

Syphilis Diagnosis Based on Oral Manifestations: a Case Series

Diagnóstico de Sífilis a Partir de Lesões Oraís: uma Série de Casos

Dayane Ferreira Resende^a; Paula Frota Angheben^a; Soraya de Mattos Camargo Grossmann^a; Marcelo Ferreira Pinto Cardoso^b; Paulo Eduardo Alencar de Souza^a; Giovanna Ribeiro Souto^{*a}

^aPontifícia Universidade Católica de Minas Gerais, Oral Pathology Section and Graduate Program in Dentistry. MG, Brazil.

^bPolícia Militar de Minas Gerais, Department of Dentistry. MG, Brazil.

*E-mail: grsouto@hotmail.com,

Abstract

Syphilis is a sexually transmitted bacterial disease that has shown a significant increase in its incidence in recent years, both in Brazil and around the world. The disease can be transmitted sexually (acquired) or congenitally. The main route of transmission of the disease is sexual. When not treated initially, the infection becomes systemic and, in many cases, exhibits manifestations in the oral mucosa, allowing the establishment of the diagnosis through confirmation by laboratory tests. The great variability of clinical presentations of its oral lesions may make its identification difficult, so it is essential to know the characteristics of syphilis for a correct diagnosis. The identification of oral manifestations can help in the early diagnosis, which is of great importance for the correct treatment of this infection, as if it is not treated in time, it can result in morbidity and even mortality. In this study, five cases of secondary syphilis with different clinical manifestations in the buccal region are presented. The etiopathogenesis, the evolution of the disease, the useful tests for diagnosis and treatment are discussed. The role of the dental surgeon is increasingly evident as part of a multidisciplinary healthcare team. Therefore, it is necessary to prepare for orientation, reception, early identification of the lesions, and targeting a day of treatment of this infection.

Keywords: Syphilis. Clinical Diagnosis. Oral Manifestations. Sexually Transmitted Diseases

Resumo

A sífilis é uma doença bacteriana sexualmente transmissível que tem apresentado aumento significativo em sua incidência nos últimos anos, tanto no Brasil quanto no mundo. Pode ser transmitida sexualmente (adquirida) ou de forma congênita. A principal via de transmissão da doença é sexual. Quando não tratada inicialmente, a infecção torna-se sistêmica e, em muitos casos, apresenta manifestações na mucosa oral, permitindo o estabelecimento do diagnóstico por meio da confirmação por exames laboratoriais. A grande variabilidade de apresentações clínicas de suas lesões bucais pode dificultar sua identificação, por isso é fundamental conhecer as características da sífilis para um diagnóstico correto. A identificação das manifestações bucais pode auxiliar no diagnóstico precoce, o que é de grande importância para o correto tratamento desta infecção, pois se não for tratada a tempo, pode resultar em morbidade e até mortalidade. Neste estudo, são apresentados cinco casos de sífilis secundária com diferentes manifestações clínicas na região bucal. A etiopatogenia, a evolução da doença, os testes úteis para o diagnóstico e tratamento são discutidos. O papel do cirurgião-dentista é cada vez mais evidente como parte de uma equipe multidisciplinar de saúde. Portanto, é preciso se preparar para orientação, acolhimento, identificação precoce das lesões e direcionamento de um dia de tratamento dessa infecção.

Palavras-chave: Sífilis. Diagnóstico Clínico. Manifestações Bucais. Infecções Sexualmente Transmissíveis.

1 Introduction

Syphilis is a disease caused by the spirochete *Treponema pallidum*. It is considered a rare disease, but an increase in the incidence of infection has been observed in recent years^{1,2}. It is estimated that there are more than 12 million cases per year in the world, of which 900,000 are in Brazil³. A recently published study showed a significant increase in the number of cases in the last five years¹.

