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# Clinical manifestations of exuberant leishmaniasis mucocutaneous: case report

## Manifestações clínicas de leishmaniose mucocutânea exuberante: relato de caso

## Manifestaciones clínicas de leishmaniasis mucocutánea exuberante: reporte de caso

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**Abstract**
Cutaneous mucosal leishmaniasis (LM) is a chronic infection that affects the upper respiratory tract and/or buccal mucosa and is caused by Leishmania protozoan parasites. A 71-year-old male smoker received dental care at the Stomatology Service of the Hospital Metropolitano Odilon Behrens (HMOB), after various appointments with medical specialists. He presented granulomatous and erythematous lesions on the skin of the nose, on upper lip mucosa, and along the entire soft palate and uvula, as well as the destruction of the nasal septum. Due to the suspicion of leishmaniasis, an incisional biopsy was performed. Histopathological examination was performed; however, polymerase chain reaction (PCR) and immunofluorescence were necessary to confirm the diagnosis of LM. The patient was treated with 27 doses of liposomal amphotericin B 20mg / Sbv / kg / day. Due to the lack of improvement, the patient was again hospitalized, and the medication was repeated adding Fluconazol 150mg, to which the patient showed significant improvement. The present case report shows an infectious lesion that is unusual in dental practice and its approach. The description of the characteristics and management, together with the pathological process, were presented.
**Keywords:** Mucocutaneous leishmaniasis; Leishmania; Communicable diseases; Health teaching.

**Resumo**
A leishmaniose mucocutânea (LM) é uma infecção crônica que acomete o trato respiratório superior e/ ou mucosa bucal e é causada por protozoários da espécie Leishmania. Um homem de 71 anos, fumante, recebeu atendimento odontológico no Serviço de Estomatologia do Hospital Metropolitano Odilon Behrens (HMOB) após várias consultas com médicos especialistas. Apresentava lesões granulomatosas e eritematosas na pele do nariz, mucosa do lábio superior e em todo o palato mole e úvula, além de destruição do septo nasal. Devido à suspeita de leishmaniose, foi realizada biópsia incisional. O exame histopatológico foi realizado, entretanto, a reação em cadeia da polimerase (PCR) e a imunofluorescência foram necessárias para confirmar o diagnóstico de LM. O paciente foi tratado com 27 doses de anfotericina B lipossômica a 20 mg/sbv/kg/dia. Devido à ausência de melhora, o paciente foi novamente internado, sendo repetida a medicação e acrescentando Fluconazol 150 mg. Então o paciente apresentou melhora significativa. O presente relato de caso mostra uma lesão infecciosa incomum na prática odontológica e a sua abordagem. A descrição das características e manejo, juntamente com o processo patológico foram apresentados.
**Palavras-chave:** Leishmaniose mucocutânea; Leishmania; Doenças transmissíveis; Ensino em saúde.

**Resumen**
La leishmaniasis mucocutánea (LM) es una infección crónica que afecta el tracto respiratorio superior y/o la mucosa oral y es causada por protozoos de la especie Leishmania. Varón de 71 años, fumador, recibió atención odontológica en el Servicio de Estomatología del Hospital Metropolitano Odilon Behrens (HMOB) luego de varias consultas con médicos especialistas. Presentaba lesiones granulomatosas y eritematosas en la piel de la nariz, mucosa del labio superior y en todo el paladar blando y úvula, además de destrucción del tabique nasal. Ante la sospecha de leishmaniosis se realizó biopsia incisional. Se realizó examen histopatológico, sin embargo, fue necesaria la reacción en cadena de la polimerasa (PCR) y la inmunofluorescencia para confirmar el diagnóstico de LM. El paciente fue tratado con 27 dosis de anfotericina B liposomal a razón de 20 mg/sbv/kg/día. Ante la falta de mejoría, el paciente fue hospitalizado nuevamente, se repitió la medicación y se añadió Fluconazol 150 mg. Entonces el paciente mostró una mejoría significativa. El presente reporte de caso muestra una lesión infecciosa poco común en la práctica odontológica y su abordaje. Se presentó la descripción de las características y manejo, junto con el proceso patológico.
**Palabras clave:** Leishmaniasis mucocutánea; Leishmania; Enfermedades transmisibles; Enseñanza para la salud.

