

# Diagnostic and therapeutic pathways of lip lesions in onco hematology: report of a challenging pediatric case

Vias diagnósticas e terapêuticas de lesões labiais em onco-hematologia: relato de um caso pediátrico desafiador

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## ABSTRACT

**Background:** Oncohematologic patients have a high incidence of thrombosis, due to either their the underlying disease or treatment. The standard management involves low molecular weight anticoagulants; however, these agents may increase bleeding risk. **Case report:** A rare case of acute hemorrhagic lesion in pediatric patient is described, emphasizing the diagnostic challenges encountered. An eight-year-old male with severe anemia, fever, and thrombosis of the superior and inferior vena cava was admitted for diagnostic evaluation. Enoxaparin was prescribed, and the diagnosis of anaplastic large cell lymphoma (ALCL) was confirmed. After 20 days of anticoagulant therapy, the patient developed epistaxis followed by the formation of oral hemorrhagic edema in the upper and lower lips. A specific protocol of oral care with multiprofessional team was implemented. The lesion showed resolution, along with physical and emotional recovery. **Conclusion:** The personalized care protocol successfully restored essential oral functions, including chewing, swallowing, digestion, taste, and speech, thereby redefining the true significance of a smile; crucial in oncohematological patients.

## KEYWORDS

Dentistry; Oncology; Oral cavity; Pediatrics; Thrombosis.

## RESUMO

**Contexto:** Pacientes oncohematológicos tem elevada taxa de trombose devido ao tratamento ou à doença. O tratamento preconizado para esses casos é o anticoagulante de baixo peso molecular, entretanto pode aumentar o risco de sangramentos. **Relato de caso:** Descreve-se um caso raro de lesão hemorrágica aguda na infância discutindo o desafio do diagnóstico. Paciente do sexo masculino, 8 anos, internado para investigação diagnóstica. Apresentava anemia grave associada a febre e trombose das veias cavas superior e inferior, por isso prescreveu-se enoxaparina. O diagnóstico foi de linfoma anaplásico de grandes células. Após 20 dias da administração do anticoagulante, o paciente desenvolveu epistaxe seguida de formação de trombo hemorrágico oral em lábio superior e inferior. Um protocolo específico de cuidados bucais envolveu a avaliação da equipe multiprofissional. Houve remissão da ferida com o restabelecimento físico e emocional. **Conclusão:** conforme protocolo individual de atendimento houve restabelecimento das funções vitais da cavidade oral: mastigação, deglutição, digestão, paladar, fala, resignificando o real significado do sorriso; crucial em pacientes oncohematológicos.

## PALAVRAS-CHAVE

Odontologia; Oncologia; Cavidade bucal; Pediatria; Trombose.

## INTRODUCTION

Lymphomas are classified into Hodgkin or non-Hodgkin types, affecting B-cells or T-cells [1]. Anaplastic large cell lymphoma (ALCL) is a subtype characterized by the malignant proliferation of T-cells and is classified as a non-Hodgkin lymphoma, which can be ALK-positive with ALK protein expression or ALK-negative without the expression of this protein. Although morphologically similar, these subtypes exhibit distinct molecular characteristics that influence prognosis [2]. ALCL predominantly affects pediatric patients, constituting 10-30% of all lymphomas, with a notably higher prevalence in males. The development of ALCL is linked to several factors, including genetic and environmental influences, though precise mechanisms remain under investigation [1,2]. Clinical manifestations include peripheral lymphadenopathy, which can be mediastinal, abdominal, or cervical, as well as extranodal involvement affecting skin, bones, soft tissues, central nervous system, and kidneys. Thrombocytopenia, fatigue, and pallor due to anemia may also occur [2,3]. Oral manifestations are rare but may present as ulcerative and hemorrhagic masses on the alveolar ridge, palate, tongue, or lips [3]. The oral cavity manifestations arising from oncologic treatment include mucositis, xerostomia, opportunistic infections, inflammation and carious lesions [4,5].

ALCL treatment involves multi-agents chemotherapy regimens, including anthracyclines. Common protocols including CHOP (cyclophosphamide, doxorubicin hydrochloride, vincristine sulfate and prednisone) with etoposide. For relapsed cases, alternative therapies such as ICE (ifosfamide, carboplatin, and etoposide) and DHAP (dexamethasone, high dose Ara C, known as cytarabine, and cisplatin) are used [6,7]. Long-term follow-up is essential to monitor possible complications from the antineoplastic therapy, such as tumor lysis syndrome, infection, thrombosis, pancreatitis, secondary neoplasms, cognitive dysfunction and endocrinopathy [8]. These complications contribute to increased morbidity, affecting the patient's quality of life and psychological well-being during treatment [9].

One of the recurrent complications in these patients is venous thromboembolism, often associated with a hypercoagulable state. In some cases, thrombocytosis is observed prior to chemotherapy, suggesting a possible

tumor-related influence on platelet production and function. This raises questions about the role of platelets in tumor development and progression [10]. Moreover, chemotherapy can alter coagulation factors, contributing to a hypercoagulable state, which may induce a prothrombotic condition [11].

