

HIV-associated non-Hodgkin lymphoma of the oral cavity complicated by superinfection with a multidrug-resistant organism: a case report with a fatal outcome

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ABSTRACT

Non-Hodgkin lymphoma of the oral cavity is uncommon and can mimic odontogenic infections, delaying early diagnosis, particularly in immunocompromised patients such as those with HIV infection. A 25-year-old male patient with a history of HIV infection not on antiretroviral therapy presented with severe pain in the right hemiface, trismus, and facial swelling. He reported a recent extraction of the lower right second molar (tooth 47), after which he developed a torpid course with progressive edema and functional limitation. Clinical examination revealed facial cellulitis and active periodontal lesions. Imaging studies, cultures, and an incisional biopsy of alveolar and bone tissue were performed. Histopathological and immunohistochemical analysis confirmed B-cell non-Hodgkin lymphoma. Staging was completed with colonoscopy, which identified an abdominal mass with systemic involvement. The patient was hospitalized and developed an infection caused by a multidrug-resistant organism. Antimicrobial treatment was initiated while specialized oncologic management was coordinated; however, he had a fatal outcome during hospitalization. This case highlights the importance of the dental provider's role in the early detection of atypical oral lesions that may initially mimic common odontogenic processes. Clinical evaluation and the decision to perform complementary studies, such as biopsy, were decisive in establishing the diagnosis of non-Hodgkin lymphoma. In untreated HIV-infected patients, timely dental care is key to guiding the differential diagnosis and improving prognosis.

Keywords: non-Hodgkin lymphoma; acquired immunodeficiency syndrome; odontogenic infections; oral cavity; case report.

Received: April 28, 2025

Accepted: April 22, 2026

Online: June 02, 2026



Open access article

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Cite as:

Mendoza FM, Sernaque RA, Valverde JR, et al. HIV-associated non-Hodgkin lymphoma of the oral cavity complicated by superinfection with a multidrug-resistant organism: a case report with a fatal outcome. *Rev Estomatol Heredia*. 2026;36(2):e6462. doi:10.20453/reh.v36i2.6462

INTRODUCTION

Human immunodeficiency virus (HIV) progressively impairs the immune system, resulting in a state of immunosuppression that predisposes individuals to opportunistic infections and malignant neoplasms. Among these, non-Hodgkin lymphomas (NHLs) are some of the major malignancies associated with HIV infection, accounting for approximately 10–15% of tumors in people with AIDS (acquired immunodeficiency syndrome). High-grade B-cell lymphoma is one of the most common and aggressive subtypes (1–3).

Similarly, the oral cavity represents a key site for the early detection of systemic abnormalities in immunocompromised individuals. Manifestations such as persistent ulcerations, tissue necrosis, recurrent infections, or hyperplastic lesions may signal underlying complications, including hematologic malignancies (4,5).

The case presented herein is particularly unusual because it involves a young patient with untreated HIV infection who had not received highly active antiretroviral therapy (HAART). In this patient, the lymphoma presented in the oral cavity and initially mimicked a post-extraction odontogenic complication. Similar presentations have been described as diagnostic challenges in immunocompromised patients (6,7). This clinical overlap delayed the definitive diagnosis, highlighting the diagnostic difficulty associated with advanced immunosuppression.

The objective of this report is to describe a case of HIV-associated B-cell non-Hodgkin lymphoma of the oral cavity in a patient who had not received HAART, emphasizing the rarity of this presentation and the importance of considering malignant neoplasms in the differential diagnosis of oral lesions in immunosuppressed patients.

CASE REPORT

A 25-year-old self-employed, single man from Lima, Peru, with a secondary school education and of Catholic faith, presented for evaluation. His medical history was significant for HIV infection diagnosed approximately two years earlier, for which he had not initiated antiretroviral therapy. He also reported a history of bronchitis, syphilis, and cholelithiasis. He reported illicit drug use.

The patient's symptoms began three months before presentation to Hospital Santa Rosa, with pain in the left leg, buttock, and joints, accompanied by a progressively enlarging mass in the left iliac fossa. These symptoms limited his ability to walk and were associated with night sweats. He subsequently developed right cheek pain following a tooth extraction.

One day before being hospitalized, the patient presented to the emergency department with facial pain and swelling, trismus, and a mass in the left iliac fossa. Laboratory tests and ultrasonographic examinations were ordered (Figure 1). The following day, he was evaluated in the infectious diseases outpatient clinic, where hospitalization was deemed necessary because of facial cellulitis and confirmation of an abdominal mass in the iliac and inguinal regions. Upon admission, the patient was informed of the severity of his condition and the high mortality associated with the histopathological diagnosis obtained by colonoscopy, after which he agreed to sign the informed consent form.

