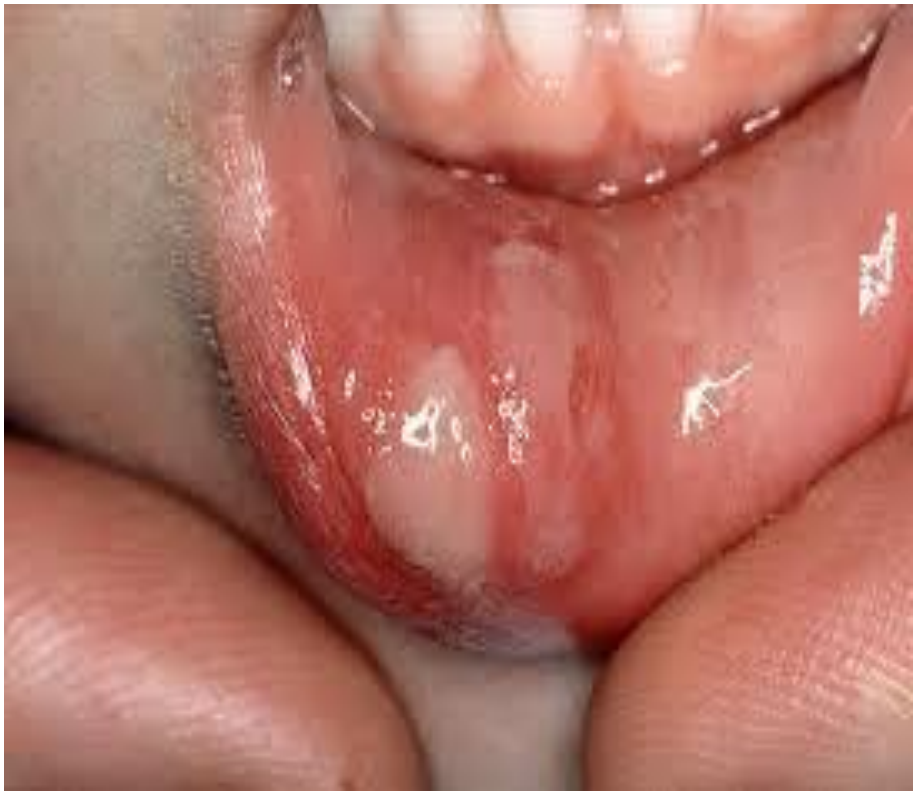
Oral pain and discomfort

Prepared by pharmacist Eman Elayeh

Recurrent aphthous stomatits (RAS)

- Extremely common problem, and can be recurrent
- Also known as canker sore
- Occur more commonly during the second and third decade of life
- **Female predominance**
- *The incidence is slightly higher in stressed than in non-stressed individuals*
- Although mouth ulcers can be uncomfortable, especially when you eat, drink or brush your teeth, they are harmless



Pathophysiology

The cause of RAS is unknown in most patients. The most likely precipitating factors are stress and local trauma. Trauma (e.g., chemical irritation, biting the inside of cheeks or lips, or injury caused by toothbrushing or braces) has been implicated as a leading cause of lesions.[20] A genetic component to the disease is possible, given that more than 42% of patients with RAS have first-degree relatives with RAS.[23] Additional precipitating or contributing factors may include food allergy and hormonal changes. Patients suffering from RAS are usually nonsmokers.[23] Many smokers have reported RAS following smoking cessation, which may be a result of the stress of cessation or the changes that occur to the oral mucosa after cessation. Smoking is an irritant to the oral mucosa that results in a thickening process that may protect the oral mucosa from traumatic injury. Ex-smokers need reassurance during this time period to be successful in giving up this habit. Systemic conditions associated with RAS include Behçet's disease; systemic lupus erythematosus; neutrophil dysfunction; allergy; nutritional deficiencies of vitamins B_1, B_2, B_6, B_{12}, and folic acid, or iron; inflammatory bowel disease; and human immunodeficiency virus/acquired immunodeficiency syndrome.[20,23,24]

