

Importance of the dentist and the auxiliary oral health team in the diagnosis of syphilis

Importancia del dentista y del equipo auxiliar de salud bucal en el proceso de diagnóstico de sífilis

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ABSTRACT

Introduction: Syphilis is classified as a sexually transmitted infectious-contagious disease with the causative agent *Treponema pallidum* (Tp). It presents distinct stages of evolution: The primary phase is characterized by the appearance of the hard chancre, the secondary phase by the spread of Tp through the bloodstream and systemic involvement, and the tertiary phase by organ infection and nervous system impairment. In congenital syphilis, the Tp is transmitted vertically from mother to child.

Objective: Report a case in which the dental team participated in the diagnosis of syphilis.

Case presentation: A male 26-year-old patient with leukoderma, HIV-positive and under regular antiretroviral treatment, with no other chronic systemic changes and no previous history of Tp infection, was referred for evaluation by the oral health team. The patient reported having had bisexual relations in recent months with a condom and orogenital contact without a condom. He had not noticed any type of "wound" on the body. Intraoral examination found multiple reddish macules scattered on the lingual dorsum, with a slight detachment and little pain. The quick test was a reagent for syphilis. The patient was referred for evaluation at the medical clinic. Treatment started by two applications of benzyl penicillin with a 7 days' separation between them. Complementary blood tests were also indicated, with special attention to VDRL, which eventually confirmed the Tp infection.

Conclusions: Participation of the oral health team in the diagnosis of syphilis constitutes a complementary force for the improvement of health care processes.

Keywords: syphilis; HIV; oral lesions; sexually transmitted infections

RESUMEN

Introducción: La sífilis se clasifica como una enfermedad contagiosa infecciosa de transmisión sexual, con el agente causal *Treponema pallidum* (Tp). Presenta distintos estadios de evolución: la fase primaria caracterizada por la aparición del chancre duro; la fase secundaria, la diseminación de la Tp a través del torrente sanguíneo y la afectación sistémica; y la fase terciaria, en que hay infección de órganos y deterioro del sistema nervioso, además de sífilis congénita, forma esta en la que Tp es transmitida verticalmente por la mujer embarazada.

Objetivo: Informar sobre un caso en el que la participación del equipo dental colaboró en el proceso de diagnóstico de la sífilis.

Presentación del caso: Paciente con 26 años de edad, leucodermia, VIH positivo y en tratamiento antirretroviral regular, sin otros cambios crónicos a nivel sistémico y sin antecedentes de infección por Tp. Se remitió para evaluación con el equipo de salud oral. Informó haber tenido relaciones bisexuales en los últimos meses con un condón y contacto orogenital sin condón. No notó ningún tipo de "herida" en el cuerpo. En el examen intrabucal, se encontraron múltiples máculas rojizas dispersas en el dorso lingual, con un ligero desprendimiento y con poco dolor. La prueba rápida fue un reactivo para sífilis. El paciente fue remitido para su evaluación a clínica médica. Comenzó el tratamiento con dos aplicaciones de penicilina bencilo, con un intervalo de 7 días y se solicitó análisis de sangre complementarios, con especial atención al VDRL, que posteriormente confirmó la infección por Tp.

Conclusiones: La participación del equipo de salud bucal frente al diagnóstico de la sífilis, se constituye como una fuerza complementaria para la mejora de los procesos en salud.

Palabras clave: sífilis; HIV; lesiones orales; infecciones de transmisión sexual

INTRODUCTION

Syphilis is classified as a sexually transmitted infectious-contagious disease, which has as its causal agent *Treponema pallidum* (Tp), a gram-negative bacterium of the Spirochaetes class and Treponemataceae family (Avelleira; Bottino, 2006). The main route of transmission is sexual intercourse, and promiscuous and multi-partner relationships are factors intrinsically related to the contamination process, with the anatomical zones being most exposed to syphilis: vulvar and peri-vulvar region, penile glans, areas adjacent to the penis base, the anus and the perianal region, as well as the region of the lip and buccal mucosa.¹

As for the epidemiology of syphilis, new cases have been growing worldwide, being considered a major public health problem, which worries health surveillance entities and also alerts to the concomitant contagion of other diseases such as Viral Hepatitis and Human Immunodeficiency Virus (HIV). In addition, it is worth mentioning that Brazil is a compulsory notification and compulsory research disease.^{2,3,4}

