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Nicotine Stomatitis

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Updated: Jun 26, 2009

Introduction

Background

Nicotinic stomatitis (smoker's palate), a lesion of the palatal mucosa, has been described in the literature since 1926. In 1941, Thoma named the lesion stomatitis nicotine because it is almost exclusively observed in individuals who smoke tobacco.[1] The concentrated heat stream of smoke from tobacco products causes nicotine stomatitis.[2] These mucosal changes are most often observed in pipe and reverse cigarette smokers and less often in cigarette and cigar smokers. Generally, it is asymptomatic or mildly irritating. Patients typically report that they are either unaware of the lesion or have had it for many years without changes.

Classic nicotine stomatitis. Note the speckled white and red appearance from the hyperkeratosis and minor salivary gland openings.

Pathophysiology

Nicotine stomatitis affects the oral mucosa of the hard palate posterior to the rugae and the adjacent soft palate.[3]

Frequency

United States

The incidence in the United States is unknown.

International

A large study in Saudi Arabia showed that 29.6% of all smokers had nicotine stomatitis and that 60% of pipe smokers had this lesion. See also studies of smokers in India[4] and Turin.[5]

Mortality/Morbidity

Although nicotine stomatitis is caused by smoking tobacco products, it is generally not associated with dysplastic or malignant changes.[6] The exception to this is in individuals who reverse smoke. Reverse smoking is common in some parts of the Caribbean and Southeast Asia. The concentrated heat and chemicals increase the potential for malignant change.[7]

Race

The appearance of nicotine stomatitis is related directly to the population that smokes tobacco products.

Sex

Men and women who smoke tobacco products are affected equally. Women smoke pipes less often than men; therefore, the lesion is less prevalent in women.