Clinical presentation of RAS

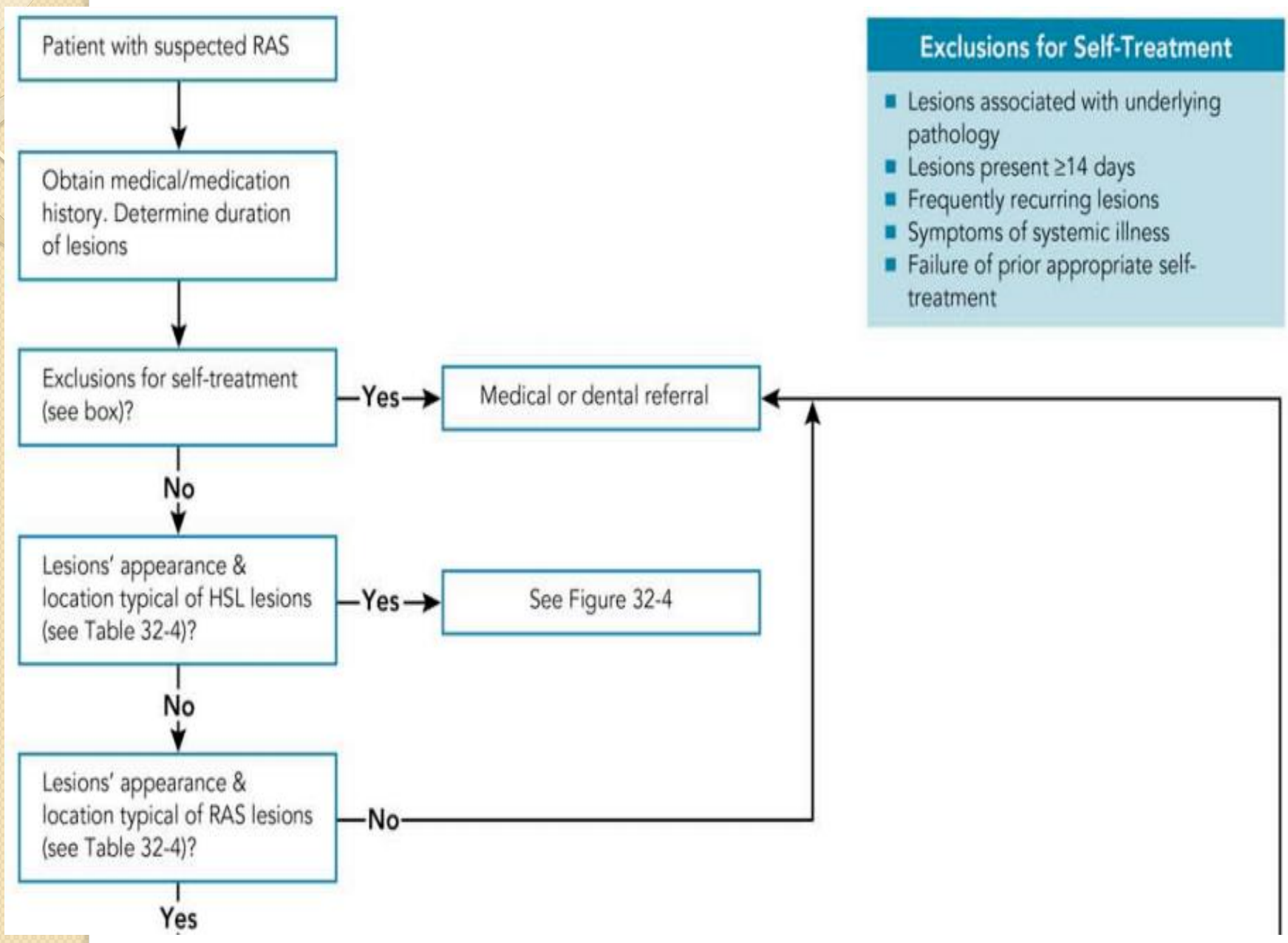
RAS appears as an epithelial ulceration on nonkeratinized mucosal surfaces of movable mouth parts, such as the tongue, floor of the mouth, soft palate, or the inside lining of the lips and cheeks. Rarely, ulcerations affect keratinized tissue such as the gingiva or the external lips (vermillion). Individual ulcers are usually (1) round or oval, (2) flat or crater-like in appearance, and (3) gray to grayish yellow with an erythematous halo of inflamed tissue surrounding the ulcer (see Color Plates, photograph 11).

TABLE 32-4 Differentiation of RAS and HSL

	RAS (Canker Sores)			
	Minor	**Major**	**Herpetiform**	**HSL (Cold Sores)**
Manifestation	Oval, flat ulcer; erythematous tissue around ulcer	Oval, ragged, gray/yellow ulcers; crater form	Small ulcers in crops, similar to minor RAS	Red, fluid-filled vesicles; lesions may coalesce; crusted when mature
Location	All areas except gingiva, hard palate, vermilion (border of the oral mucosa and external skin)	All areas except gingiva, hard palate, vermilion (border of the oral mucosa and external skin)	Any intraoral area	Junction of oral mucosa and skin of lip and nose
Incidence	85%	10%	5%	
Number of lesions	Usually one	Several (1–10)	Multiple (crops)	Several
Size of lesion	<1 cm	0.5–2 cm	1–4 cm	1–3 mm
Duration (days)	5–7	>14 days	10–14	10–14
Pain	None-to-moderate	None-to-moderate	Moderate-to-severe	None-to-moderate
Scarring	None	Common	None	Rare
Comments	Immunologic defect	Immunologic defect	Immunologic defect	Induced by HSV-1

Non-pharmacologic treatment

If a nutritional deficiency (e.g., iron, folate, or vitamin B_{12}) is suspected as a contributing factor, the patient should increase consumption of foods high in these nutrients or take nutritional supplements. For patients in whom a food allergy is thought to be a contributing factor, elimination of the offending agent from the diet may help to improve or resolve RAS. Spicy foods, acidic foods, and foods that have the potential to cause local injury should be avoided until ulcerations improve. Ice applied in 10-minute increments directly to the lesions can give temporary relief. However, heat may cause the spread of infection (if present) and should not be used. As stress may play a role in the development of RAS, relaxation and imagery training may be useful and has shown reductions in ulcer frequency.


Patient with suspected RAS
Obtain medical/medication history. Determine duration of lesions
Exclusions for self-treatment (see box)?
Yes
Medical or dental referral
No
Lesions' appearance & location typical of HSL lesions (see Table 32-4)?
Yes
See Figure 32-4
No
Lesions' appearance & location typical of RAS lesions (see Table 32-4)?
No
Yes
Exclusions for Self-Treatment
Lesions associated with underlying pathology
Lesions present ≥14 days
Frequently recurring lesions
Symptoms of systemic illness
Failure of prior appropriate self-treatment