The disease can be transmitted sexually (acquired) or congenitally. The main route of transmission of the disease is sexual^{4,5}. Both forms can result in oral manifestations of the disease that can occur as one of the first signs of infection^{5,6}. The identification of oral manifestations can help in the early diagnosis, which is of great importance for the correct treatment

of this infection, as if it is not treated in time, it can result in morbidity and even mortality¹. Thus, dental surgeons must be attentive and properly trained for the diagnosis of lesions. The present study is the report of five clinical cases that were diagnosed from oral lesions.

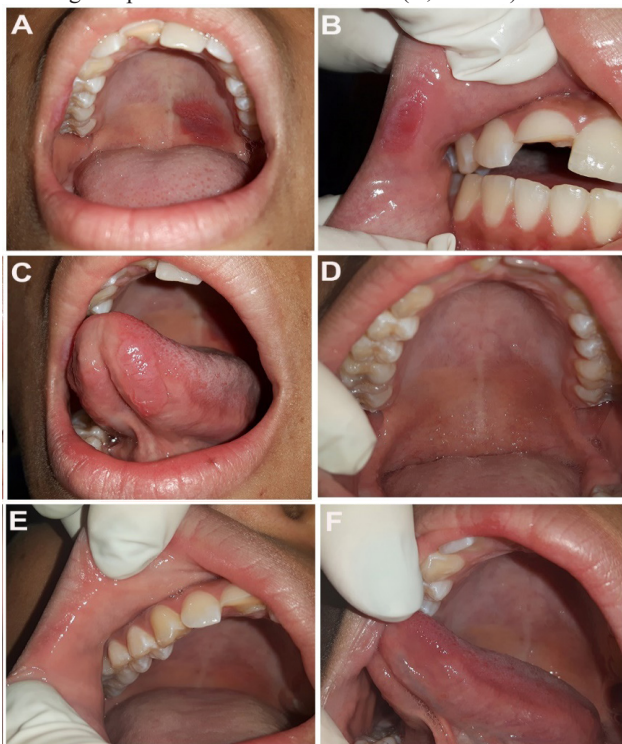
2 Case Reports

2.1 Case 1

Female patient, 15 years old, feoderm, sought clinical care to perform restoration of tooth 11 that had a fracture. During the consultation, asymptomatic lesions were observed on the oral mucosa and the patient was referred to the stomatology clinic. The patient's past medical history did not contribute to the diagnosis. In the extraoral clinical examination, no changes were

observed and the patient did not report any skin lesions. In the intraoral clinical examination, an asymptomatic erythematous plaque with an irregular surface and precise limits was observed, located between the hard and soft palate on the left side, measuring approximately 25x15mm (Figure 1A). White plaques, with erythematous, non-detachable, asymptomatic, irregular surface, and well-delimited areas were noted on the cheek mucosa near the labial commissure on the right side, measuring 10x5mm (Figure 1B), and on the anterior tongue belly on the left side (Figure 1C), measuring approximately 20x7mm.

Figure 1 – Intraoral clinical examination showing an erythematous plaque, with an irregular and well-defined surface, on the mucosa of the right hard and soft palate (A); white plaques with non-detachable erythematous areas, with an irregular surface, well defined on the right anterior buccal mucosa (B) and on the left anterior lingual belly (C). Clinical examination after 30 days of antibiotic treatment showing complete remission of the lesions (D, E and F)



Source: the authors.

The lesions had an indeterminate time of evolution. Given the description, the diagnostic hypotheses were condyloma lata (Figure 1A) and mucous plaque (Figure 1B and C), compatible with a diagnosis of secondary manifestation of syphilis. Differential diagnoses were condyloma acuminatum and diffuse oral manifestations of sexually transmitted diseases (STDs). Complete blood count and serological tests were requested: VDRL, anti-HIV-1, anti-HIV-2, anti-HBSAg and anti-HCV. The VDRL was reactive up to the 1/128 dilution.

