the specific etiopathogenesis remains elusive. The diagnosis of RAS is based on the patient's history and clinical features, and a biopsy is rarely necessary. RAS has been associated with numerous systemic conditions, including hematologic deficiency (iron, folate, or vitamin B12), inflammatory bowel disease, HIV infection, neutropenia, cyclic neutropenia, and Behcet syndrome.[1,27] Thus, an RAS patient with a suspicious medical history or complaint profile should be referred for a thorough medical evaluation.

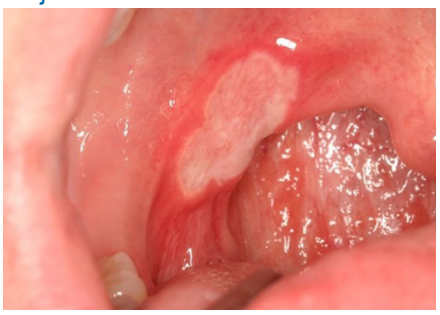
Strategies to manage RAS start with identifying and addressing predisposing and aggravating factors. Topical corticosteroids are commonly used to alleviate ulcer pain and promote healing. Patients with significant RAS are best referred to an oral medicine specialist for management.

### Recurrent Aphthous Stomatitis (RAS)

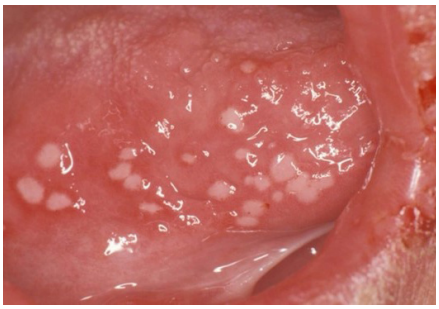
#### Minor RAS



#### Major RAS



#### Herpetiform RAS



**Rx:** Fluocinonide (Lidex) gel 0.05%
**Disp:** 30 g tube
**Sig:** Coat the lesion with a thin film after each meal and at bedtime.

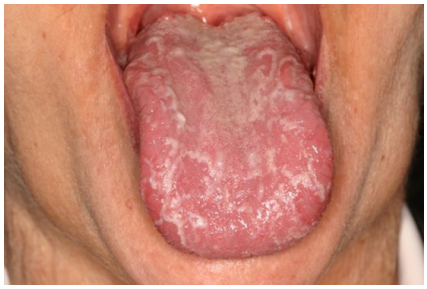
**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 200 mL
**Sig:** Rinse with 1 tsp (5 mL) for 2 min four times daily and spit out.

## Stomatitis Areata Migrans (SAM)

SAM is a common benign inflammatory condition, manifesting desquamation of superficial keratin and filiform papillae, that affects 1-2.5% of the population.[28] SAM is characterized by red, denuded, irregularly shaped patches of the tongue, often surrounded by a raised, circinate, white-yellow border. The lesions wax and wane and migrate over time.[1] The etiology is unknown; however, the condition has been associated with anxiety, allergies, and hereditary factors. The histopathological and immunohistochemical similarities between SAM and psoriasis have led some to suggest SAM is an oral manifestation of psoriasis; however, given the high percentage of healthy people with SAM, this association may be a coincidence.[1] The diagnosis is established based on the characteristic clinical presentation and history.

SAM does not require treatment if asymptomatic, and patients should be reassured of its benign nature. Various topical agents, including corticosteroids, antihistamines, and tacrolimus, may be used to manage symptomatic lesions.[28] Avoiding dietary triggers (*e.g.,* alcohol, hot/spicy/sour foods, acidic fruits, and beverages) and maintaining good oral hygiene should be encouraged.

### Stomatitis Areata Migrans



**Rx:** Fluocinonide (Lidex) gel 0.05%
**Disp:** 30 g tube
**Sig:** Apply a thin coat to the affected areas qid.

# Appendix - Therapy Regimes

## Angular Cheilitis

Predictable validated therapeutic interventions to manage persistent angular cheilitis are lacking. Some authorities recommend treatment with a topical antifungal combined with a corticosteroid.[10] However, others caution that the steroid may contribute to increased bacterial and fungal colonization and thus recommend an antifungal with an antibiotic.[9]

**Rx:** Clotrimazole 1% cream mixed 1:1 with Mupirocin 2% cream*
**Disp:** 15 g tube
**Sig:** Apply to the affected area 2- 3 per day.

* Available at compounding pharmacies

## Candidiasis

Therapy consists of risk factor elimination or reduction, and antifungal administration for fourteen days.[7,8] Persistence of predisposing factors is associated with recurrent infection. The historically used antifungal Nystatin is no longer recommended as first-line therapy.[8]

**Rx:** Clotrimazole (Mycelex) troches 10 mg
**Disp:** 70 troches
**Sig:** Let 1 troche dissolve in mouth five times daily. Do not chew.