## 1. Introduction

Leishmaniasis is an anthropozoonosis transmitted by the female phlebotomous vector. The World Health Organization (WHO) estimates that 350 million people are exposed to the risk with an approximate record of 2 million new cases per year from different clinical forms (World Health Organization, 2010).

American tegumentary leishmaniasis (ATL) can be classified as visceral, cutaneous, and mucocutaneous, depending on the site of the lesions. Visceral leishimaniasis (VL) is the disseminated form of the disease, often associated with cutaneous manifestations, where the patients can present a form of organomegaly that can persist for months, especially splenomegaly, lymphadenopathy, high fever, and weight loss (Van Griensven et al., 2012). Cutaneous leishmaniasis (CL) is characterized by the presence of one or more ulcers, which may heal spontaneously or persist for several months (Bisetegn, 2020). Mucosal leishmaniasis (ML) causes the destruction of the nasal septum and palate, causing severe disfiguration of the face and respiratory problems, which do not heal spontaneously (Amato et al., 2007).

Mucocutaneous leishmaniasis (ML) is a chronic infection that affects the upper respiratory tract and/or the nasal and buccal mucosa caused by *Leishmania* protozoa. This genus includes three subgenera: Leishmania, Viannia and Sauroleishmania. Each subgenus presents different complexes, and each complex includes several species (Amato, 2007; Goto, 2010).

Thus, faster and more effective methods for the diagnosis and identification of species, considering the complexity of the species and the fact that each species can appear in a specific manner within the host (Goto et al., 2010; Maretti-Mira et al., 2011), are urgently needed. Moreover, therapies, prophylaxis, and control measures that are effective, safe, accessible, and easily administrable are also crucial (Ameen, 2010).

Treatment for leishmaniasis is equally variable and still controversial. In this light, the use of certain medications, such as pentavalent antimony, lipid compounds associated with amphotericin, oral imidazole compounds, and various other local or topical treatments, have been proposed (Paiva-Cavalcanti et al., 2015; Lessa et al., 2012).

Therefore, the objective of this study is to report on and discuss the clinical course, management, clinical presentations, prognosis, and treatment of mucocutaneous leishmaniasis.

## 2. Methodology

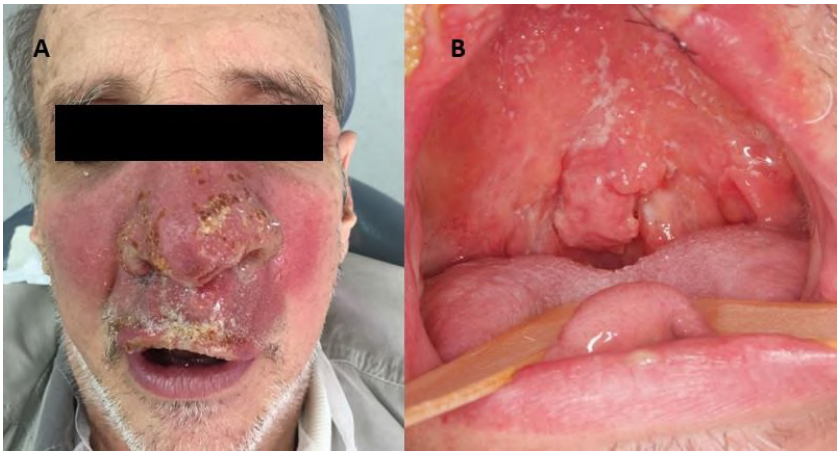
The present work is a qualitative and descriptive case study approached in the Stomatology service of the Hospital Metropolitano Odilon Behrens, in Belo Horizonte, Minas Gerais. Pereira et al. (2018) highlights that this type of work is characterized by approaching a subject and studying it in depth. Regarding ethical aspects, the patient in question was informed about possible risks and benefits and signed a Free and Informed Consent Form.

## 3. Case report

A white, male, 71-year-old patient received dental care at the department of Stomatology Service at the Hospital Metropolitano Odilon Behrens (HMOB) in July 2017. He was referred by the dermatology service of this hospital, complaining of extensive lesions in the nose and lips, without remission for more than 12 months. The anamnesis and clinical examination showed that the lesions appeared as reddish and whitish crusts with a granulomatous aspect and with a pseudomembrane coating. The lesions affected the upper lip, columella region, and wings and dorsum of the nose, extending to the perinasal regions (Figure 1A).