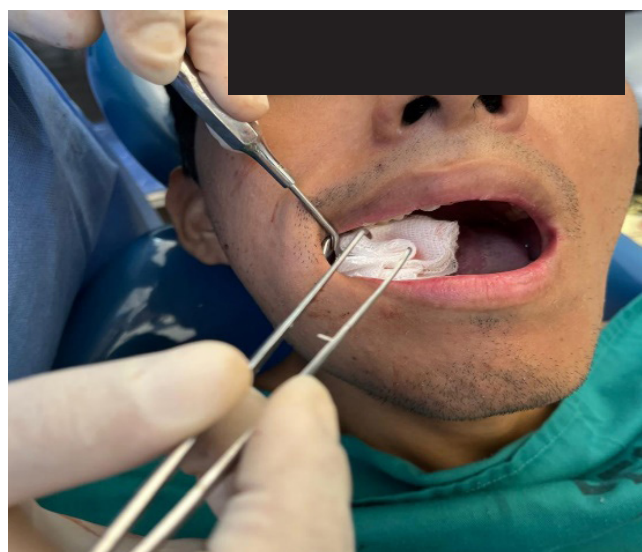


Figure 1. Anterior view of the face. A mass is observed in the right lower jaw.

Upon admission, laboratory tests revealed leukocytosis ($11,550 \text{ cells/mm}^3$), predominantly segmented neutrophils, mild anemia (hemoglobin: 9.6 g/dL), and an elevated C-reactive protein level (7.71 mg/dL). The CD4 T-cell count was 502 cells/mm^3 , within the immunocompetent range, whereas the viral load was $519,000 \text{ copies/mL}$. The remaining hematologic, renal, and urinary parameters were within normal ranges. These findings provided context regarding the patient's immune status and helped guide the initial diagnostic and therapeutic approach. Antibiotic therapy was initiated with clindamycin 600 mg every 8 hours and ceftazidime 2 g every 8 hours for 7 days while the diagnostic workup was completed.

During hospitalization, the patient was evaluated by the Dentistry Department. The patient reported having undergone extraction of the lower third molars 15 days earlier at a private dental office, an event considered a possible triggering factor. Subsequently, during the hospital evaluation, extraction of the right mandibular second molar (tooth 47) was performed due to Grade 3 mobility. Before the surgical procedure, a panoramic radiograph was obtained. During the surgical procedure, a

granuloma was identified in the post-extraction socket; therefore, curettage was performed, followed by suture placement and insertion of a drain (Figure 2B).

The patient's clinical course was unfavorable, with increased right facial swelling and difficulty opening

the mouth, prompting a request for histopathological examination. The specimen was collected during the same post-extraction procedure. Immunohistochemical staining showed pleomorphic cells positive for CD20 and negative for CD3, with a Ki-67 proliferative index of 10%.