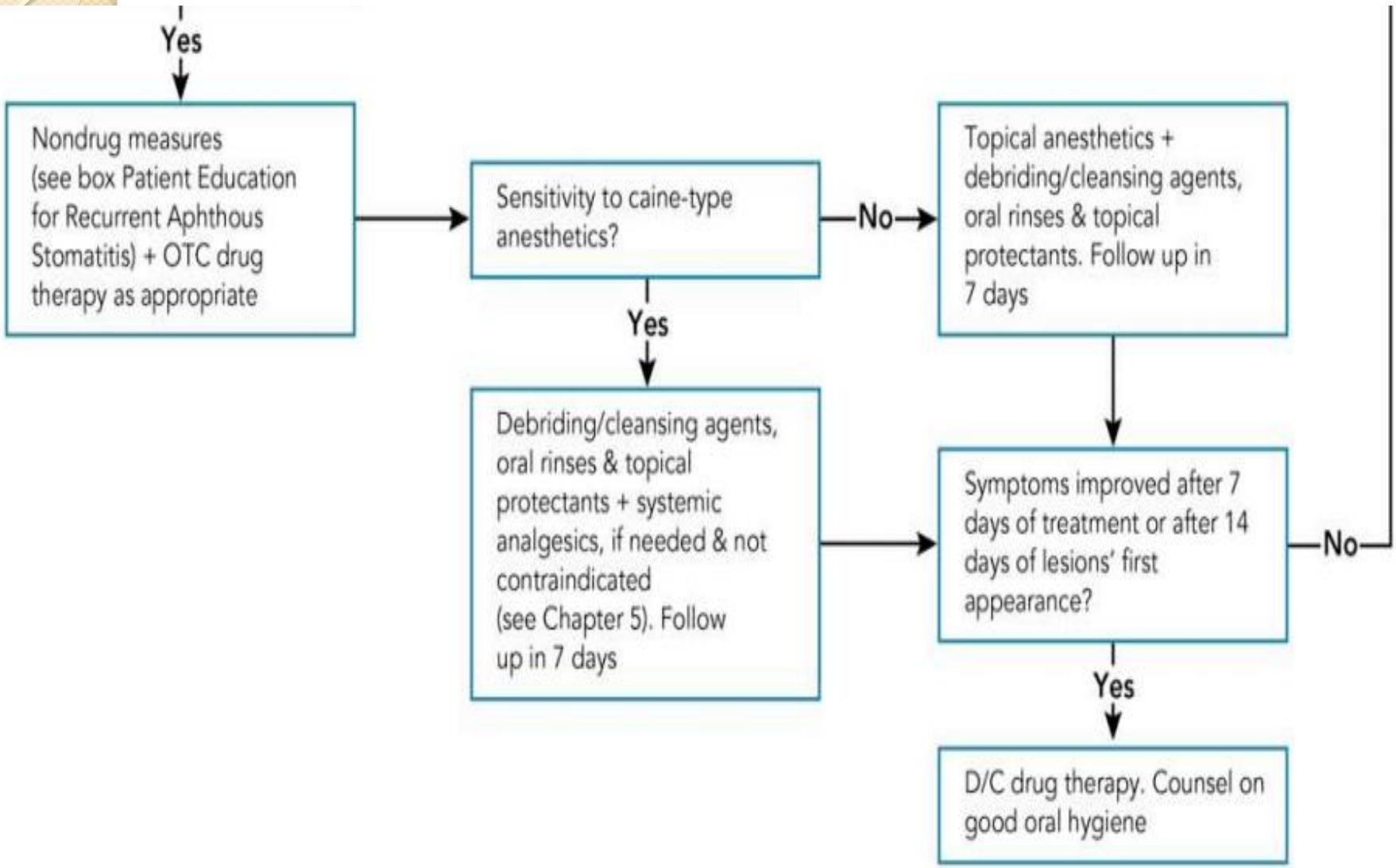


FIGURE 32-2 Self-care of recurrent aphthous stomatitis; Key: D/C, discontinue; HSL, herpes simplex labialis; OTC, over-the-counter; RAS, recurrent aphthous stomatitis.

Topical oral protectants

Oral mucosal protectants are pharmacologically inert substances that coat and protect the area. Coating the ulcer with a topical oral protectant can be effective in protecting ulcerations, decreasing friction, and affording temporary symptomatic relief.[26] The products available in this category create a barrier by using a paste, an adhering film, or a dissolvable patch to cover the lesion. Some products are available in combination with an oral anesthetic. Products available as a patch or dissolving disc must be placed against the sore for 10 to 20 seconds. Once the disc adheres to the lesion, the barrier is formed and the disc will stay in place until dissolved. These products can be applied as needed for pain relief, often three to four times daily.[30]

Systemic analgesis

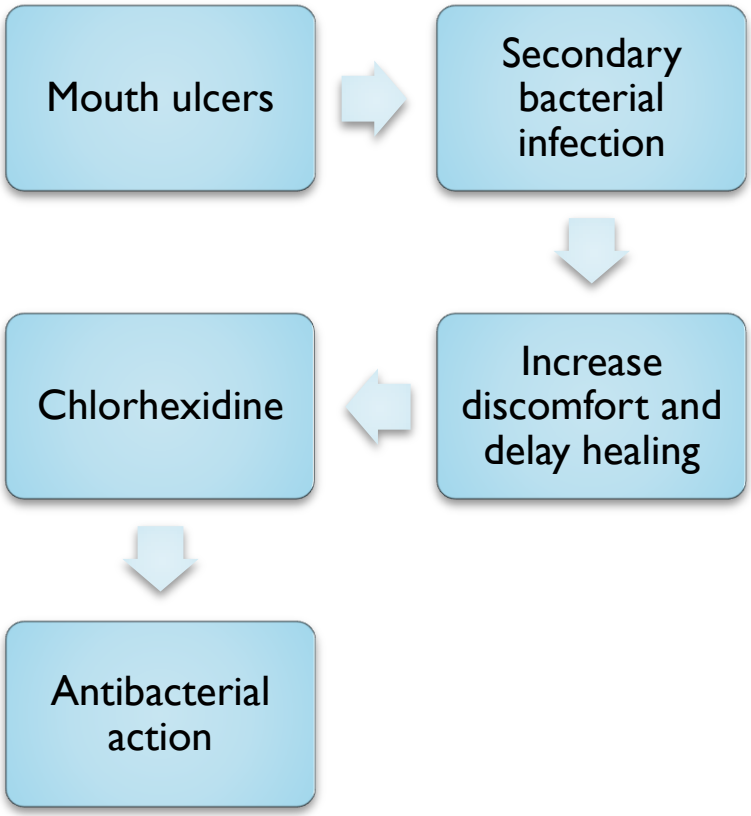
NSAIDs and paracetamol can be used for relief of mouth discomfort

Oral Rinses

Rinsing the mouth with Listerine Antiseptic will hasten the healing of the lesions. Saline rinses (1–3 teaspoons of salt in 4–8 ounces of warm tap water) may soothe ulcers and can be used before topical application of a medication. Similarly, a paste of baking soda applied to the lesions for a few minutes may soothe irritation.