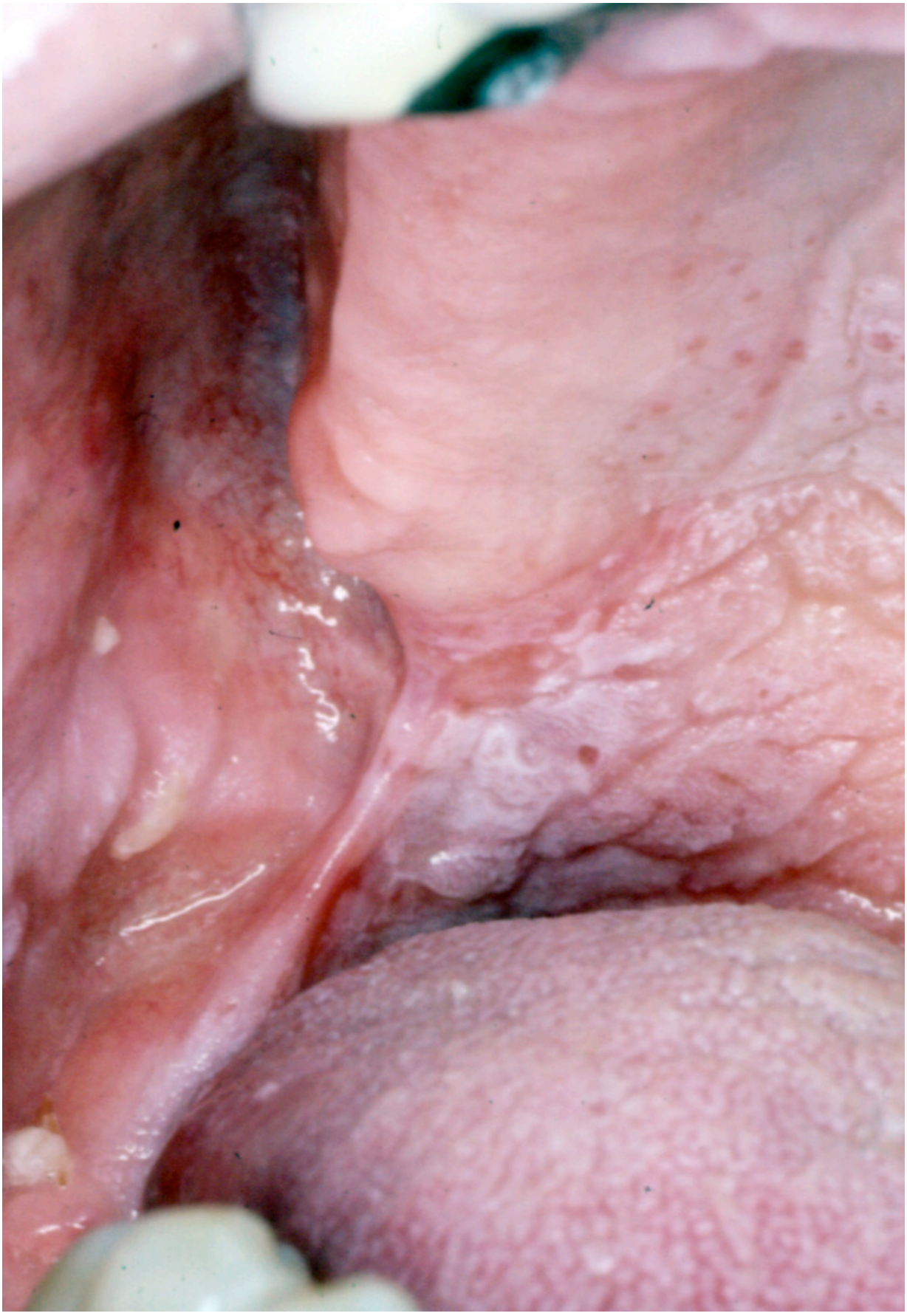
Clinical

History

Nicotine stomatitis first becomes visible as a reddened area and slowly progresses to a white, thickened, and fissured appearance. The palate has numerous minor salivary glands. They become swollen and the orifices become prominent, giving the tissue a speckled white and red appearance. Patients are usually asymptomatic.

Physical

Lesions are exclusively found on the palatal mucosa. They have a white cobblestone appearance, often with a red dot in the center of the cobblestone. The lesion cannot be wiped off and can have some fissuring. It is limited to the posterior hard palate and less often to the adjacent soft palate.



Fissured appearance of nicotine stomatitis. Notalvato da Windows Internet Explorer 8> Subject: Nicotine Stomatitis: [Print] - eMedicine Dermatology Date: Fri, 4 Sep 2009 01:24:51 +0200 MIME-Version: 1.0 Content-Type: multipart/related; type="text/html"; boundary="----=_NextPart_000_049F_01CA2CFE.7FFCA6E0" X-MimeOLE: Produced By Microsoft MimeOLE V6.00.2900.5579 This is a multi-part message in MIME format. ------=_NextPart_000_049F_01CA2CFE.7FFCA6E0 Content-Type: text/html; charset="Windows-1252" Content-Transfer-Encoding: quoted-printable Content-Location: http://emedicine.medscape.com/article/1076183-print

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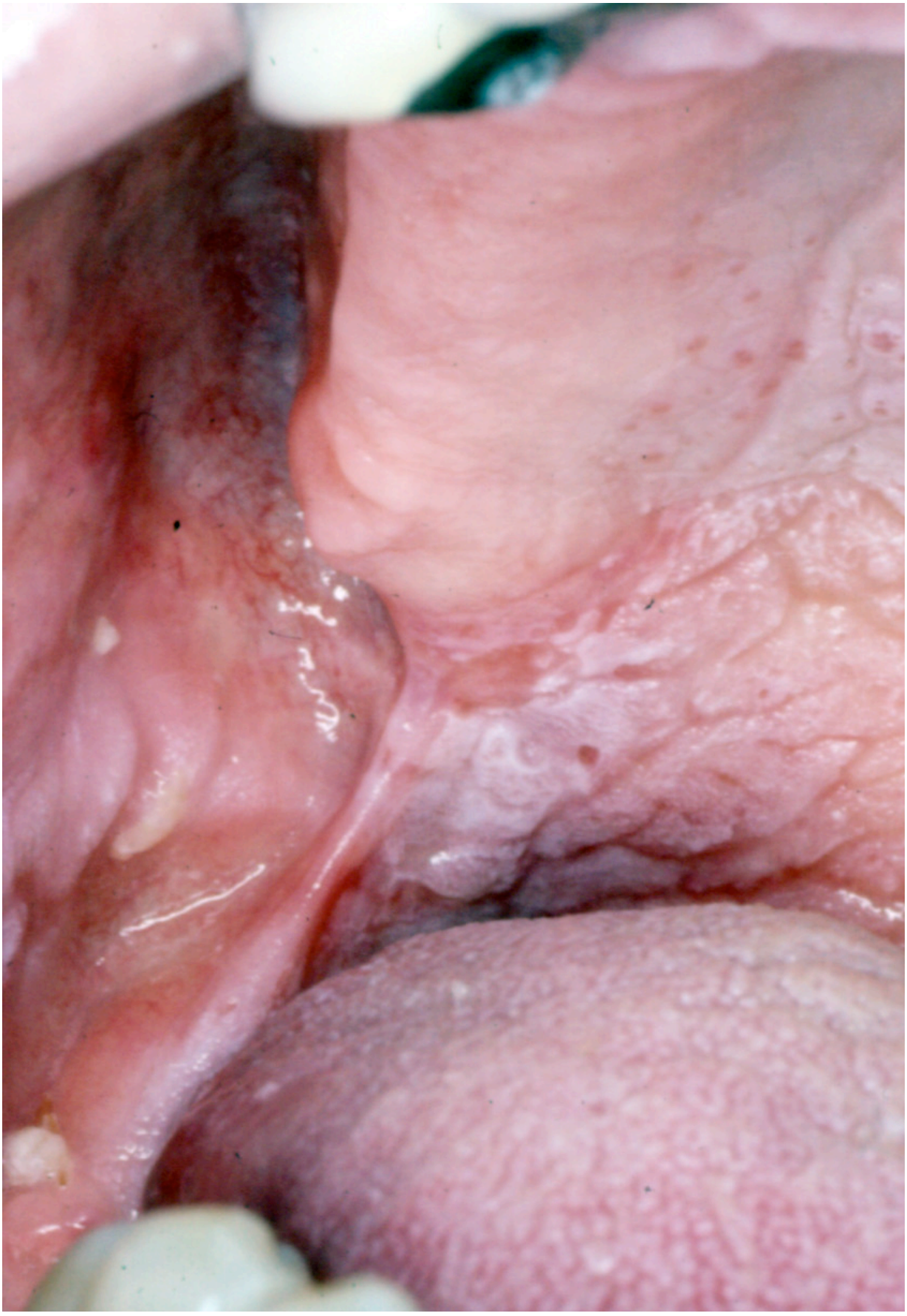