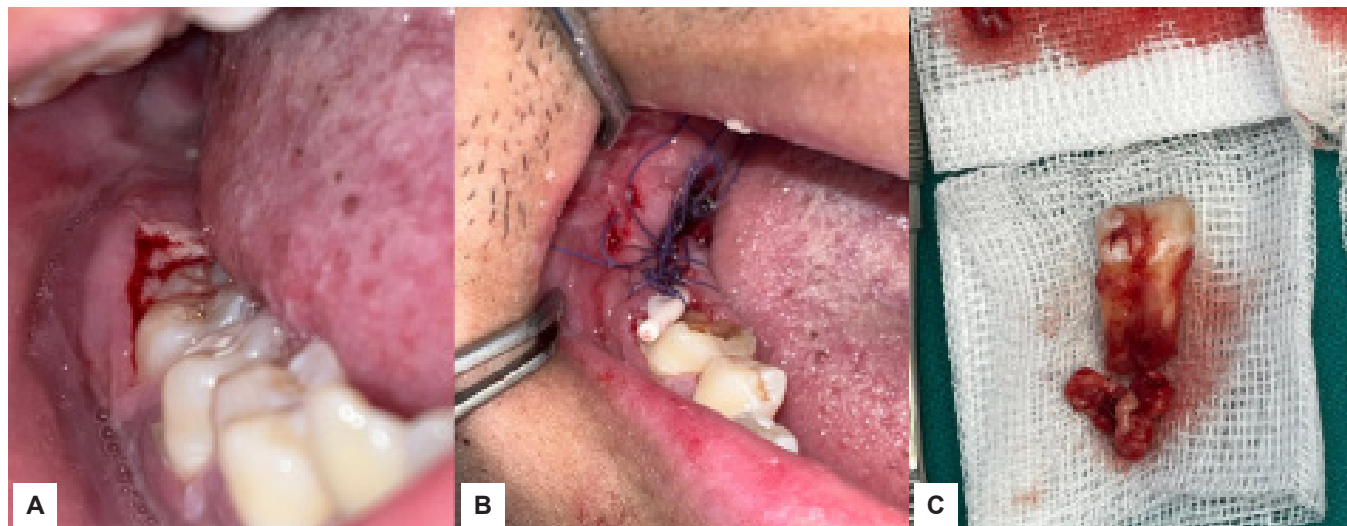


Figure 2. Post-extraction of the second molar. A Penrose drain and sutures were placed.

On extraoral examination, painless right facial edema was observed, while intraoral examination revealed inflammation extending from the right mandibular first molar to the retromolar trigone (Figure 2A). Before extraction, periapical radiographs showed findings consistent with acute periodontitis involving tooth 47 and apical periodontitis with pulpal involvement affecting tooth 46.

The panoramic radiograph revealed mild alveolar crest resorption and a small bone sequestrum, findings consistent with tooth mobility and the reported pain in the posterior mandibular region (Figure 3). Computed tomography of the facial bones showed preserved osseous structures, with no evidence of osteolytic or osteoblastic lesions. However, inflammatory changes were observed in the right submandibular region, with a small collection measuring 12×19×18 mm (approximately 2 cc in volume), correlating with the swelling and limited mouth opening. Bilateral submandibular lymphadenopathy was observed, along with multiple lymph nodes measuring up to 11 mm in the left level III and IVa regions, as well as findings suggestive of maxillary and ethmoidal sinusitis. Soft-tissue ultrasonography revealed organized fluid collections with internal echoes in the maxillary region (15 cc at a depth of 12 mm) and the submaxillary region (25–30 cc at a depth of 10 mm). These findings were interpreted as abscesses accompanied by edema of the skin and subcutaneous tissue, accounting for the persistent swelling despite initial treatment (Figure 3).

The histopathological examination showed fibroconnective tissue with diffuse proliferation of cells with large nuclei and bone fragments with an inflammatory infiltrate. These findings established the diagnosis of B-cell non-Hodgkin lymphoma (NHL) with acute osteomyelitis, which was subsequently correlated with the findings of the colonoscopy performed during hospitalization.

Following tooth extraction and dental management, the patient initially showed slight clinical improvement. However, within a few days, he developed persistent fever, deterioration of his general condition, and increased inflammatory markers, prompting blood cultures and culture of secretions from the mandibular region. The cultures yielded multidrug-resistant *Acinetobacter baumannii*, identified using conventional microbiological methods. Antimicrobial susceptibility testing demonstrated resistance to multiple antimicrobial classes, confirming colonization and systemic infection with this pathogen.

Despite initiation of broad-spectrum antibiotic therapy and supportive measures, the patient's condition rapidly deteriorated, with fluid-refractory hypotension, elevated serum lactate levels, and the need for vasopressor support, meeting the criteria for septic shock according to the Sepsis-3 definition. He was transferred to the intensive care unit, where he received advanced support. Nevertheless, his clinical course remained unfavorable, and he developed progressive multiorgan failure, ultimately resulting in his death (Figure 4).