Chlorhexidine gluconate mouthwash

- Reduces duration and severity of ulceration
- Has antibacterial effect
- Bitter taste → flavours



Chlorhexidine gluconate mouthwash

- How to use?
- Regular use can stain teeth brown (usually temporarily)
- To reduce staining, advise the patient to: brush the teeth before using → rinse well with water → rinse with chlorhexidine → re-rinse with water
- Use twice daily
- 10 mL in the mouth for 1 min
- Continue using for 48 hours after symptoms have gone

Local analgesics

- Choline salicylate:
- Dental gel
- Safe to be used in children (no risk of Reye's Syndrome)

Topical oral anesthetics

FDA has classified topical oral anesthetic/analgesic products that contain benzocaine 5% to 20%, dyclonine 0.05% to 0.1%, hexylresorcinol 0.05% to 0.1%, menthol 0.04% to 2.0%, phenol 0.5% to 1.5%, phenolate sodium 0.5% to 1.5%, benzyl alcohol 0.05% to 0.1%, and salicylic alcohol 1% to 6% as Category I (safe and effective) for temporary relief of pain associated with RAS.[29] Benzocaine is the most commonly used local anesthetic in nonprescription products. It is a known sensitizer (allergen) and should not be used by patients with a history of hypersensitivity to other common local anesthetic products. The patient

Local anaesthetics

- Effective in producing temporary pain relief
- Lidocaine and Benzocaine
- Both are reported to produce sensitisation → no cross sensitivity → if the patient is sensitive to one in the past, the alternative could be tried

Local anaesthetics

- Gel and liquid

  Advantage: good for large number of ulcers, and could cover large areas

  Disadvantage: maintenance in contact with ulcer surface is difficult

- Tablets and pastilles

  Advantage: can be kept in contact with the ulcer by the tongue

  Disadvantage: of value if there is only one or two ulcers in the mouth

Other treatments

- **Polyvinylpyrrolidine (PVP) with sodium hyalorinate (SH)**

- Available as mouthwash, spray and gel formulations
- PVP forms a protective barrier and may reduce time to healing
- SH may reduce pain (limited clinical evidence)

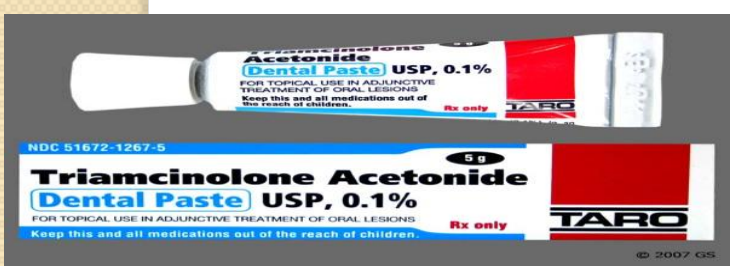
Topical corticosteroids

- Act locally on ulcer to ↓ inflammation and pain and to ↓ healing time

- Best to be used as early as possible → try to apply at the prodromal phase (before the appearance of ulcers when it feels sensitive and tingling)

- ***Hydrocortisone***: pellets or buccal tablets → should be held close to ulcer till dissolved (should not be sucked)

- ***Triamcinolone***: paste Use 3-4 times daily



Product Selection Guidelines

Patients with known hypersensitivity to common local anesthetics should not use a product containing a local anesthetic. Patients with known sensitivity to aspirin should avoid salicylic acid. Only products containing menthol, phenol, and/or camphor in the concentrations approved as Category I (safe and effective) should be used for RAS. Higher concentrations are potentially inflammatory. Various dosage forms exist (e.g. liquid, gel, rinse, dissolvable patch) for symptomatic treatment of RAS; therefore, the practitioner's recommendation should take into account the patient's preference for a particular dosage form.

Patient counseling and education

The primary objective of self-treatment for RAS is to relieve pain and irritation so the lesions can heal, and the patient can eat, drink, and perform routine oral hygiene. The secondary objective is to prevent complications, such as secondary infection. For most patients, carefully following product instructions and self-care measures will help ensure optimal therapeutic outcomes.

Nondrug Measures

- If a deficiency of iron, folate, or vitamin B_{12} is suspected as a contributing factor, increase consumption of foods high in these nutrients, or take nutritional supplements.
- Avoid spicy or acidic foods until the lesions heal.
- Avoid sharp foods that may cause increased trauma to the lesion.
- If desired, apply ice in 10-minute increments directly to the lesions.
- Do not use heat. If infection is present, heat may spread the infection.

Nonprescription Medications

- If longer-lasting relief is desired, ask your pharmacist to recommend one or more of the following types of nonprescription medications: debriding and cleansing agents, topical oral anesthetics, topical oral protectants, oral rinses, and systemic analgesics.
- Do not cauterize lesions with silver nitrate. This treatment is not effective and may stain teeth and damage healthy tissue.

Debriding and Cleansing Agents

- Use a product containing one of the following ingredients: carbamide peroxide 10%–15%, hydrogen peroxide 1.5%, or perborates. Apply after meals up to four times daily.
- Do not use these medications longer than 7 days. Chronic use can cause tissue irritation, decalcification of enamel, and black hairy tongue.
- Do not swallow these medications.

Topical Oral Anesthetics

- Ask your pharmacist to recommend a product containing one of the following medications: benzocaine 5%–20%, benzyl alcohol 0.05%–0.1%, butacaine sulfate 0.05%–0.1%, dyclonine 0.05%–0.1%, hexylresorcinol 0.05%–0.1%, or salicylic alcohol 1%–6%.
- Do not use benzocaine if you have a history of hypersensitivity to other benzocaine-containing products.
- Avoid using potentially inflammatory products containing menthol, phenol, or camphor in concentrations that exceed those approved as Category I (safe and effective). These agents may cause tissue irritation and damage or systemic toxicity.

Topical Oral Protectants

- Use topical oral protectants or denture adhesives to coat and protect the lesions. These agents will also provide temporary relief of discomfort.
- Apply these products as needed.

Oral Rinses

- Rinse the mouth with Listerine Antiseptic to hasten healing of the lesions.
- Rinse the mouth with a saline solution to soothe discomfort or to prepare the lesion for application of a topical medication. For saline solution, add 1–3 teaspoons of salt to 4–8 ounces of warm tap water.

