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Case report

# Secondary syphilis in the oral cavity and the role of the dental surgeon in STD prevention, diagnosis and treatment: a case series study

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ABSTRACT

Syphilis is an infectious disease caused by the bacterium *Treponema pallidum*. Syphilis has three clinical stages and may present various oral manifestations, mainly at the secondary stage. The disease mimics other more common oral mucosa lesions, going undiagnosed and with no proper treatment. Despite the advancements in medicine toward prevention, diagnosis, and treatment syphilis remains a public health problem worldwide. In this sense, dental surgeons should be able to identify the most common manifestations of the disease in the oral cavity, pointing to the role of this professional in prevention and diagnosis. This study describes a case series of seven patients with secondary syphilis presenting different oral manifestations.



## Introduction

Humans are the only natural host known to date of syphilis, an infectious disease caused by the bacterium *Treponema pallidum*. This microorganism has positive tropism for several human organs and tissues, with complex clinical implications. Transmission occurs mainly through unprotected sexual intercourse and although the main inoculation site is the genital organs in general, extragenital areas such as the oral cavity and the anal region are also affected.[1–5] Other important transmission pathways include the intra-uterus (transplacentary) route during labor,[1,4] which causes congenital syphilis.

Syphilis has three clinical stages. The primary stage is characterized by a single chancre that manifests approximately 90 days after exposure and remits spontaneously within two to eight weeks. The secondary stage occurs between 2 and 12 weeks after exposure, when a rash develops on several parts of the skin. The rash subsides spontaneously with no treatment when the condition enters its latent stage. Also called late phase and rarely observed today, the tertiary stage is characterized by gummata and/or neurosyphilis that emerge three years or later after exposure.[1,3–10]

Although oral manifestations of syphilis may be observed at the primary stage, they are more commonly detected at the secondary stage of the disease as multiple painless aphthous ulcers or irregularly shaped lesions with whitish edges distributed on the oral mucosa and oropharynx, especially on the tongue, lips, and jugal mucosa.[4,6,9] The appearance of such lesions varies widely, thus increasing the diagnostic

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**Table 1 – Oral anatomical sites affected, type of fundamental lesion and differential diagnosis.**

| | Oral anatomical site(s) affected | Fundamental lesion | Differential diagnosis |
|---|---|---|---|
| Patient 1<br>Male<br>45 years old<br>Married | **A** – Upper lip mucosa near the commissure<br>**C** – Tongue edge<br>**B** – Lip commissure | Ulcer and mucous plaque<br>Nodule and ulcer<br>Nodule and ulcer | Lichen planus, pemphigus vulgaris<br>Ulcer by trauma<br>Angular cheilitis |
| Patient 2<br>Male<br>46 years old<br>Single | **C** – Hard palate<br>**A** – Lower lip mucosa<br>**B** – Ventral tongue | Ulcer<br>Mucous plaque<br>Mucous plaque | Spinocellular carcinoma<br>Aphthous ulcer<br>Aphthous ulcer |
| Patient 3<br>Male<br>42 years old<br>Single | **A/B** – Bilateral tongue edge | Nodule | Trauma by biting, fibroepithelial hyperplasia |
| Patient 4<br>Female<br>53 years old<br>Married | **A/B** – Soft palate, involving tonsil pillars | Nodule and ulcer | Spinocellular carcinoma (simultaneous) |
| Patient 5<br>Female<br>29 years old<br>Long term relationship | **A** – Soft palate<br>**A** – Hard palate<br>**B** – Lower lip mucosa | Mucous plaque<br>Mucous plaque<br>Spot and erosion | Ulcer by trauma<br>Ulcer by trauma<br>Leukoplakia, lichen planus |
| Patient 6<br>Female<br>39 years old<br>Married | **A/B** – Apex and edge of tongue, bilaterally | Mucous plaque | Pseudomembranous candidiasis, lichen planus, pemphigus vulgaris |
| Patient 7<br>Female<br>36 years old<br>Long term relationship | **A** – Uvula and palate tonsil | Mucous plaque | Ulcer by trauma, spinocellular carcinoma |

complexity when the dental surgeon is not properly qualified to detect stomatological conditions. For this reason, oral manifestations of syphilis may be mistaken for other, more common oral conditions, with no early diagnosis or appropriate treatment.

In addition to information obtained directly from the patient during consultation, the diagnosis of syphilis normally includes clinical examination and serological and microbiological assays. As a rule, biopsy is only required when lesions do not subside completely. Standard laboratory assays used to diagnose syphilis at any stage include treponemal and non-treponemal serum tests.[3,9]

Based on penicillin, the first successful anti-syphilis treatment was documented in 1943. Since then, penicillin is the drug of choice to treat the disease, usually penicillin G benzathine or penicillin G procaine.[1,6]

This case series describes different oral manifestations of secondary syphilis in seven heterosexual patients. The objective was to discuss the diagnosis and treatment protocols adopted by the Stomatology Unit, Hospital de Clínicas de Porto Alegre (HCPA), Rio Grande do Sul, Brazil and to characterize secondary syphilis lesions in the oral cavity and the respective clinical follow-up of patients toward cure.

## Clinical cases series

Herein we present seven patients with oral manifestations of secondary syphilis that were referred to our Stomatology Unit. Table 1 shows the demographic data of the patients including age group, gender, and marital status.

All patients were initially seen at primary healthcare centers complaining of multiple painful lesions in the mouth as their main health problem, and went through the same medical diagnostic protocol (Fig. 1). HIV and hepatitis C exams requested were negative for all patients, and none admitted drug addiction. The most common fundamental lesions were plaques on the mucosa, ulcers, nodules, spots, and erosion, in this order. The most affected anatomical sites included labial mucosa, tongue edge, hard and soft palates, lip commissure, ventral tongue, uvula, and tonsils, respectively. Fig. 2 shows photographs of the oral lesions of each patient. The most frequent diseases considered in the differential diagnosis were ulcers caused by trauma, spinocellular carcinoma, and autoimmune diseases. Table 1 lists the oral sites affected, the fundamental lesion type, and the differential diagnosis for each lesion.

The venereal disease research laboratory (VDRL) test and the fluorescent treponemal antibody absorption (FTA-ABS) test were carried out for all patients, which are conventionally requested to diagnose syphilis. Results of both tests are shown in Fig. 3,[11] while serological assay results are shown in Table 2.

Upon confirmation of the diagnosis of syphilis, all patients received the conventional treatment as described by Brazilian health authorities.[12] This treatment includes intramuscular injections of penicillin G benzathine 2,400,000 IU a week for three weeks, and follow-up with serological assays until VDRL