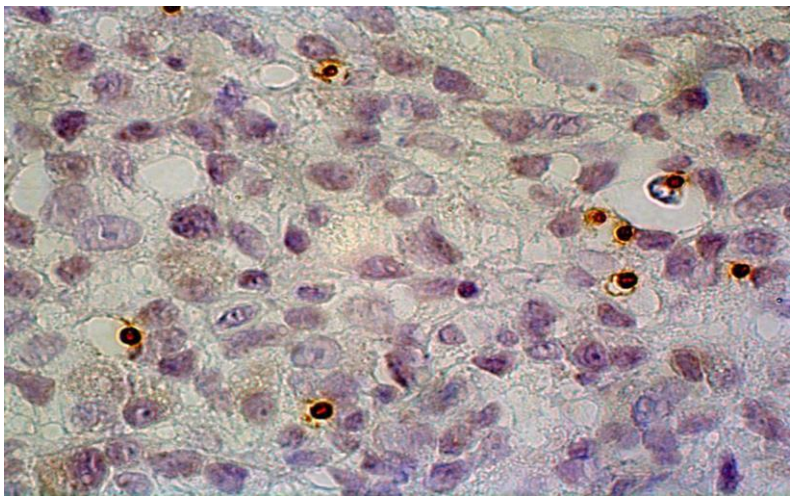
A rhinoscopy procedure showed that the lesions affected the mucosa of the nasal cavity floor, followed by the destruction of the nasal septum, extending to the soft palate region, palatoglossus, palatopharyngeal, and uvula with an infiltrative aspect, edematous granulomatosis, and erythema with a pseudomembrane on the lesions (Figure 1B). Considering the diagnostic hypotheses of paracoccidioidomycosis, midfacial granuloma, and neoplasms (epidermoid carcinoma, basal cell carcinoma, and other lymphomas), an incisional biopsy was performed, and the anatomopathological report revealed a non-specific inflammatory process (Figure 2). Immunohistochemistry and polymerase chain reaction (PCR) were then performed to confirm the diagnosis of leishmaniasis. Given the diagnosis, the patient was hospitalized, and 14 doses of amphotericin B 20mg/SBV/Kg/day were administered in December 2017, at a referral hospital in Infectology. The patient returned in April 2018, with a recurrence of the lesions, at which time he was again hospitalized, and the same therapy was prescribed.

**Figure 1 -** (A) Clinical appearance of the lesion affecting the upper lip, columella region, nose and paranasal regions. It shows increased volume, reddish and whitish crusts with granulomatous appearance and a pseudomembrane. (B) Intra oral aspect revealing lesion with an infiltrative, granulomatous, swollen and erythematous appearance with pseudomembrane.




Source: Authors.

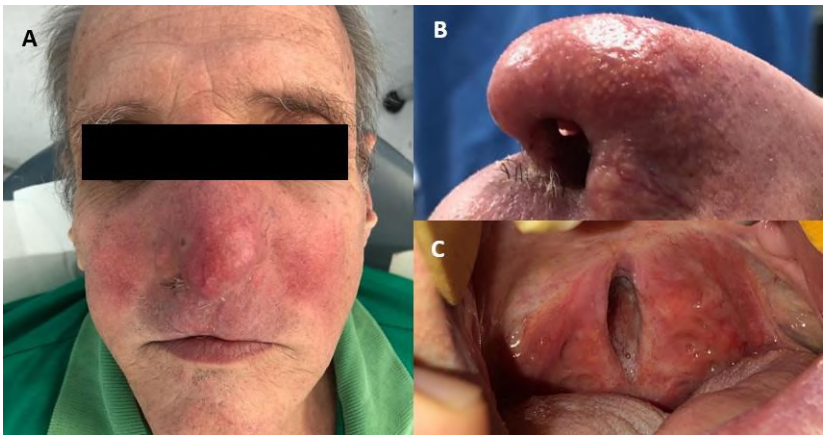
**Figure 2 -** Histopathological aspect revealing the immunohistochemical marker for leishmania, showing the parasite in its amastigote form.