*****

**Rx:** Miconazole (Oravig) mucoadhesive tablet 50 mg
**Disp:** 14 tablets
**Sig:** Place 1 tablet to the maxillary canine fossa region qd.

*****

**Rx:** Fluconazole (Diflucan) tablets 100 mg
**Disp:** 15 tablets
**Sig:** Take 2 tabs stat, then 1 tab daily.

## Dry Mouth

The goals in treating dry mouth are to alleviate symptoms and, when possible, reduce or remove contributory factors. Patients with severe dry mouth may require an accelerated examination and dental prophylaxis schedule. Standard measures include maintaining hydration, using a humidifier, gustatory stimulation (*e.g.,* sugar-free gums, candy), saliva substitutes, and medications.[12] OTC saliva substitutes may provide temporary relief, but efficacy varies widely among patients. Sialagogues may prove beneficial, but their use may be contraindicated by medical comorbidities (*e.g.,* respiratory diseases, cardiovascular diseases, urinary incontinence, and gastric disorders) and disrupting side effects (*e.g.,* sweating, headache, nausea, GI upset, urinary frequency, rhinitis).

Sialagogues:

**Rx:** Pilocarpine HCl (Salagen) tabs 5 mg
**Disp:** 84 tabs
**Sig:** Take 1 tab 30 minutes before meals. The dose may be titrated to 2 tabs three times daily.

*****

**Rx:** Cevimeline (Evoxac) caps 30 mg
**Disp:** 84 caps
**Sig:** Take 1 cap 30 minutes before meals, three times daily. The dose may be titrated to 2 tabs three times daily.

## Erythema Multiforme

Most cases of EM resolve within 4-6 weeks, and therapy is supportive.[15] The patient should maintain adequate nutritional intake and hydration; anti-inflammatory, anesthetic, or analgesic agents may be prescribed. Close monitoring for resolution is necessary. Patients with severe symptoms (inability to ingest foods) or worsening EM should be promptly referred to a dermatologist or emergency department for further assessment and management.

**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 100 mL
**Sig:** Rinse with 1 tsp (5 mL) for 2 min four times daily and spit out. Discontinue when lesions become asymptomatic.

*****

**Rx:** Diphenhydramine elixir 12.5 mg/5 mL (OTC) 4 oz mixed with Kaopectate or Maalox (OTC) 4 oz (to make a 50% mixture by volume).
**Disp:** 8 oz
**Sig:** Rinse with 1 tbs (5 mL) and spit out qid.

*****

Recurrence is possible if the triggering agent is either not identified or controlled. For HAEM, suppressive antiviral therapy is recommended.

**Rx:** Valacyclovir (Valtrex), 500 mg caplets.
**Disp:** Sufficient quantity
**Sig:** Take bid.

# Appendix - Therapy Regimes (page 2)

## Herpetic Gingivostomatitis

Therapeutic strategies are supportive and consist of nutrition and hydration maintenance, fever control, and pain management.[17] An OTC nutritional supplement is recommended for those unable to eat comfortably. Anesthetic rinses may impair the protective gag reflex, and caution is warranted. The use of topical anesthetics such as benzocaine and lidocaine in children under the age of 4 years is associated with severe adverse effects (methemoglobinemia seizure) and is contraindicated.[19]

**Rx:** Diphenhydramine elixir 12.5 mg/5 mL (OTC) 4 oz mixed with Kaopectate or Maalox (OTC) 4 oz (to make a 50% mixture by volume).
**Disp:** 8 oz
**Sig:** Rinse with 1 tbs (5 mL) and spit out qid.

*****

**Rx:** Lidocaine viscous 2% *
**Disp:** 100 mL
**Sig:** Rinse with 15 mL for 1 minute q 3 hrs and spit out.

* Contraindicated in children < 4 yrs of age

*****

If the patient presents for care within 3 days of symptom onset, antiviral therapy may be helpful to accelerate lesion healing.[1,17]

**Rx:** Valacyclovir (Valtrex) caplets 500 mg)
**Disp:** 28 caplets
**Sig:** Take 2 caplets twice daily for 7 days.

*****

**Rx:** Acyclovir (Zovirax) caps 200 mg
**Disp:** 42 caps
**Sig:** Take 2 caps three times daily for 7 days.

## HSV-1 Recurrence

The liberal use of a sun-protective lip balm can effectively prevent sun-induced RHL. Therapies to manage RHL include topical and systemic antivirals, supplements, self-applied cryotherapy (ice), and low-level laser therapy.[20] A prophylactic two-dose course of valacyclovir is recommended from a convenience and compliance perspective.