The other tests were nonreactive or within the reference values. After confirming the diagnosis of syphilis, the patient was referred for medical treatment, which was performed using penicillin G benzathine 2,400,000 UI applied intramuscularly in a single dose. After 30 days, total remission of oral lesions was

observed (Figure 1D, E, and F).

2.2 Case 2

Male patient, 20 years old, feoderm, sought clinical care to evaluate a lesion in the labial mucosa associated with cervical swelling, noticed for about a month and asymptomatic. In the evaluation of the previous medical and dental history, no information was reported that would contribute to the diagnosis. On extraoral clinical examination, swelling was observed in the submandibular region on the left side, with a soft consistency, well defined, and mobile (Figure 2A).

Figure 2 - Extraoral clinical examination showing swelling in the submandibular region on the left side (A). Intraoral clinical examination showing superficial ulceration, with white and erythematous areas, with an irregular surface, well defined on the left lower lip mucosa (B). Extraoral (C) and intraoral (D) clinical appearance 30 days after antibiotic treatment. Case 3 - Extraoral clinical examination showing increased volume in the left submental region (E). Intraoral examination showing well-defined erythematous lesions, with areas of superficial ulceration, on the dorsum of the tongue (F)



Source: the authors.

The diagnostic hypotheses were regional lymphadenopathy, benign mesenchymal or glandular neoplasia. An ultrasound examination of the cervical region suggested a hypothesis of lymphadenopathy in the left submandibular region. In the intraoral clinical examination, superficial ulceration was observed, with white and erythematous areas, with an irregular surface, precise limits, regular contours, in the lower labial mucosa on the left side, measuring approximately 12 mm in diameter (Figure 2B). The diagnostic hypotheses were the manifestation of syphilis, traumatic ulcer, and other manifestations of STDs. Complete blood count and serological tests for VDRL, anti-HIV-1 and anti-HIV-2 were requested. All were negative or within normal reference values. In view of the persistence of the lesion, after twenty days, the patient was asked to perform a new VDRL test and FTA-ABS test. The VDLR test showed a dilution of 1:32

and the FTA-ABS test was reactive, confirming the diagnosis of syphilis. The patient was referred for medical treatment, which was performed using an ampoule of benzathine penicillin G of 2,400,000 UI, applied intramuscularly in a single dose. After 30 days, there was remission of the cervical swelling (Figure 2C) as well as the lesion on the labial mucosa (Figure 2D).

2.3 Case 3

Male patient, 28 years old, Caucasian, sought clinical care for evaluation of lesions on the dorsum of the tongue with 2 weeks of evolution. Patient reported absence of systemic diseases. He also reported having unprotected sex. On extraoral clinical examination, lymphadenopathy was observed in the submental region on the left side, with a soft consistency, well defined, and mobile (Figure 2E). On intraoral clinical examination, multiple well-defined erythematous plaques were observed on the dorsum of the tongue, with a firm consistency, measuring approximately 8mm in diameter, showing areas of epithelial desquamation with discrete ulcerations (Figure 2F). The diagnostic hypothesis was secondary syphilis. Therefore, serological tests for VDRL, FTA-ABS, anti-HIV-1 and anti-HIV-2 were requested. The VDRL test showed a dilution of 1:128 and the FTA-ABS test was reagent. The HIV test was also positive. The diagnosis was syphilis and HIV infection. The patient and his partner were referred to an infectious disease specialist, who used penicillin G benzathine 2,400,000 IU in a single dose by intramuscular injection to treat the patient's syphilis. In the clinical follow-up, the oral lesions disappeared after about 1 month and the patient continues to be monitored for HIV infection by an infectious disease specialist.