Fissured appearance of nicotine stomatitis. Notice the gingival-palatal areas where a partial denture protects the mucosa from the heat and smoke.

Nicotine stomatitis in a reverse smoker. Notice the increased hyperkeratosis, hyperplasia, and swelling of minor salivary glands.

Causes

Nicotine stomatitis has been associated with pipe, cigarette, and cigar smoking, and, rarely, with chronic ingestion of high-temperature liquids. The mechanism of action is heat irritation from a tobacco product that acts as a local irritant, stimulating a reactive process. Dentures often protect the palate from these irritants in patients who wear them.

Differential Diagnoses

Cancers of the Oral Mucosa
Candidiasis, Mucosal

Workup

Procedures

If unable to make the diagnosis by clinical appearance or if the lesion does not resolve after cessation of smoking, perform a 5-mm punch biopsy. A biopsy is also indicated in a patient with a symptomatic lesion or if the patient reports that he or she is a reverse smoker.

Histologic Findings

Histologically, these lesions appear acanthotic and hyperkeratotic, with some mild-to-moderate chronic inflammation. The epithelium of the minor salivary ducts often shows squamous metaplasia.

Treatment

Medical Care

The only definitive treatment is smoking cessation. Myung et al reported from a meta-analysis of randomized controlled trials that sufficient clinical evidence exists to support the use of computer- and Web-based smoking cessation programs in adults who smoke.[8]

Consultations

If a patient is interested in stopping the tobacco habit, a referral to a comprehensive smoking-cessation program is indicated. This program should include peer group sessions.

Medication

Medical therapy is directed at smoking cessation.

Nicotine substitutes

Available as a transdermal patch, gum, an inhaler, or nasal spray.

Nicotine transdermal system (Nicotrol, NicoDerm CQ, Habitrol)

Works best when used in conjunction with a support program (eg, counseling, group therapy, behavioral therapy).

Dosing

Adult

1 TD 15 mg/d patch for 6 wk, then 1 10 mg/d TD patch for 2 wk, followed by 1 TD 5 mg/d patch for 2 wk

Pediatric

Not established

Interactions

May decrease diuretic effects of furosemide and decrease cardiac output; may decrease absorption of glutethimide; may increase circulating cortisol and catecholamines; do not use if patient continues to smoke, use snuff, chew tobacco, or use other nicotine products because it may increase toxicity of nicotine

Contraindications

Documented hypersensitivity; nonsmokers; children; pregnancy; life-threatening arrhythmias; severe or worsening angina pectoris

Precautions

Pregnancy

X - Contraindicated; benefit does not outweigh risk

Precautions

Caution in peptic ulcer, coronary artery disease, angina, hypertension, peripheral arterial disease, diabetes, severe renal dysfunction, and hepatic dysfunction; may cause skin irritation

Antidepressant agents

Used in conjunction with a support group and/or behavioral counseling.