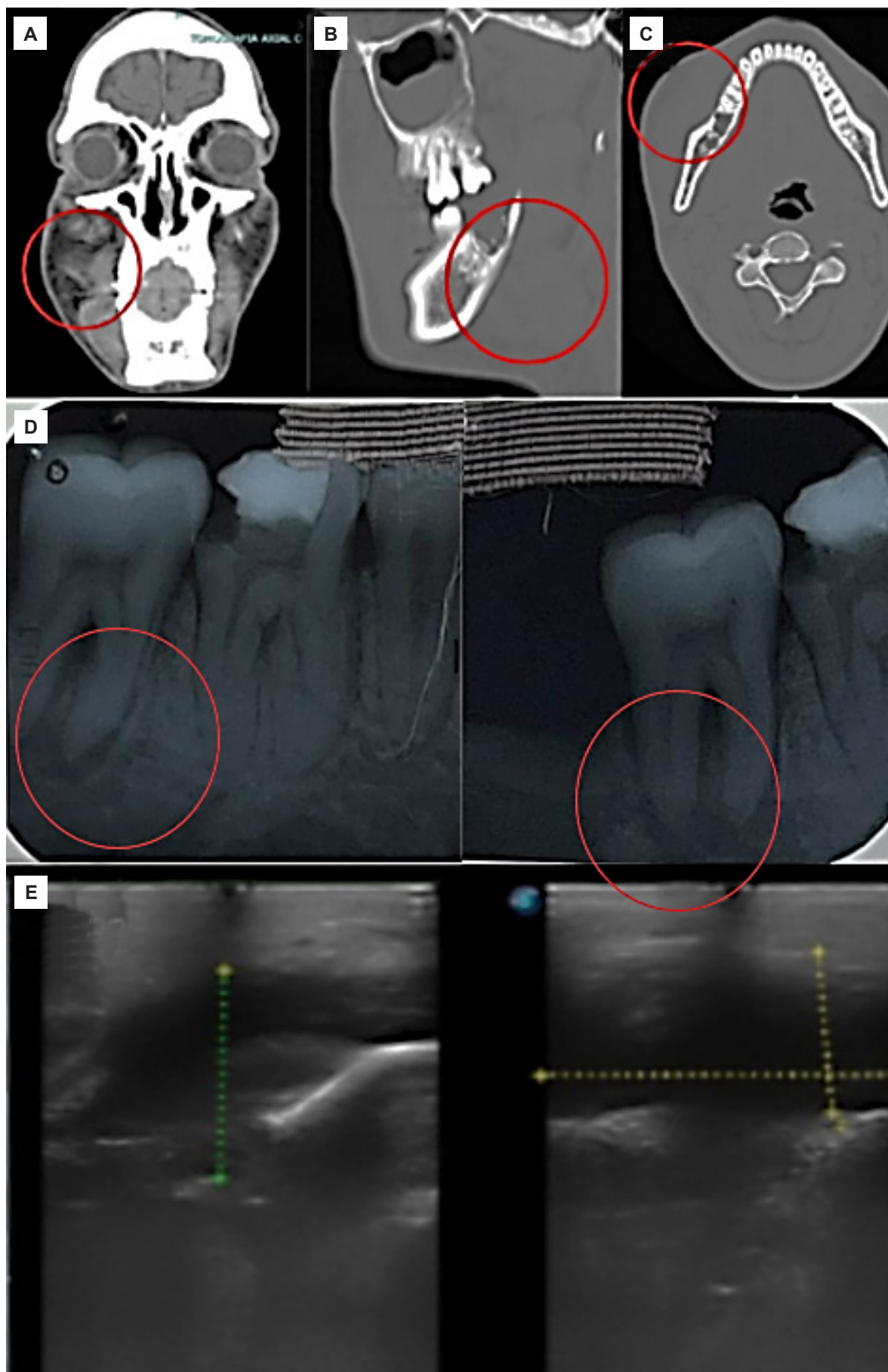


Figure 3. A, B, C) Contrast-enhanced computed tomography scans (coronal, sagittal, and axial views, respectively) showing the mass. D) Periapical radiograph showing a small bone sequestrum and slight alveolar ridge resorption. E) Increased echogenicity of the skin and subcutaneous tissue.

