

Case Studies > Infectious Disease

What Caused a Mysterious Grayish Tongue Plaque in a Healthy Man?

— Man presented with irregular gray-white ulcers on the soft palate, uvula, and tonsils

by [Kate Kneisel](#), Contributing Writer, MedPage Today
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Why has this asymptomatic man in his 60s with an unremarkable medical history suddenly developed gray-white plaque on his soft palate? That's the question facing Jianjun Qiao, MD, PhD, of Zhejiang

University School of Medicine in Hangzhou, China, and colleagues, as reported in [JAMA](#).

When the man presented to the dermatology clinic for assessment, he explained that his tongue had developed this gray surface over the past week. He had been treated with oral cefuroxime for 3 days, without any improvement.

On questioning, he denied having a sore throat, cough, hoarseness, headache, or swallowing difficulties. He had no symptoms such as nausea, vomiting, fever, or night sweats, nor had he lost weight. He told clinicians that for the past 6 months, he had not had any rashes, ulcers affecting his genitals or rectal area, injuries or sores in his mouth, or a history of oral trauma.

He was a nonsmoker, and did not take any regular daily medications. He reported sexual contact with one male partner over the past 6 months.

On physical examination, clinicians noted irregular gray-white ulcers on the soft palate, uvula, and tonsils. The area around the sores was red and swollen. They also observed bilateral submandibular lymphadenopathy, which was not tender to the touch. His tongue appeared normal, and there was no evidence of skin lesions or mucosal erosions in the anal or genital areas.

Correct!

Since the year _____, the incidence of syphilis has been increasing steadily worldwide.

40% ✓

2000

14% ●

2003

25% ●

2010

21% ●

2015

Clinicians considered several next steps, including prescribing a trial of oral amoxicillin, starting the patient on topical nystatin, obtaining a biopsy of the gray-white plaque, and ordering blood tests for *Treponema pallidum*.

They decided against the trial of amoxicillin, since a recent course of cefuroxime had not improved the patient's oral lesions. Given that the patient's tongue and inner cheeks had no white patches, they ruled out possible oropharyngeal candidiasis, which would have been treated with topical nystatin. They decided to obtain serologic tests for *T. pallidum*, and if those returned negative findings, an oral biopsy would be the next and more invasive choice.

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Syphilis is typically diagnosed by serologic testing, Qiao and team explained. Initial diagnostic methods may include "a treponemal test such as the *T. pallidum* particle agglutination assay (TPPA), which tests for specific antibodies against *T. pallidum*, or a nontreponemal antiphospholipid antibody test such as the rapid plasma reagin (RPR) or VDRL test."

The patient's blood test results were positive for TPPA and revealed an RPR titer of 1:256. Findings from polymerase chain reaction testing performed on a sample taken from the patient's soft palate showed that he did not have human papillomavirus (HPV). Results of oropharyngeal and genital swabs showed that he did not have chlamydia or gonorrhea, and he tested negative for HIV, hepatitis B, and hepatitis C.

Your Results

100%
 2 out of 2 questions answered correctly
 Participants to date
 420
 High score
 100%
 Average score
 57%

How You Compare

Correct!

1.

Since the year _____, the incidence of syphilis has been increasing steadily worldwide.

40% ✓

2000

14% ●

2003

25% ●

2010

21% ●

2015

Correct!

2.

True or False: Secondary syphilis most often manifests as a maculopapular rash involving the palms and soles.

73% ✓

True

27% ●

False

Clinicians administered one intramuscular injection of benzathine benzylpenicillin G (2.4 million units). This resolved his oral lesions completely within 2 weeks. They advised him to inform his current sex partner of his syphilis diagnosis, so that he could be tested.

At a follow-up visit 1 year later, the patient had no symptoms and oral examination revealed no abnormalities. His RPR titer had decreased to 1:8.

Discussion

"The key to the correct diagnosis is recognition that oral ulcers may be a manifestation of secondary syphilis," Qiao and team noted.

"Syphilis is an infection caused by *T. pallidum*, a spirochete that is

acquired predominantly through sex but that can be transmitted from mother to fetus during pregnancy and may rarely be acquired hematogenously or through an organ transplant."