Syphilis presents three distinct stages of evolution, Primary Syphilis, Secondary and Tertiary. Many carriers develop only the First and Second stages, and the bacteria later become dormant. In primary syphilis, the principal clinical feature is the formation of hard cancer, which is expressed by a painless ulcerated, infiltrating, usually single border lesion that develops a potential peripheral lymphadenopathy in the affected area. This lesion arises at the site of Tp inoculation after one and up to three weeks of infection. In many situations, the hard cancer patient may not notice its presence, a fact that is based on absent symptoms and location, which is often masked by the genitals or folds of the skin (penile foreskin in man and large and small woman). In addition, the hard cancer lesion leaves no scar and tend to regress spontaneously, however, between two and eight weeks after the onset of the first lesions, the second stage of the disease begins.^{1,5}

In secondary syphilis the signs and symptoms are more intense and there may be fever, malaise, headache and muscular pain, in addition, the development of clinically characterized oral alterations as a ulcer (single or multiple) with yellow exudation may occur (erythematous halo circumscribed to the lesion) and reddish macules on the skin and mucous membranes, especially on the soles of the hands and feet. The oral lesions tend to regress at the same time the concurrently with systemic signs and symptoms after beginning of treatment.

The third stage of the disease, considered the most serious, the bacteria can spread through several organs, especially in the nervous system (neurosyphilis) and cardiology, causing paralysis, cardiac complications, blindness and even death. About 30% of the patients develop into Tertiary Syphilis.⁶

Syphilis can also manifest itself in pregnant women (Congenital Syphilis), who can transmit the disease to the fetus through the placenta at any time during pregnancy and during delivery, if the diagnosis is not established. The main complications of congenital syphilis are: abortion, fetal death, congenital malformation, blindness, deafness, mental deficiency and dental malformation (Hutkinson's teeth). The onset of signs and symptoms of congenital syphilis may occur up to two years of age and, depending on severity, can lead the child to death, so medical follow-up of the carrier is paramount.^{7,8}

The final diagnosis of syphilis occurs through laboratory tests called treponemics (indirect immunofluorescence test - FTA-Abs, ELISA - Enzyme-Linked Immunosorbent Assay, EQL - Electrochemiluminescence, Hemagglutination and Agglutination Tests, Rapid Treponemal Tests and Specific Tests for detection of anti-Treponema pallidum antibodies of the IgM type) and non-treponemal (VDRL - Venereal Disease Research Laboratory; Rapid Test Reagin, Immunocromatographic Test; USR - Unheated Serum Reagin and TRUST - Toluidine Red Unheated Serum Test). Treponemal tests investigate the direct presence of Tp in the sample and non-treponemics investigate the presence of anti-treponemal antibodies at serum level, however, clinical evaluation and evidence of signs and symptoms are important in the construction of the diagnosis.^{9,10,11}

In view of the treatment of syphilis, syphilis should be instituted immediately after confirmation of the diagnosis, and penicillin-G-benzathine (2 400 000 IU) was administered intramuscularly in a single dose in the primary phase in two doses (4 800 000 IU) with a one-week interval in the secondary phase and in three doses (7 200 000 UI) at one-week intervals between doses in the tertiary phase. For individuals

allergic to penicillin-G-benzathine, the drug of choice is Doxycycline Monohydrate 100 mg orally, which should be administered every 12 hours for ten days, however this drug causes many side effects, especially in the digestive system, which provides treatment adherence failures and consequently doubts on drug therapeutic effectiveness. In the case of pregnant women and children, the drug of choice, as well as the dosage, should be conducted by the medical team and in an individualized manner according to the patient's profile. It should be noted that the treatment of syphilis is very effective and provides cure when properly conducted therapy, but the treatment does not offer immunological resistance against Tp, and the individual can develop others diseases repeatedly and expose to other kind of diseases such as HIV, if they have new contact with a carrier of the disease.¹²

In view of the above, it is observed that the therapeutic and diagnostic behaviors are quite effective in the universe involving Syphilis, but the clinical perception of the multidisciplinary health team in the search for signs and symptoms is also a strong foundation, and one of the areas that may participate in this process is dentistry, due to potential oral manifestations that may arise in the mouth and adjacent areas. Therefore, this article aims to report a case in which the participation of the dental team (dentist, auxiliary and oral health technician) constituted one of the foundations for the construction of the diagnosis of Syphilis, as well as to emphasize the importance of the multidisciplinary team in the identification and maintenance of diseases of systemic affection.

To report a case in which the participation of the dental team collaborated in the diagnostic process of syphilis, which justifies the importance of multidisciplinary work in health.

CASE PRESENTATION

Patient 26 years old, leukoderma, HIV-positive and on regular antiretroviral treatment (Tenofovir 300 mg / Lamivudine 300 mg / Dolutegravir 50 mg), with no other chronic changes at systemic level and without previous history of Tp infection, was referred for evaluation with oral health team at the Sexuality Transmitted Infections and AIDS Reference Center of the São Paulo City, Brazil, with a major complaint of spots on the lingual back. Systemically, he had a fever (not higher than 38.1 °C), fatigue and headaches, and pain in the joints. He reported having had bisexual relationships in recent months with a condom and orogenital contact without a condom. He did not notice any type of "wound" in the body.