2.4 Case 4

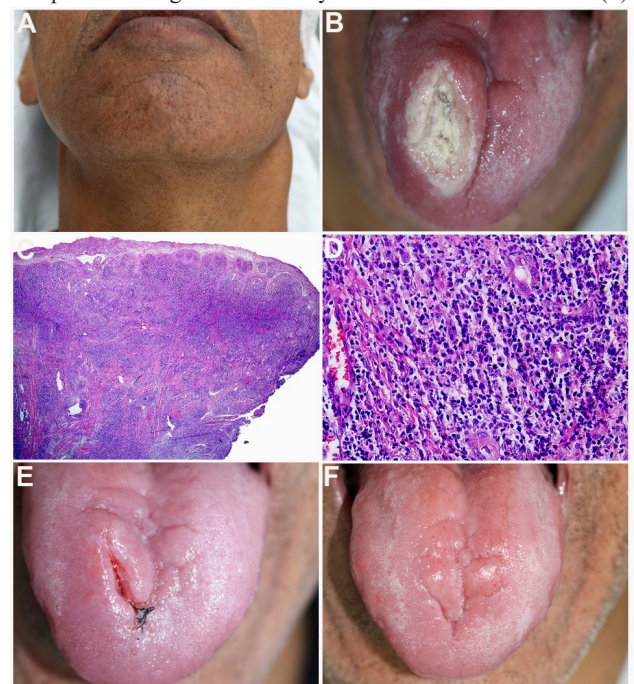
Male patient, 56 years old, feoderm, sought clinical care to evaluate a lesion on the tongue that did not heal. During the anamnesis, he reported being a former smoker for 25 years and having lost a lot of weight recently. In addition, he also reported having been treated for syphilis a few years ago. In the extraoral clinical examination, a swelling was observed in the cervical region on the left side, with a soft consistency, well defined, and mobile (Figure 3A). The diagnostic hypotheses were regional lymphadenopathy or benign mesenchymal neoplasia. In the intraoral clinical examination, a tumor lesion was observed, with hardened, elevated edges and an area of central ulceration covered by a yellowish membrane, measuring approximately 30x15mm, on the dorsum of the tongue on the right side, asymptomatic, and with an evolution of approximately one month (Figure 3B).

The diagnostic hypotheses were squamous cell carcinoma, ulcer associated with tuberculosis, and traumatic ulcer. Complete blood count, chest X-ray, bacilloscopy (AFB) and incisional biopsy were performed. Blood count showed red blood cell count, hemoglobin, and hematocrit below reference values. The AFB exam was negative and the chest X-ray showed no alterations suggestive of tuberculosis. The material

collected in the incisional biopsy was fixed in formalin and sent for anatomopathological examination. Histological sections showed a fragment of mucosa lined by stratified, squamous, parakeratinized epithelium, with spongiosis, leukocyte exocytosis, and areas of ulceration. In the lamina propria, an intense inflammatory infiltrate was observed, predominantly mononuclear, interspersing the skeletal muscle fibers (Figures 3C and D).

The diagnosis was ulceration associated with a nonspecific chronic inflammatory process. One week after the biopsy, the patient returned with a region in the healing process (Figure 3E). The hypotheses of syphilis reinfection and nonspecific ulcer associated with HIV infection were suggested. Therefore, serological tests for VDRL, FTA-ABS, anti-HIV-1 and anti-HIV-2 were requested. The VDRL test showed a dilution of 1:512 and the FTA-ABS test was reactive. The HIV test was also positive. The diagnosis was syphilis and HIV infection. The patient was referred to an infectious disease specialist, who used penicillin G benzathine 2,400,000 UI for the treatment of syphilis, applied intramuscularly in a single dose. After 30 days, remission of the cervical swelling and lesion on the dorsum of the tongue was observed (Figure 3F). The patient is under control of the HIV infection with an infectious disease specialist.

Figure 3 – Case 4 - Extraoral clinical examination showing swelling in the cervical region on the left side (A). Intraoral clinical examination showing a tumorous lesion, with raised edges and an area of central ulceration covered by a yellowish membrane on the dorsum of the tongue on the right side (B). Histopathological examination of an incisional biopsy fragment showing a fragment of mucosa showing areas of ulceration and dense inflammatory infiltrate in the lamina propria (HE, 25x magnification) (C). At higher magnification, the mononuclear inflammatory infiltrate and blood vessels stand out (HE, 400x magnification) (D). Clinical appearance one week after incisional biopsy (E) and complete healing after 30 days of antibiotic treatment (F).