*****

**Rx:** Valacyclovir (Valtrex) caplets 500 mg
**Disp:** 4 caplets
**Sig:** Take 2 caplets at onset of prodrome and 2 caplets 12 hrs later

## Oral Lichen Planus (OLP)

There is no cure for OLP, and therapy is targeted to improve patient comfort and reduce exacerbations.[1] Asymptomatic OLP requires no treatment but should be monitored every 6-12 months for a change in appearance. Topical corticosteroids are the first-line option to manage symptomatic OLP. A steroid gel is appropriate to manage a few discrete lesions, while a corticosteroid rinse is recommended for widespread lesions. Once symptom relief is attained, the patient is instructed to gradually titrate the dosing frequency to determine the minimum necessary to maintain comfort. Corticosteroids increase the risk of candidiasis, and antifungal therapy may need to be provided. Patients unresponsive to topical treatment are best referred to a specialist for management.

*****

**Rx:** Fluocinonide (Lidex) gel 0.05%
**Disp:** 30 g tube
**Sig:** Coat the lesion with a thin film after each meal and a bedtime.

*****

**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 200 mL
**Sig:** Rinse with 1 tsp (5 mL) for 2 min four times daily and spit out.

## Recurrent Aphthous Stomatitis (RAS)

Strategies to manage RAS start with identifying and addressing predisposing and aggravating factors. Topical corticosteroids are commonly used to alleviate ulcer pain and promote healing. Patients with significant RAS are best referred to a specialist for management.

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**Disp:** 30 g tube
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*****

**Rx:** Dexamethasone elixir 0.5 mg per 5 mL
**Disp:** 200 mL
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## Stomatitis Areata Migrans (SAM)

SAM does not require treatment if asymptomatic, and patients should be reassured of its benign nature. Various topical agents, including corticosteroids, antihistamines, and tacrolimus, may be used to manage symptomatic lesions.[28] Avoiding dietary triggers (*e.g.*, alcohol, hot/spicy/sour foods, acidic fruits, and beverages) and maintaining good oral hygiene should be encouraged.