At the intraoral examination, multiple reddish macules were found dispersed in the lingual dorsum, with a slight detachment and with low pain discomfort ([Fig.1](#)). In relation to lymphadenopathy, moderate neck dislocation was observed in the cervical region, bilateral, with palpable lymph nodes, mobile, painless and of elastic consistency. After oral evaluation, the presence of other signs in the body was investigated and lesions were observed in the region of the soles of the feet, characterized by reddish spots with epithelial detachment, asymptomatic, which was not noticed by the patient ([Fig.2](#)).



Fig. 1 Lesions on the back of the tongue related to the manifestation of Syphilis in Secondary stage.



Fig. 2 Left foot plantar lesions: scaling and slightly reddish macules.

In view of the condition and corroborating the signs and symptoms, the main hypothesis was a Syphilis Secondary stage, and a non-treponemal test (Rapid Test Reagin, Alere Syphilis, Standart Diagnostica, Inc.). The Quick Test was reagent (positive) for Syphilis ([Fig. 3](#)), and the patient was referred for evaluation in the medical clinic, which instituted the treatment with two applications of benzyl penicillin (2 400 000 IU each application), with interval of 7 days and requested complementary blood tests, with special attention to VDRL, which later confirmed the infection by Tp. After 30 days the patient was reevaluated and a significant improvement of the symptoms, as well as local and systemic clinical signs was observed. Upon discharge

from the patient, the oral health team provided guidance on preventive methods against syphilis, emphasizing the risk of sexual contacts with multiple partners.



Fig. 3 Reaction of the rapid test for syphilis showing immunocromatographic mark (Alere Syphilis, Standart Diagnostic, Inc.).

DISCUSSION

In the process of evolution of Syphilis, among all phases, the Secondary is the one that most shows signs in the body and is the phase also in which the diagnoses, in the majority of cases, are effective and the actions for the diagnosis of congenital syphilis should be evaluated.¹³

For a health care provider who deals with sexually transmitted infections on a daily basis, the evidence for syphilis is more easily perceived, however, they are changes that can often be confused with other diseases, which requires a detailed assessment of the condition.¹⁴

In the primary phase, the hard chancre lesion, the main characteristic of this phase, is painless and disappears spontaneously, even without treatment and leaves no scar, which often results in neglect on the part of the patient in the search for diagnosis. This phase is characterized as the period of greatest transmissibility of Tp. In addition, it is important to note that the condom in position does not exclude the possibility of contagion, because adjacent areas, as well as the orogenital contact, can allow the contagion.¹⁵

In view of these arguments, the early diagnosis of syphilis becomes a major challenge, in the sense that the carrier only seeks assistance in the face of the medical condition, which provides a late and therefore more complex curative action, helping to increase the number of new cases, being that the oral health team has great importance in the diagnostic process.¹⁴

In relation to the treatment of Syphilis, Tp is controlled with the administration of antibiotics, the dosage and type of drug being determined by the medical team, based on the stage of development of the disease. However, having effective drugs against the action and progression of Tp helps to make preventive measures more difficult to institute, since adequate treatment leads to cure, but does not prevent relapses in the case of new contact with another contaminated individual. In addition, the carrier often exhibits promiscuous sexual behavior, which favors several infectious conditions per Tp during life.¹⁶

Faced with the diagnostic procedures, the participation of multidisciplinary teams in the Sexually Transmitted Infection Referral Centers is of great importance, since manifestations in certain anatomical areas of the body require more specialized professionals, such as the dentist, who can collaborate with the diagnostic process of syphilis when it manifests lesions in the stomatognathic system, especially in the region of the lips and oral mucosa, so the identification of signs and symptoms in these areas can collaborate and optimize the diagnostic process.¹

Thus, it is evident the importance of integration among health professionals and the establishment of continuous educational processes, in order to alert the target public about exposure and preventive methods against syphilis, as well as actions that encourage the early identification of lesions which may suggest an infectious condition by Tp.

Conclusions

In view of the above, it is evident that Syphilis is characterized as a disease that presents a high level of complexity, due to the phases that the Tp develops in the human organism and the difficulty of establishing an early diagnosis. In addition, the participation of health professionals from other non-medical categories contributes, such as the dentist and his assistants, to the diagnosis of syphilis, in addition to optimizing the preventive and therapeutic actions of this disease in our society.

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