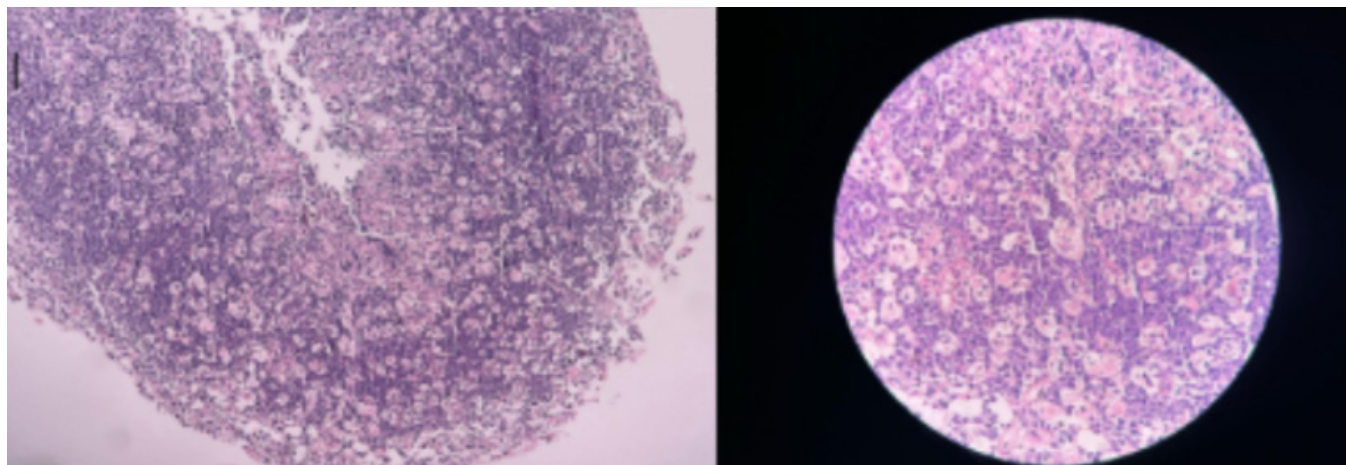


Figure 4. Immunohistochemical image of the tumor at 40x and 80x magnification. The tumor cells were positive for CD20 and negative for CD3, with a Ki-67 proliferative index of 10%. These findings were consistent with diffuse large B-cell lymphoma, germinal center B-cell subtype.

DISCUSSION

The main challenge in this case was establishing a differential diagnosis in a young patient with untreated HIV infection who had not received antiretroviral therapy (ART), whose clinical presentation initially mimicked common odontogenic infections such as cellulitis, alveolar osteitis, or post-extraction abscesses (1,2). The patient's unfavorable clinical course and histopathological findings confirmed B-cell non-Hodgkin lymphoma (NHL), a relatively uncommon entity in the oral cavity. According to the literature, HIV-associated oral lymphomas account for only 2%–5% of NHL cases and often present atypically, resulting in delayed diagnosis (3–6).

The patient exhibited several features that distinguish this case from previously reported cases: an early age of presentation (25 years), whereas most reports involve adults aged 35–50 years (7,8); initial involvement of the mandibular alveolar bone, in contrast to the predilection for the palate, gingiva, or tongue (9,10); and a temporal association with a recent tooth extraction, which initially led to the interpretation of the lesion as an odontogenic complication (11,12). Furthermore, the rapid progression to severe sepsis caused by multidrug-resistant *Acinetobacter baumannii* represents a rarely described complication in similar cases, highlighting the vulnerability of these patients not only to malignancies but also to potentially fatal healthcare-associated infections (13–15).

The fatal outcome was closely associated with the complication of superinfection by a multidrug-resistant pathogen. The lack of timely initiation of antiretroviral therapy is consistent with studies demonstrating that the absence of ART increases the incidence of aggressive malignancies and worsens the response to oncologic therapies (16–18). This finding reinforces the need for an integrated approach combining medical and dental

care, including immunologic assessment (CD4 count and viral load) before invasive procedures and early biopsy of atypical oral lesions in immunocompromised patients (19–21).

This case has several limitations, including the absence of serial immunologic follow-up and the lack of a comprehensive hematologic evaluation before hospitalization. Nevertheless, it describes the clinical course of a patient with HIV and NHL involving the mandibular region who required oral surgical procedures as part of his treatment. During his hospital course, the patient developed a superinfection with a multidrug-resistant nosocomial bacterium, a complication associated with the complex clinical setting and severity of his underlying disease. The infection progressed to septic shock, ultimately leading to his death. Despite these limitations, this case provides insight into the clinical presentation of oral NHL in young patients with untreated HIV and highlights the importance of strengthening diagnostic protocols, dental management, and hospital infection-control measures in patients with severe systemic diseases. Future multicenter studies may help better define clinical patterns and establish standardized guidelines to facilitate the early detection and timely management of these patients.

CONCLUSIONS

The oral cavity represents a key site for the early detection of warning signs in people living with HIV, as atypical lesions such as necrosis, persistent ulcers, or hyperplastic lesions may indicate underlying malignant processes. In this context, the role of the dentist is essential in guiding the differential diagnosis between infectious and oncologic processes. An interdisciplinary approach implemented in a timely manner may contribute to improving patient prognosis and survival.

Conflict of interest:

The authors declare no conflict of interest.

Funding:

Self-funded.

Informed consent:

The patient provided consent for the use of his information and the publication of his photographs.

Authorship contribution:

FM: conceptualization, writing of the original draft. **RAS**: research, writing of the original draft, writing - review & editing. **JRV**, **RAE**: research, writing of the original draft. **AESA**, **SOM**, **MVH**: writing of the original draft. **SRS**: writing - review & editing.

Statement on the use of artificial intelligence:

We state that no artificial intelligence tools were used in the preparation of this manuscript.

Acknowledgments:

We thank the Department of Medicine and the Department of Odontostomatology of Hospital Santa Rosa.

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