Bupropion (Zyban)

Inhibits neuronal dopamine reuptake in addition to being a weak blocker of serotonin and norepinephrine reuptake.

Dosing

Adult

150 mg PO qd for 3 d, then increase to 150 mg PO bid with at least 8 h between each dose for 7-12 wk

Pediatric

Not established

Interactions

Carbamazepine, cimetidine, phenytoin, and phenobarbital may decrease effects; toxicity increases with concurrent administration of levodopa and MAOIs

Contraindications

Documented hypersensitivity; seizure disorder; anorexia nervosa; concurrent use with MAOIs

Precautions

Pregnancy

B - Fetal risk not confirmed in studies in humans but has been shown in some studies in animals

Precautions

Caution in renal or hepatic insufficiency; doses >450/d significantly decrease seizure threshold

Nicotinic acetylcholine receptor partial agonists

Bind to nicotine receptors and elicit mild nicotine central effects to ease withdrawal symptoms. Also decreases stimulatory effect from consuming nicotine products by blocking nicotine receptors.

Varenicline (Chantix)

Partial agonist selective for alpha4, beta2 nicotinic acetylcholine receptors. Action is thought to result from activity at a nicotinic receptor subtype, where its binding produces agonist activity while simultaneously preventing nicotine binding. Agonistic activity is significantly lower than nicotine. Also elicits moderate affinity for 5-HT3 receptors. Maximum plasma concentrations occur within 3-4 h after oral administration. Following regular dosing, steady state reached within 4 d.

Dosing

Adult

Initiate 1 wk before date chosen to stop smoking
Days 1-3: 0.5 mg PO qd pc
Days 4-7: 0.5 mg PO bid pc
Day 8 to end of treatment: 1 mg PO bid pc
Continue treatment for 12 wk; if successfully stopped smoking at end of 12 wk, an additional 12-wk course is recommended; take pc with full glass of water
Severe renal impairment (ie, CrCl <30 mL/min): Not to exceed 0.5 mg PO bid
End-stage renal disease with hemodialysis: Not to exceed 0.5 mg PO qd

Pediatric

<18 years: Not established

Interactions

Data limited; coadministration with nicotine replacement therapy (NRT) may increase incidence of nausea, headache, vomiting, dizziness, and dyspepsia compared with NRT alone

Contraindications

Documented hypersensitivity

Precautions

Pregnancy

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Common adverse effects include nausea, headache, vomiting, flatulence, insomnia, abnormal dreams, and dysgeusia; decrease dose with severe renal impairment (ie, CrCl <30 mL/min) or ESRD undergoing hemodialysis
Serious neuropsychiatric symptoms have been reported during postmarketing surveillance and may include changes in behavior, agitation, depressed mood, suicidal ideation, and attempted and completed suicide; these adverse events have been exhibited in patients

without preexisting psychiatric illness, and patients with preexisting psychiatric illness have reported worsening symptoms during varenicline treatment; for more information, see the FDA MedWatch Safety Information (www.fda.gov/medwatch/safety/2008/safety08.htm#Varenicline)

Follow-up

Further Outpatient Care

- **Monitor patients with nicotine stomatitis. If after smoking cessation the lesion does not resolve, further investigation is warranted.**

Inpatient & Outpatient Medications

- **If any of the smoking-cessation medications appear to be effective, continue medications in conjunction with support groups. The most effective long-term smoking-cessation results are observed in patients who are members of support groups.**

Deterrence/Prevention

- **To prevent these lesions and other more serious tobacco-induced lesions in the oral cavity, counsel patients on the dangers of tobacco use. Once they understand the need to stop using tobacco products, make a referral to a comprehensive tobacco-cessation program.**

Prognosis

- **Nicotine stomatitis is generally a reversible lesion once the irritant is removed. The prognosis is excellent.**

Patient Education

- **Educate patients concerning the dangers of tobacco use. Many cigar and pipe smokers believe that they are not at risk for cancer because they do not inhale.**