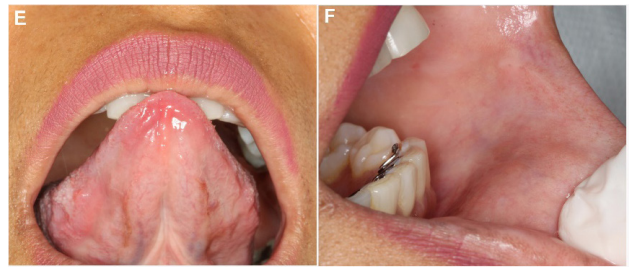
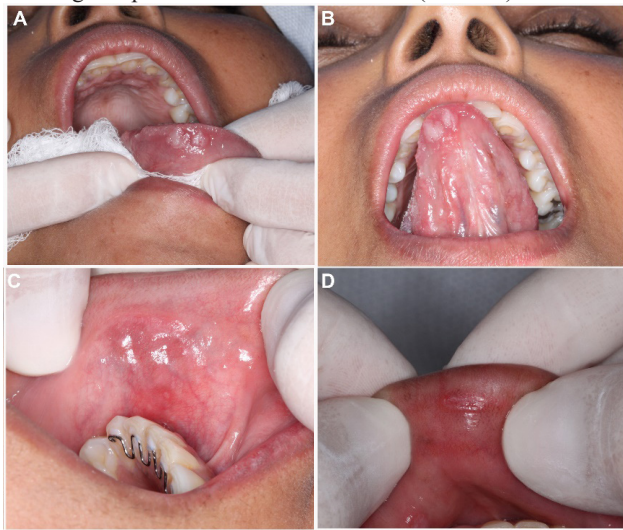
Source: the authors

2.5 Case 5

Female patient, 30 years old, feoderm, was referred to evaluate multiple lesions in the oral cavity. During the anamnesis, the patient reported that the lesions had appeared four months before, were symptomatic and sometimes changed from white to purple. The patient's previous medical history did not contribute to the diagnosis and did not report any habits and addictions. In the extraoral clinical examination, no changes were observed and the patient did not report any skin lesions. In the intraoral clinical examination, a symptomatic white plaque with an erythematous halo, with an irregular surface and precise limits, located in the belly of the tongue on the right side, measuring approximately 10x5mm was observed (Figure 4A and B). White plaques with erythematous, non-detachable, asymptomatic, irregular surface, and poorly defined plaques were also noted on the cheek mucosa near the left labial commissure, measuring 15x5mm (Figure 4C), and on the anterior lower lip mucosa (Figure 4D). In view of the clinical characteristics, the main diagnostic hypothesis was mucosal plaque compatible with a diagnosis of secondary manifestation of syphilis.

Differential diagnoses were leukoplakia, lichen planus, and diffuse oral manifestations of sexually transmitted diseases (STDs). Complete blood count and serological tests were requested: VDRL, immunofluorescence for *Treponema* IgM and IgG antibodies, anti-HIV-1, anti-HIV-2, anti-HBSAg and anti-HCV. The VDRL was reactive up to the 1:16 dilution and IgM and IgG were reactive. The other tests were nonreactive or within the reference values. After confirming the diagnosis of syphilis, the patient was referred for medical treatment, which was performed using penicillin G benzathine 2,400,000 UI applied intramuscularly in six doses. After 30 days, total remission of the oral lesions was observed (Figures 4E and 4F).