Source: Authors.

The patient returned for follow-up in September 2018, presenting no remission of the lesions (Figures 3A, B and C). Consequently, 13 doses of liposomal amphotericin B 20mg/SBV/Kg/day and 1 dose fluconazole 150mg were prescribed. The patient remained with a slightly edematous erythematous peri-nasal region, perforation of the nasal septum, disfiguration of the uvula, and the presence of scar tissue in the uvula region.

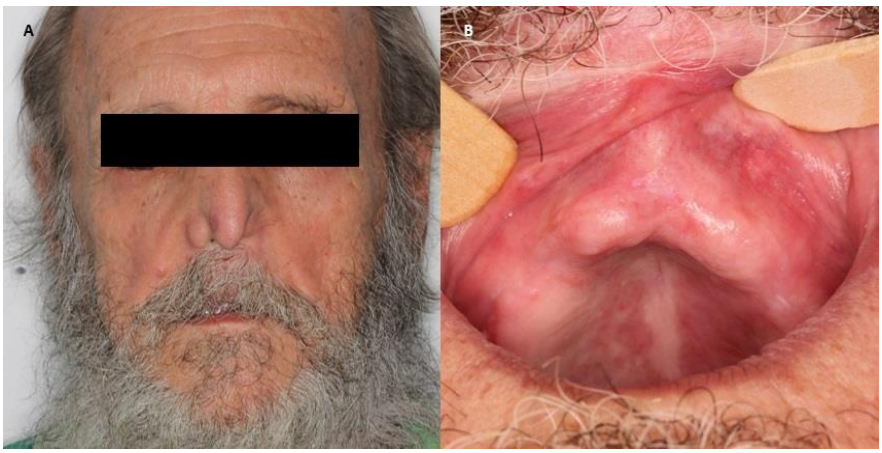
**Figure 3 -** (A) Extra oral clinical appearance during treatment. (B) Clinical aspect of nasal septum perforation. (C) Intraoral appearance of the disfigured uvula.




Source: Authors.

The patient was discharged 15 months after the begining of treatment and 48 months after the end of treatment, remains free of new lesions (Figure 4A and B). This research project was reviewed by the Research Ethics Committee of Hospital Metropolitano Odilon Behrens.

**Figure 4 -** (A AND B) Intra and extra oral appearance after 15 months from the beginning of treatment.




Source: Authors.

## 4. Results and Discussion

Leishmaniasis is a serious public health problem in Brazil and worldwide (Alvar et al., 2012), is endemic in 88 countries, and is the second most important disease among those caused by protozoa with medical relevance (Lessa et al., 2007), surpassed only by Malaria (Ministério da Saúde, 2010). Figueiredo Júnior et al., in his 2020 study, observed 209.129 cases of ATL in Brazil between 2008 and 2019, with men being the most affected. In addition, another study carried out in a county in the state of Minas Gerais, between 2010 and 2015, showed 286 cases of ATL, demonstrating that it is a highly prevalent disease (Silva et al., 2021). Nevertheless, ML is still the most feared complication of cutaneous leishmaniasis caused by infections resulting from certain species of Leishmania (Pedras et al., 2018), which are often extremely difficult to identify due to a variety of species (Diniz et al., 2018). The clinical disease is insidious and may result in a painful ulceration and destruction of the pharyngeal/laryngeal cartilages. Death can occur when there is respiratory impairment and malnutrition caused by the difficulty of feeding due to the large ulcerations. Once the mucocutaneous presentation develops, it is extremely difficult to treat it, and the success of the drug therapy depends on the severity and related comorbidities (Ministério da Saúde, 2000). The diagnosis, although often complicated, should be completed as soon as possible for a best prognosis. Unfortunately, in most cases, the patient only seeks medical care when the picture is symptomatic and with already evident lesions, as in the present case report.