Systemic Analgesics

- If desired, take an oral analgesic (e.g., aspirin, ibuprofen, or acetaminophen) for additional relief of mouth discomfort.
- Do not hold aspirin in the mouth or place it on oral lesions. The acid can cause a chemical burn with tissue damage.

See a primary care provider if any of the following occur:

—Symptoms do not improve after 7 days of treatment with debriding/wound cleansing agents.

—The lesions do not heal in 14 days.

—Symptoms worsen during self-treatment.

—Symptoms of systemic infection such as fever, rash, or swelling develop.

Evaluation of Patient Outcomes for Recurrent Aphthous Stomatitis

RAS lesions are typically self-limiting and resolve within 14 days. Oral debriding and wound cleansing agents are labeled for use for up to 7 days. If the symptoms have improved, the patient should discontinue treatment but continue other dental hygienic measures. Symptoms that are unimproved or that have worsened during treatment require medical evaluation.

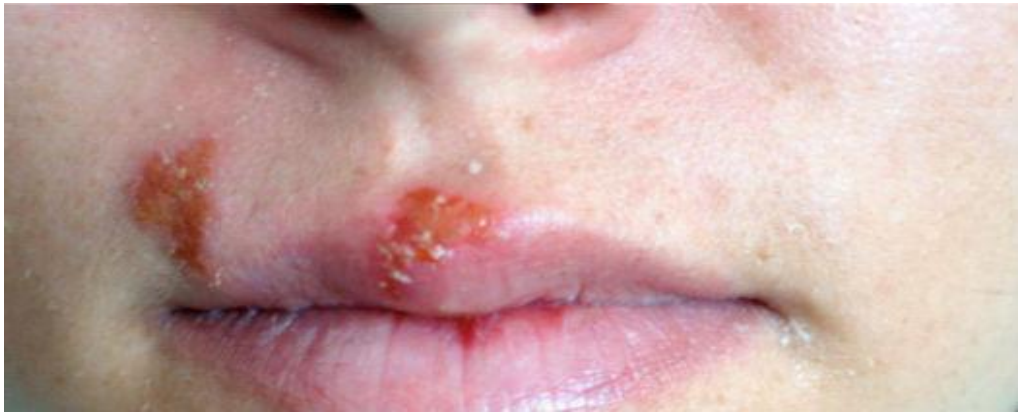
Herpes simplex labiales

Herpes simplex labialis

Herpes simplex labialis (HSL), also known as cold sores or fever blisters, is a disorder caused by a virus of the family Herpesviridae. Herpes simplex virus 1 (HSV-1) is primarily associated with oral and labial lesions, whereas herpes simplex virus 2 (HSV-2) is usually involved in producing genital sores. However, preference of a specific HSV type for an anatomic site is changing, in part owing to varying sexual practices.[31] Any of the human herpes viruses (cytomegalovirus, Epstein-Barr virus, and others), not just HSV-1 and 2, can cause oral lesions. Anyone who comes

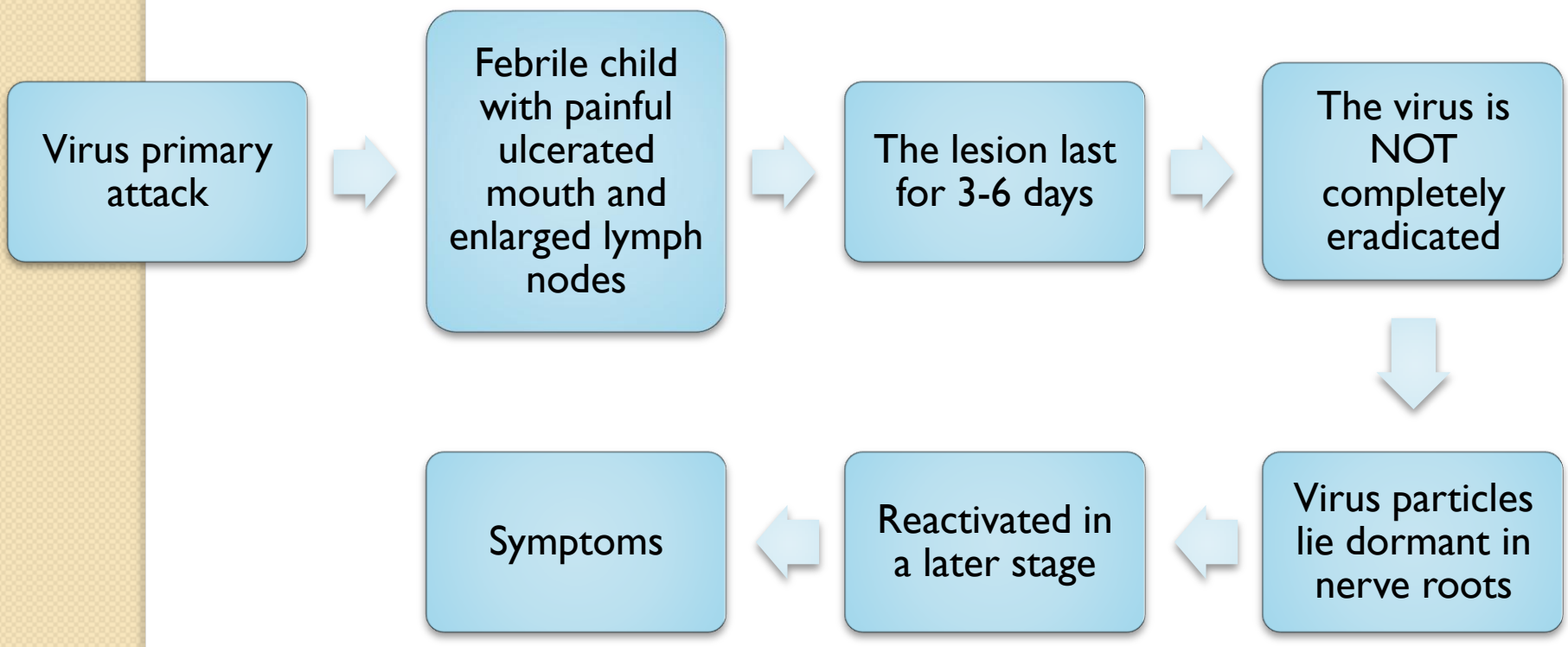
Cold sores

- Cold sores (herpes labialis) are caused by herpes simplex virus (HSV)
- HSV1 typically causes infection around or in the mouth
- HSV2 typically responsible for genital herpes infection
- Commonly seen in adolescents and young adults
- Initial infection occurs in childhood (subclinical and unnoticed)