*****

**Rx:** Fluocinonide (Lidex) gel 0.05%
**Disp:** 30 g tube
**Sig:** Apply a thin coat to the affected areas qid.

## References


1. Neville BW, Damm DD, Allen CM, Chi AC. Oral and Maxillofacial Pathology, 4th ed. St. Louis, MO: Elsevier; 2016.
2. Betz SJ. HPV-Related papillary lesions of the oral mucosa: A review. Head Neck Pathol. 2019;13(1):80-90. doi: 10.1007/s12105-019-01003-7.
3. Muse ME, Crane JS. Actinic cheilitis. StatPearls. Available at: https://www.ncbi.nlm.nih.gov/books/NBK551553/ . Updated July 31, 2023. Accessed 16 August 2024.
4. Vasilovici A, Ungureanu L, Grigore L, Cojocaru E, Şenilă S. Actinic cheilitis - From risk factors to therapy. Front Med (Lausanne). 2022;9:805425. doi: 10.3389/fmed.2022.805425.
5. American Cancer Society. How to Protect Your Skin from UV Rays. American Cancer Society. Available at: https://www.cancer.org/cancer/risk-prevention/sun-and-uv/uv-protection.html . Updated June 26, 2024. Accessed 16 August 2024.
6. Sharma A. Oral candidiasis. An opportunistic infection; A review. Int J Appl Dent Sci. 2019;5(1):23-27.
7. Arya R, Rafiq NB. Candidiasis. StatPearls. Available at: https://www.ncbi.nlm.nih.gov/books/NBK560624/ . Updated May 29, 2023. Accessed 16 August 2024.
8. Pappas PG, Kauffman CA, Andes DR, et al. Clinical practice guideline for the management of candidiasis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016;62(4):e1-50. doi: 10.1093/cid/civ933.
9. Hellstein JW, Marek CL. Candidiasis: Red and white manifestations in the oral cavity. Head Neck Pathol. 2019;13(1):25-32. doi: 10.1007/s12105-019-01004-6.
10. Cabras M, Gambino A, Broccoletti R, Lodi G, Arduino PG. Treatment of angular cheilitis: A narrative review and authors' clinical experience. Oral Dis. 2020;26(6):1107-1115. doi: 10.1111/odi.13183.
11. Agostini BA, Cericato GO, Silveira ERD, et al. How common is dry mouth? systematic review and meta-regression analysis of prevalence estimates. Braz Dent J. 2018;29(6):606-618. doi:10.1590/0103-6440201802302.
12. Stoopler ET, Villa A, Bindakhil M, Díaz DLO, Sollecito TP. Common Oral Conditions: A Review. JAMA. 2024;331(12):1045-1054. doi: 10.1001/jama.2024.0953.
13. Villa A, Connell CL, Abati S. Diagnosis and management of xerostomia and hyposalivation. Ther Clin Risk Manag. 2014;11:45-51. doi:10.2147/TCRM.S76282.
14. Lerch M, Mainetti C, Terziroli Beretta-Piccoli B, Harr T. Current perspectives on erythema multiforme. Clin Rev Allergy Immunol. 2018;54(1):177-184. doi: 10.1007/s12016-017-8667-7.
15. Samim F, Auluck A, Zed C, Williams PM. Erythema multiforme: A review of epidemiology, pathogenesis, clinical features, and treatment. Dent Clin North Am. 2013 ;57(4):583-96. doi: 10.1016/j.cden.2013.07.001.
16. Lerch M, Mainetti C, Terziroli Beretta-Piccoli B, Harr T. Current perspectives on Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis. Clin Rev Allergy Immunol. 2018;54(1):147-176. doi: 10.1007/s12016-017-8654-z.
17. Balasubramaniam R, Kuperstein AS, Stoopler ET. Update on oral herpes virus infections. Dent Clin North Am. 2014;58(2):265-80. doi: 10.1016/j.cden.2013.12.001.
18. Centers for Disease Control and Prevention. QuickStats: Age-Adjusted* Trends in the Prevalence of Herpes Simplex Virus Type 1 (HSV-1) and Herpes Simplex Virus Type 2 (HSV-2) Among Adolescents and Adults Aged 14-49 Years - United States, 1999-2000 Through 2015-2016. MMWR Morb Mortal Wkly Rep. 2018 ;67(6):203. doi: 10.15585/mmwr.mm6706a7.
19. US Food and Drug Administration (FDA). FDA Drug Safety Communication: FDA recommends not using lidocaine to treat teething pain and requires new Boxed Warning. Available at: https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-recommends-not-using-lidocaine-treat-teething-pain-and-requires . Updated January 16, 2016. Accessed 16 August 2024.
20. Gopinath D, Koe KH, Maharajan MK, Panda S. A comprehensive overview of epidemiology, pathogenesis and the management of herpes labialis. Viruses. 2023;15(1):225. doi: 10.3390/v15010225.
21. Patil A, Goldust M, Wollina U. Herpes zoster: A review of clinical manifestations and management. Viruses. 2022;14(2):192. doi: 10.3390/v14020192.
22. Centers for Disease Control and Prevention. Prevention of Varicella - Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep. 2007; 56(RR04);1-40.
23. Centers for Disease Control and Prevention. Use of Recombinant Zoster Vaccine in Immunocompromised Adults Aged ≥19 Years: Recommendations of the Advisory Committee on Immunization Practices - United States, 2022). MMWR. 2022;71(3):80-84.
24. Kurago ZB. Etiology and pathogenesis of oral lichen planus: an overview. Oral Surg Oral Med OralPathol Oral Radiol 2016;122:72-80. doi: 10.1016/j.oooo.2016.03.011.
25. Al-Hashimi I, Schifter M, Lockhart PB, et al. Oral lichen planus and oral lichenoid lesions: diagnostic and therapeutic considerations. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2007;103(Suppl:S25).e1-12. doi: 10.1016/j.tripleo.2006.11.001.
26. Giuliani M, Troiano G, Cordaro M, et al. Rate of malignant transformation of oral lichen planus: A systematic review. Oral Dis. 2019;25(3):693-709. doi: 10.1111/odi.12885.
27. Scully C, Shotts R. ABC of oral health. Mouth ulcers and other causes of orofacial soreness and pain. BMJ. 2000;321(7254):162-5. doi: 10.1136/bmj.321.7254.162.
28. Shareef S, Ettefagh L. Geographic tongue. StatPearls. Available at: https://www.ncbi.nlm.nih.gov/books/NBK554466/ . Updated July 31, 2023. Accessed 16 August 2024.

## POST-TEST

Internet Users: This page is intended to assist you in fast and accurate testing when completing the "Online Exam." We suggest reviewing the questions and then circling your answers on this page prior to completing the online exam.

(2.0 CE Credit Contact Hour) Please circle the correct answer. 70% equals passing grade.