Figura 4 - Intraoral clinical examination showing a white plaque, with an erythematous halo, with an irregular, well-defined surface, on the belly of the tongue (A); well-defined white and erythematous plaque on the left anterior buccal mucosa (B). Clinical examination after 30 days of antibiotic treatment showing complete remission of the lesions (C and D)



Source: the authors

2.6 Discussion

Syphilis is a systemic infectious disease caused by an anaerobic, filamentous spirochete called *Treponema pallidum*^{2,4,7,8}. According to disease activity and stage of infection, acquired syphilis is classified into four stages: primary, secondary, latent, and tertiary⁹⁻¹². A series of 339 cases of acquired oral syphilis showed that 86% of cases were diagnosed in the secondary stage and an increase in the number of diagnoses has been observed in South American countries¹³. In the present study, six clinical cases were reported that were diagnosed from oral lesions.

The VDRL and FTA-ABS exams are preferentially used to diagnosis due to their low cost and degree of specificity⁷. The VDRL test is quantitative and used for patient screening or follow-up, whereas FTA-ABS is used to confirm the diagnosis⁷. The diagnosis is often confirmed through the clinical manifestations associated with the VDRL test result. The diagnosis was made in this way in the first and third cases reported. Cases with nonspecific clinical appearance require the performance of the FTA-ABS exam. Biopsy examination can also be performed, with the aim of ruling out other diagnostic hypotheses¹², as observed in the report of the fourth case in which the main differential diagnosis was squamous cell carcinoma. However, for the diagnosis of syphilis, the anatomopathological examination is not useful, as it presents a nonspecific morphological picture^{7,12}.

In the primary phase of infection, syphilis lesions are called chancres, characterized by painless ulcers with hardened edges and often associated with lymphadenopathy⁷. Inoculation sites are usually in the genital regions but can also be in extragenital areas such as anus, fingers, nipples, lips, tongue, and tonsils. Most extragenital chancres occur in the mouth⁸. The latency period between the primary and secondary phases is variable and can lead to a false impression of cure in cases of misdiagnosis². Although it is more common to observe oral manifestations of syphilis in the secondary stage, all stages can give rise to oral manifestations⁴.

The main oral lesions of secondary syphilis are macules and maculopapular lesions on the mucosa, although nodular lesions may rarely appear⁴, as reported in the fourth case of the present study. They are mainly located on the tongue (31.6%), labial commissure and lip (25.1%), and hard/soft palate (20.4%)¹³. In the present study, four cases presented lesions on the tongue and four cases presented lesions on the mucosa

of the lip/commissure. Secondary syphilis lesions are known as the “great mimic” due to their ability to mimic various oral conditions, and their accurate diagnosis remains a challenge to clinicians^{7,8}. Thus, it is important that the clinician is well trained and qualified for the diagnosis of these lesions, which are often the first manifestation perceived by the patient.

If untreated, after a new latency period, syphilis can progress to the tertiary phase and cause impairment of the central nervous system and cardiovascular system, in addition to the appearance of syphilitic gum and generalized glossitis². Latency can last from 12 months up to 30 years⁴. The treatment of choice for syphilis is penicillin, and in its primary and secondary phases a single dose of intramuscular benzathine penicillin G is sufficient^{8,14}. The duration of treatment may vary according to the stage of the disease⁷.

The Brazilian Ministry of Health defines a single dose of 2,400,000 IU of penicillin G benzathine applied intramuscularly as the treatment of choice for both primary and secondary syphilis. However, the tertiary stage of the disease is treated with the same dose, repeated weekly for three weeks¹⁴. In the cases reported in this study, all patients were treated with penicillin intramuscular dose.

3 Conclusion

The role of the dental surgeon as part of a multidisciplinary healthcare team is increasingly evident. Therefore, it is necessary to be prepared for guidance, reception, early identification of lesions, and referral for a correct treatment of this infection. In addition, it is up to health professionals to guide these individuals about probable reinfections in case of maintenance of unprotected sexual habits and about the risks of coinfections with other sexually transmitted diseases.

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