Cold sores

- Recurrent cold sores occur in up to 25% of all adults
- Frequency declines with age
- Incidence is slightly higher in women than in men



Stages and symptoms Cold sores

Prodromal stage (6-24 hours)

Discomfort, tingling or irritation may occur in the skin before the appearance of the cold sore

Blister and ulcer stages

Minute blisters on top of inflamed, red, raised skin. The blister maybe filled with white matter

Scabbing and healing stages

Quickly break down to produce a raw area with exudation and crusting by about the 4th day after their appearance

By around 1 week, most lesions will have healed

General Treatment Approach

The lesion(s) should be inspected to determine whether their appearance and location are characteristic of HSL. The practitioner should try to identify what factors may have led to development of the lesion. If possible, precipitating or contributing factors should be removed. For example, if trauma is suspected, perhaps a gentler toothbrush and gentler brushing technique could be suggested. It is also helpful to determine whether the patient has a history of HSL. The practitioner should obtain the patient's medical history to determine whether an underlying pathology predisposes the patient to recurrent HSL or could complicate treatment. The practitioner should ask about previous self-treatments and their effectiveness; if treatments used are appropriate and have been successful for the patient, then they should be continued. Treatment should focus on cleansing the affected area, protecting the lesions from infection, and relieving the discomfort of burning, itching, and pain. Figure 32-4 outlines

Nonpharmacologic Therapy

Lesions should be kept clean by gently washing with mild soap solutions. Handwashing is important in preventing lesion contamination and minimizing autoinoculation of herpes virus. The lesion should be kept moist to prevent drying and fissuring. Cracking of the lesions may render them more susceptible to secondary bacterial infection, may delay healing, and usually increases discomfort. Factors that delay healing (e.g., stress, local trauma, wind, excessive sun exposure, and fatigue) should be avoided. Patients who identify sun exposure as a precipitating event should be advised to routinely use a lip and face sunscreen product (with a minimum sun protection factor [SPF] of 15).

Pharmacologic Therapy

Topically applied skin protectants are effective nonprescription medications for relieving the discomfort of HSL, but not for reducing the duration of symptoms.[33] Topical skin protectants help to protect the lesions from infection, relieve dryness, and keep the lesions soft.

Externally applied analgesics/anesthetics, in bland, emollient vehicles, also relieve the discomfort of burning, itching, and pain, but they do not reduce the duration of symptoms. Ingredients that are generally recognized as safe and effective include benzocaine 5% to 20%, dibucaine 0.25% to 1%, dyclonine hydrochloride 0.5% to 1%, benzyl alcohol 10% to 33%, camphor 0.1% to 3%, and menthol 0.1% to 1%.[34] Higher concentrations of certain ingredients (i.e., camphor > 3% and menthol > 1%) that stimulate cutaneous sensory receptors and produce a counter-irritant effect are contraindicated.[35]

Docosanol 10% (Abreva) is the only FDA-approved non-prescription product proven to reduce the duration and severity of symptoms. The agent inhibits direct fusion between the herpes virus and the human cell plasma membrane, thereby preventing viral replication.[36] Docosanol should be applied at the first sign of an outbreak (prodromal stage), five times a day until the lesion is healed. Treatment with docosanol reduces the median time to healing by approximately 1 day (18 hours) compared with placebo.[37] Docosanol-treated patients also note a significant reduction in the duration of symptoms, including pain and/or burning, itching, or tingling, compared with placebo (20% reduction in the median time to complete cessation of these symptoms).[37]


#1
Pharmacist Recommended
abreva
Cold Sore Treatment
Only
non-prescription cold sore medicine
approved by the FDA
to shorten healing time
abreva
DOCOSANOL 10% CREAM
COLD SORE/FEVER BLISTER TREATMENT
NET WT

Docosanol

If evidence of secondary bacterial infection (e.g., failure of crusting to occur or persistence of erythematous border) is seen, topical application of a thin layer of triple-antibiotic ointment three to four times daily is recommended. (See Chapter 42 for more information about these agents.) Systemic nonprescription analgesics may provide additional pain relief.

HSL is not considered to be a steroid-responsive dermatosis; therefore, the use of topical steroids is contraindicated. Products that are highly astringent should be avoided. Tannic acid and zinc sulfate are Category II agents for topical management of HSL, because their frequent application to the lip and oral cavity could cause oral mucosal absorption and toxicity.[35]

Topical antiviral therapy

- Randomized trials of patients with sporadic recurrences of HSV-1 infection showed that *antiviral therapy with topical creams or ointments are, at best, of modest benefit. Many of these topical applications are based on acyclovir or related compounds (eg, penciclovir) as the active component*.
- One of the largest randomized trials assigned 1573 patients with frequent recurrences of HSV-1 infection to receive penciclovir cream or placebo every two hours during the day for four days.
- The penciclovir cream decreased the time to lesion healing (4.8 versus 5.5 days) and the duration of pain (3.5 versus 4.1 days); viral shedding was also reduced.