1. **Actinic cheilosis is caused by smoking, and the risk of malignant transformation is about 5%.**
   a. The first part of the statement is true, but the second part is false.
   b. The first part of the statement is false, but the second part is true.
   c. Both parts of the statement are true
   d. Both parts of the statement are false.

2. **The treatment of oral candidiasis entails using antifungal medication, with Nystatin being the first-line therapy.**
   a. The first part of the statement is true, but the second part is false.
   b. The first part of the statement is false, but the second part is true.
   c. Both parts of the statement are true
   d. Both parts of the statement are false.

3. **Disrupting side effects of pilocarpine and cevimeline include all the following, except _____.**
   a. sweating
   b. GI upset
   c. urinary retention
   d. headache

4. **The clinical characteristics of erythema multiforme are variable, but a hemorrhagic crusting lip is highly characteristic.**
   a. The first part of the statement is true, but the second part is false.
   b. The first part of the statement is false, but the second part is true.
   c. Both parts of the statement are true
   d. Both parts of the statement are false.

5. **Therapies to manage erythema multiforme are supportive and consist of all the following, except _____.**
   a. maintaining nutrition and hydration
   b. antiviral therapy
   c. analgesic therapy
   d. topical anesthetic therapy

6. **There are many therapies available to manage recurrent herpes labialis. Probably the most convenient approach is:**
   a. Topical antiviral therapy
   b. Systemic short-course antiviral therapy
   c. Laser therapy
   d. Cryotherapy

7. **A primary concern regarding zoster is the risk of post-herpetic neuralgia, and vaccination with Shingrix® is recommended for adults ≥ over 50.**
   a. The first part of the statement is true, but the second part is false.
   b. The first part of the statement is false, but the second part is true.
   c. Both parts of the statement are true.
   d. Both parts of the statement are false.

8. **First-line therapy to manage symptomatic OLP consists of a topical _____.**
   a. antiviral
   b. antifungal
   c. corticosteroid
   d. anesthetic

9. **An RAS patient with a suspicious medical history or complaint profile should be referred for a thorough medical evaluation.**
   a. True
   b. False

10. **SAM is a common, typically painful inflammatory condition characterized by red, denuded, irregularly shaped patches on the tongue.**
    a. The first part of the statement is true, but the second part is false.
    b. The first part of the statement is false, but the second part is true.
    c. Both parts of the statement are true.
    d. Both parts of the statement are false.

## Registration/Certification Information (Necessary for proper certification)

Name (Last, First, Middle Initial): _____

PLEASE PRINT CLEARLY

Street Address: _____ Suite/Apt. Number _____

City: _____ State: _____ Zip: _____

Telephone: _____ Email: _____

State(s) of Licensure: _____ License Number(s): _____

Preferred Dentist Program ID Number: _____ ☐ Check Box If Not A PDP Member

AGD Mastership: ☐ Yes ☐ No

AGD Fellowship: ☐ Yes ☐ No Date: _____

Please Check One: ☐ General Practitioner ☐ Specialist ☐ Dental Hygienist ☐ Other

FOR OFFICE USE ONLY

## Evaluation - Review of Common Oral Lesions and Conditions 1st Edition

Providing dentists with the opportunity for continuing dental education is an essential part of MetLife's commitment to helping dentists improve the oral health of their patients through education. You can help in this effort by providing feedback regarding the continuing education offering you have just completed.

Please respond to the statements below by checking the appropriate box, using the scale on the right.

| | 1 = POOR 1 | 2 | 3 | 4 | 5 = Excellent 5 | |
|---|---|---|---|---|---|---|
| 1. How well did this course meet its stated educational objectives? | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 2. How would you rate the quality of the content? | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 3. Please rate the effectiveness of the author. | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 4. Please rate the written materials and visual aids used. | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 5. The use of evidence-based dentistry on the topic when applicable. | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ N/A |
| 6. How relevant was the course material to your practice? | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 7. The extent to which the course enhanced your current knowledge or skill? | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 8. The level to which your personal objectives were satisfied. | ☐ | ☐ | ☐ | ☐ | ☐ | |
| 9. Please rate the administrative arrangements for this course. | ☐ | ☐ | ☐ | ☐ | ☐ | |

10. How likely are you to recommend MetLife's CE program to a friend or colleague? *(please circle one number below:)*

**10** **9** **8** **7** **6** **5** **4** **3** **2** **1** **0**

extremely likely — neutral — not likely at all

What is the primary reason for your 0-10 recommendation rating above?

11. Please identify future topics that you would like to see:

Thank you for your time and feedback.

MetLife

To complete the program traditionally, please mail your post test and registration/evaluation form to:
**MetLife Dental Quality Initiatives Program** | 501 US Highway 22 | Bridgewater, NJ 08807