In this case report, a perilesional incisional biopsy was performed. With an inconclusive diagnosis, immunohistochemistry and evaluation by a specialty center in infectology were performed, where PCR was conducted, which allows one to amplify the deoxyribonucleic acid (DNA) sequence on an exponential scale, identifying small amounts of leishmaniasis DNA, with a specificity of 95% and a sensitivity of 98% for the diagnosis of the disease (Weiranther et al., 2011; Pirmez et al., 1999; Paiva-Cavalcanti et al., 2013). Immunohistochemistry was essential for mucocutaneous leishmaniasis (Brito et al., 2000). Although PCR and immunohistochemistry have been performed, this practice is not common due to the difficulty of performing the examination in the Brazilian Unified Health System (SUS, in Portuguese), along with their high cost. A well-performed physical examination and anamnesis, as well as an etiological differential diagnosis of all cases, are extremely important to highlight other pathological processes (Aviles et al., 1999; Dimier-David et al., 1991).

In this care report, the lesions presented here are similar to previously described (Palmeiro et al., 2007; Castling et al., 1994; Gontijoet al., 2003; Costa, 2003; Sampaio et al., 2002; Amin et al., 2000) lesions affecting the mucosa of the nasal cavity floor, followed by the destruction of the nasal septum, extending to the region of the hard and soft palates, the palatoglossal arch, palatopharyngeal arch, and uvula with an infiltrative, edematous, and erythematous granulomatous aspect with a pseudomembrane on the lesions and with disfiguration of the uvula.

The patient in the present report, presented chronic renal insufficiency, justifying the use of Liposomal Amphotericin B, which was developed to reduce the systemic toxicity observed with the preparation Amphotericin B. Clinical efficacy was subsequently increased by diminishing the doses to be administered (Klasco, 2019). Signs and symptoms of immunosuppression presented no evidence of visceromegaly during abdominal palpation, discarding the hypothesis of any association with the visceral form of leishmaniasis.

It is important for the health professional to have a good knowledge of clinical presentations, since these are the main agents for the search for diagnoses (Escobar et al., 1992). The cases of LM with the involvement of the oral mucosa are not frequently observed by dentists in their routine clinical practices; however, the participation of this professional in this case was extremely important to reach the correct diagnosis and early disease, through the correct management of clinical presentations.

The time of evolution is the biological factor that determines the dissemination of the parasite and is one of the main responsible factors for the severity of mucosal lesions and its consequences. Moreover, there is also an aggravating factor of the lesions, which is the nutrition of the tissues to the irrigation of more peripheral and cartilaginous regions, such as the nasal septum (Diniz et al., 2011).

The diagnosis of ML is mainly based on clinical findings. Confirmation by laboratory tests is not always feasible, as in this case report, where the biopsy and anatomopathological examination were not enough to confirm the diagnosis. Moreover, studies show that the identification of the parasite by histopathology can be used to confirm the diagnosis, but the sensitivity of the histopathology is low because the concentrations of parasites are usually low (Aviles et al., 1999). Cultures allow the detection and characterization of the species, but they are costly and time consuming (Ministério da Saúde, 2000; Brito et al., 2000). Meanwhile some studies say that the PCR test is useful in the diagnosis of cutaneous leishmaniasis, as it increases the sensitivity, helps to identify infective species, and eliminates the need for a parasite culture (Weitanther et al., 2011; Pirmez et al., 1999; Paiva-Cavalcanti et al., 2013). Other studies have shown that the Montenegro skin test is easily conducted and is highly specific. However, it can produce false-negative results in affected patients and does not distinguish between previous and current infections. Immunologic tests, which identify specific antibodies, are of little diagnostic use.

Even with the success of the treatment, reconstructive procedures may be required in the damaged area to aid in the patient's resocialization and ability to perform daily life activities, given that the resulting sequelae make it difficult to exercise basic social practices and feeding. Multidisciplinary work to mitigate these sequelae is essential for the cure to be properly achieved.

## 5. Conclusion

LM is still a prevalent disease in Brazil and worldwide and health professionals should attempt to achieve early diagnoses. In this way, the present case report shows an infectious lesion that is unusual in dental practice and its approach, so it is important that the dentist is aware of the characteristics of the disease for the correct diagnosis and treatment. In addition, more epidemiological and descriptive studies are needed so that professionals understand more about the disease, its clinical manifestations, forms of contagion, early diagnosis and prevention, and this way, establish better treatment plans to prevent sequelae that leishmaniasis can produce.

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