Acyclovir and Penciclovir

- Cream topical preparations
- Antivirals that reduce time-to-healing and pain experienced from the lesion
- Treatment **should be** started as soon as symptoms (tingling or itching) are felt and before the lesion appears
- Once the lesion has appeared, evidence of effectiveness is less convincing → best recommended for patients who suffer repeated attacks and know when a cold sore is going to appear

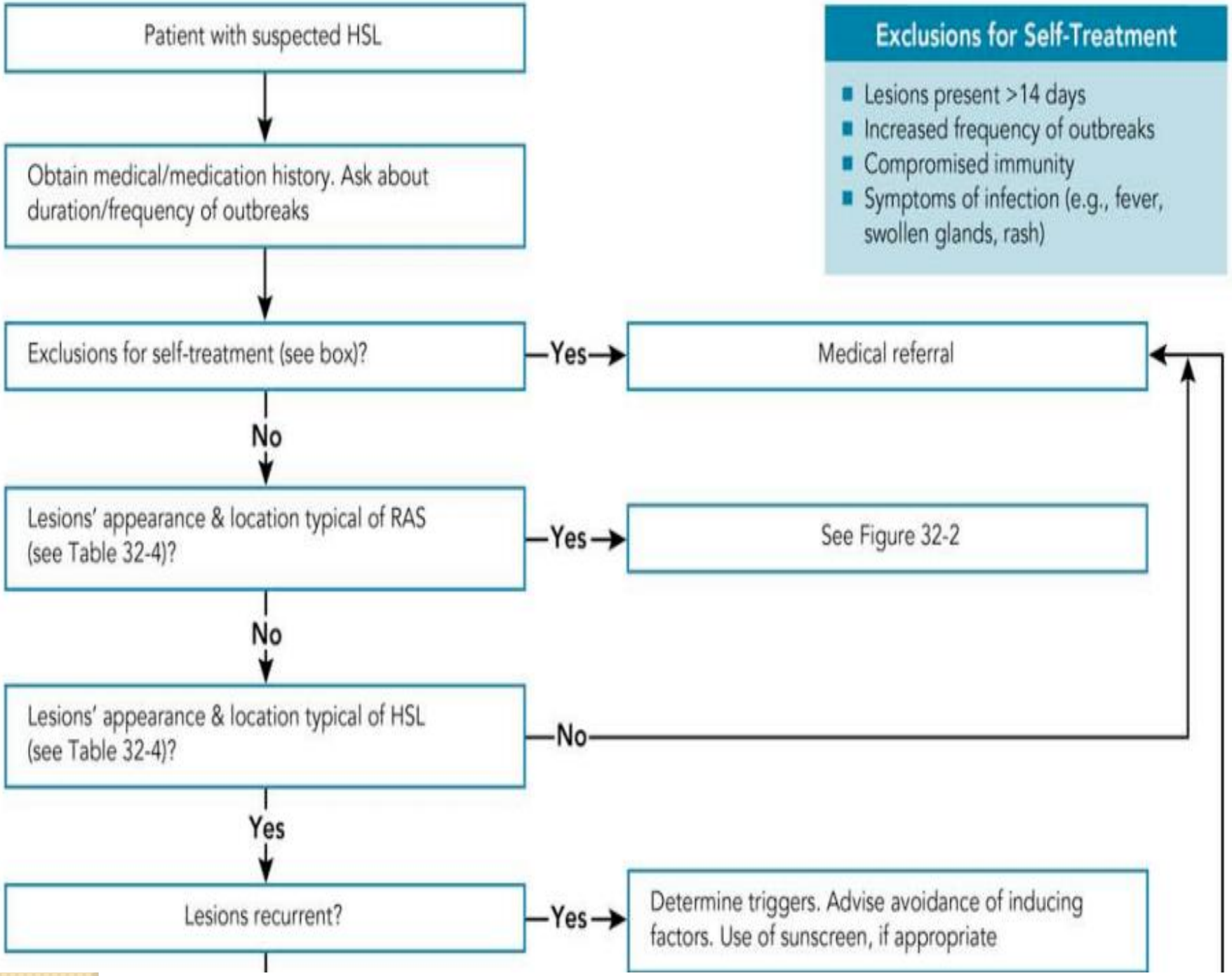
Acyclovir and Penciclovir

	Acyclovir cream	Penciclovir cream
Age group	Adults and children	≥ 12 years old
Dosage regimen	4-hourly during waking hours (Approximately 5 times a day)	2-hourly during waking hours (Approximately 8 times a day)
Duration	5 days. If healing is not complete → continue for up to 5 days → refer	4 days. If healing is not complete → continue for up to 4 days → refer
Side effects	Transient stinging or burning sensation after applying the creams. The affected skin may become dry and flaky	

Practical points

- ***Preventing cross infection:***
- **Wash hands** after applying treatment to the cold sore
- Women should be careful when **applying make up to** prevent infection of the eye
- Not to share cutlery, towels ... etc. till the cold sores clear up
- Avoid kissing if there's cold sores , *Try to avoid stress*

Use of sunscreens:
-Sunscreen creams (SPF 15 or above) applied around the lips when patients are subject to increased sun exposure (e.g. during skiing and beach holidays) can be useful preventive measure


Patient with suspected HSL
Obtain medical/medication history. Ask about duration/frequency of outbreaks
Exclusions for self-treatment (see box)?
Yes
Medical referral
No
Lesions' appearance & location typical of RAS (see Table 32-4)?
Yes
See Figure 32-2
No
Lesions' appearance & location typical of HSL (see Table 32-4)?
No
Yes
Lesions recurrent?
Yes
Determine triggers. Advise avoidance of inducing factors. Use of sunscreen, if appropriate
Exclusions for Self-Treatment
Lesions present >14 days
Increased frequency of outbreaks
Compromised immunity
Symptoms of infection (e.g., fever, swollen glands, rash)