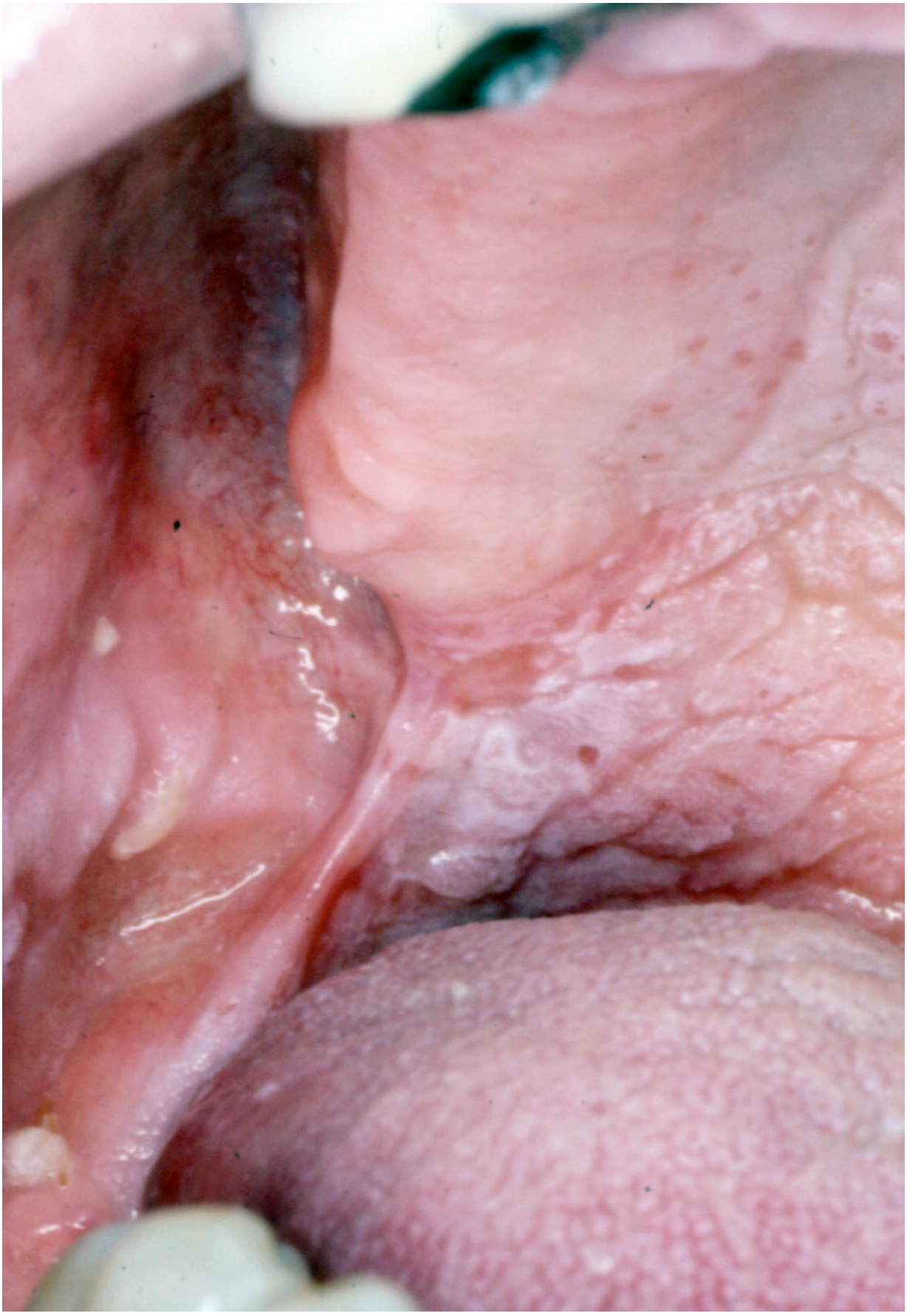
Miscellaneous

Medicolegal Pitfalls

- **Although nicotine stomatitis is not considered a premalignant condition, monitor these patients because of their risk factors. The major risk factors for squamous cell carcinoma of the oral cavity are age and tobacco and alcohol use.**
- **Investigate more thoroughly the changes to the palate or adjacent lesions that appear different from the classic pattern described.**

Multimedia

Media file 1: Classic nicotine stomatitis. Note the speckled white and red appearance from the hyperkeratosis and minor salivary gland openings.



Media file 2: Fissured appearance of nicotine stomatitis. Notice the gingival-palatal areas where a partial denture protects the mucosa from the heat and smoke.

Media file 3: Nicotine stomatitis in a reve