Secondary syphilis occurs when *T. pallidum* is spread through the bloodstream, usually 4 to 10 weeks after the primary syphilis infection occurs. Clinically, secondary syphilis most often manifests as a maculopapular rash involving the palms and soles.

A secondary syphilis infection may also cause fatigue, muscle pain, fever, joint swelling, headache, sore throat, abdominal pain, hair loss, and alopecia, and may also affect vision and hearing. Up to 50% of cases of secondary syphilis present with oral mucosal manifestations, often affecting the lip, tongue, buccal mucosa, soft palate, and tonsils.

"Findings of oral secondary syphilis include erosive or ulcerative mucosal lesions, mucous patches, gray-white papillary or nodular lesions, and hyperkeratotic plaques," Qiao and colleagues wrote.

Secondary oral syphilis has a long list of differential diagnoses to consider, including viral, fungal, protozoal, and mycobacterial infections; lichen planus; pemphigoid; pemphigus vulgaris; traumatic ulcerations; and squamous cell carcinoma, they said.

Oral secondary syphilis primarily affects men, they added, citing a study of 206 patients with [secondary syphilis](#), of whom 38 had oral secondary syphilis. Of those patients, 95% were men, and all but 2% of those were men who had sex with men; 39% had no other manifestations of secondary syphilis. "Their ages ranged from 21 to 63 years, 37% had HIV, and 53% had a history of sexually transmitted infections other than HIV (most commonly, hepatitis B, gonorrhea, and condylomas)," Qiao and team noted.

Mean time to diagnosis was 4.5 months, but was significantly longer for patients with isolated oral symptoms (8.8 vs 1.8 months, $P=0.02$).

In patients whose blood test results are negative, they suggested that diagnosis may be obtained with a tissue biopsy of a secondary syphilitic lesion. Histopathology may not be strongly diagnostic of secondary syphilis, as immunohistochemistry test sensitivity ranges from 49% to 92%.

First-line treatment for all stages of syphilis is benzathine penicillin G. "A single dose of 2.4 million units administered intramuscularly is curative for early, uncomplicated syphilis," Qiao and colleagues wrote, citing [CDC recommendations](#).

They stressed the value of monitoring quantitative titers of RPR or VDRL "to assess response to therapy, relapse, and to diagnose reinfection with *T. pallidum*."

The CDC also advises that treatment be followed up with clinical assessment and nontreponemal testing, at 6-, 12-, and 24-month intervals for patients without HIV and at 3-, 6-, 9-, 12-, and 24-month intervals for patients with HIV.

Qiao and colleagues advised screening syphilis patients for other sexually transmitted infections, including HIV, and testing sexual partners of those infected, noting that the incidence of syphilis has been increasing steadily worldwide since 2000.



[Kate Kneisel](#) is a freelance medical journalist based in Belleville, Ontario.

Disclosures

The authors reported no conflicts of interest.

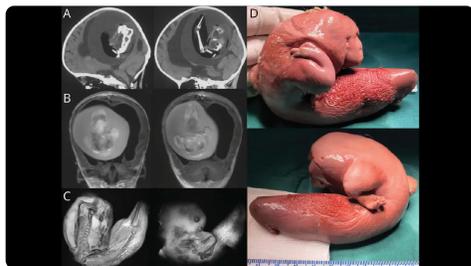
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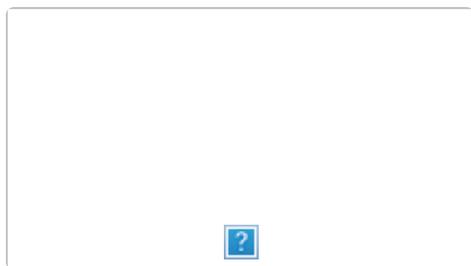
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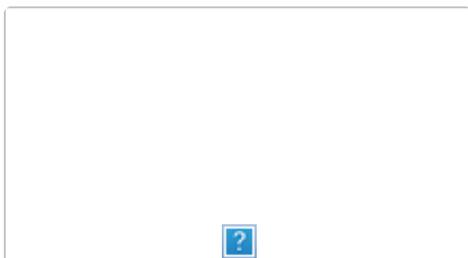
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