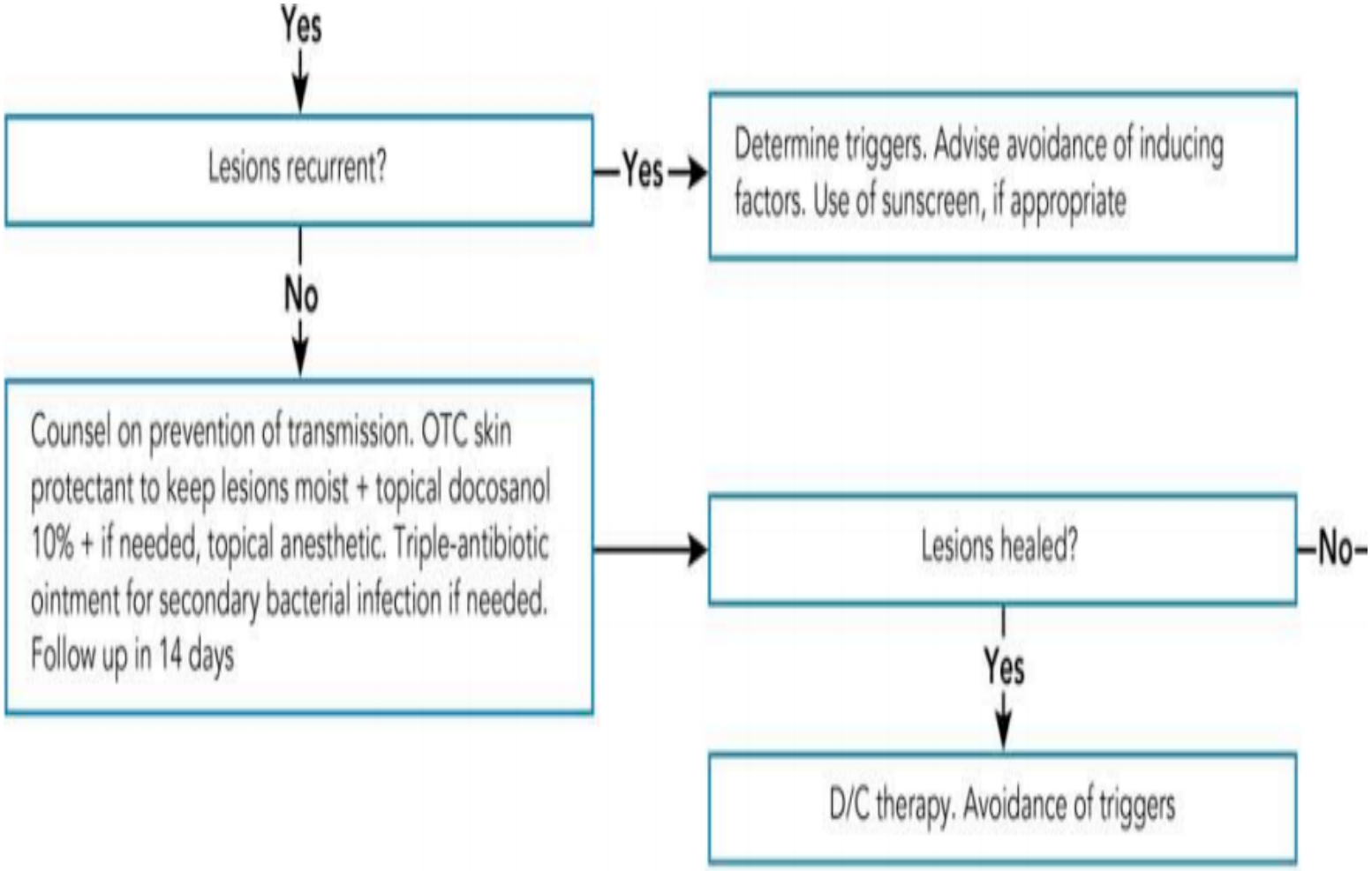


FIGURE 32-4 Self-care of herpes simplex labialis. Key: D/C, discontinue; HSL, herpes simplex labialis; OTC, over-the-counter; RAS, recurrent aphthous stomatitis.

Assessment of Herpes Simplex Labialis: A Case-Based Approach

Although many of the same nonprescription medications are indicated for RAS and HSL, the practitioner still needs to differentiate the disorders. Because herpes simplex lesions are contagious, additional measures are necessary to prevent transmission of the virus. The practitioner should obtain the patient's medical history to determine whether an underlying pathology predisposes the patient to recurrent HSL or could complicate treatment.

Evaluation of Patient Outcomes for Herpes Simplex Labialis

HSL typically resolves within 10 to 14 days. If the symptoms have resolved, no further treatment is necessary. However, if the condition worsens (pain and itching persist, redness increases, or signs of secondary infection are apparent), the patient should be referred to a medical provider for evaluation.

Patient counseling

The objectives of self-treatment for herpes simplex labialis (cold sores) are to (1) relieve pain and irritation while the sores are healing, (2) prevent secondary infection, and (3) prevent spread of the lesions. For most patients, carefully following product instructions and the self-care measures listed here will help ensure optimal therapeutic outcomes.

Nondrug Measures

- Keep labial or extraoral lesions clean by gently washing them with mild soap solutions.
- Wash hands frequently to prevent contaminating the lesions and to avoid spreading the virus.
- Avoid factors believed to delay healing such as stress, injury to the lesions, wind, excessive sun exposure, and fatigue.
- If outbreaks are related to sun exposure, use a lip and face sunscreen routinely.

Nonprescription Medications

- Use skin protectants such as allantoin, petrolatum, and cocoa butter to keep lesions moist and to prevent cracking of the lesions. (See Chapter 41 for discussion of these agents.) These measures help prevent secondary bacterial infection.
- Use topical anesthetics such as benzocaine or dibucaine to relieve burning, itching, and pain. Do not use benzocaine if you have a history of hypersensitivity to other benzocaine-containing products.

Patient counseling

- If using products containing camphor and menthol, make sure the concentration of camphor does not exceed 3% and the concentration of menthol does not exceed 1%.
- Do not apply hydrocortisone to the lesions.
- If evidence of secondary bacterial infection is seen, apply a thin layer of triple-antibiotic ointment three to four times daily.
- Apply topical agent docosanol 10% (Abreva) to limit the burning, tingling, and itching sensations. Docosanol 10% can also speed up the healing process, thus reducing the duration of the symptoms.
- If desired, take oral nonprescription analgesics (e.g., aspirin, ibuprofen, acetaminophen) for additional pain relief.
- Do not hold aspirin in the mouth or place it on oral lesions. The acid can cause a chemical burn and tissue damage.

See a primary care provider if any of the following occurs:

—The lesions do not heal in 14 days.

—The self-treatment measures do not relieve discomfort.

—Symptoms of systemic illness such as fever, malaise, rash, or swollen lymph glands occur.