Current guidelines recommend low molecular weight heparin for the treatment and prevention of thrombosis, as it offers a favorable prognosis. However, due to the associated risk of bleeding, careful monitoring is essential [12,13]. Direct oral anticoagulants, while approved for thrombosis management, have not been adequately studied in pediatric oncology patients [12-14].

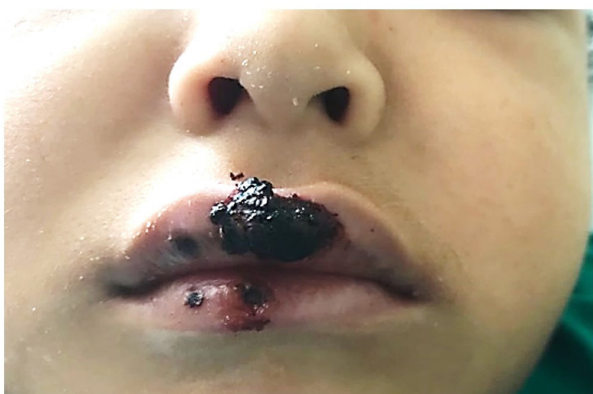
Given the complications of chemotherapy on clotting factors and its repercussions on the oral cavity, we report a rare case of an ALCL in a pediatric patient who developed extensive hemorrhagic lesions on the upper and lower lips during the anticoagulant and chemotherapeutic therapy, along with the collaborative therapeutic approach of the dental and multidisciplinary team.

## CASE REPORT DESCRIPTION

An eight-years-old male was admitted to a regional referral hospital in Juiz de Fora, Brazil, for evaluation of severe anemia, fever, and thrombosis affecting both the superior and the inferior vena cava. Enoxaparin was initiated as the immediate therapeutic intervention. The diagnostic hypothesis was anaplastic large cell lymphoma, and complementary tests were requested to confirm this: myelogram and immunophenotyping. This study was approved by the Ethics Committee of the Universidade Federal de Juiz de Fora under a protocol number 3.294.048.

Twelve days after starting the anticoagulant therapy, the patient developed hemorrhagic lesions on the upper and lower lip (Figure 1).

A dental team consultation revealed hemorrhagic bluish-reddish lesions on both lips, along with dehydration, paleness and mild epistaxis. In addition, increased skin dehydration from epithelial desquamation and fungal infections at the labial commissure were observed. The patient's habitual biting and licking of the lips, as reported by his caregiver, exacerbated the epithelial desquamation. This condition significantly affected the patient's overall well-



**Figure 1** - Initial clinical appearance of the lip thrombus on first examination.



**Figure 2** - Clinical aspects after three dental care sessions.

being and led to refusal of food. After consulting with the medical team and evaluating the oral hemorrhagic complications, it was decided to reduce the enoxaparin dosage from 60 mg/ml to 40 mg/ml and proceed with wound debridement.

The treatment included lip humidification with physiological saline solution and debridement of the thrombus under topical anesthesia with benzocaine. Local bleeding was managed with compression using sterile gauze and physiological saline. Post-debridement, fungal lesions were found beneath the bleeding area. Rigorous debridement was followed by photodynamic therapy (Photon Lase III - PL7336, DMC) at a 90 degrees angle to the lip contact area (660 nm, 50 mW, 4 J / cm<sup>2</sup>, 90 seconds) specifically on the wound.

Topical nystatin was prescribed to treat fungal infections at the labial commissure and under the labial thrombus. In addition, alpha-tocopherol acetate (vitamin E) was also recommended for its antioxidant and hydrating properties.

The patient underwent the photodynamic therapy every 48 hours (Figures 2 and 3), with all other medications maintained. After 15 days, the dental interventions and the anticoagulant dosage adjustment resulted in total lesion resolution and significant physical and emotional recovery (Figure 4). The patient continued to be monitored during treatment and there was no recurrence of the oral lesions.

## DISCUSSION

This case report emphasizes the defiant-strategy of approach of a pediatric patient with ALCL who developed significant orofacial hemorrhagic complications related to anticoagu-



**Figure 3** - Clinical aspects after six dental care sessions.



**Figure 4** - Clinical aspects upon case resolution.

lant therapy. The extensive bleeding lesions on both lips not only caused pain but also impacted the patient's diet and overall well-being, and even covered up areas of fungal infection. This case represents a rare occurrence in clinical practice and is notably underrepresented in the scientific literature, especially within the context of pediatric oncology. The oral findings can affect the prognosis of severe diseases like ALCL and emphasize the need for comprehensive orofacial care strategies.



The hospitalization was due to severe anemia, fever, and thrombosis, symptoms consistent with lymphoma-associated immunological imbalance [2,3]. Twelve days post-anticoagulant therapy initiation, the patient developed oral hemorrhagic lesions and epistaxis. The literature identifies only five comparable cases with different etiologies, with this case uniquely linked to anticoagulation. In contrast, the other lesions reported in previous studies were primarily associated with thrombus formation [15-19]. The scarcity of similar cases in ALCL patients underscores the novelty of this presentation.

Following the oral manifestation, the dental team's systematic examination identified clinical signs of epistaxis that corroborated the diagnosis of the hemorrhagic lip lesion as possibly related to anticoagulation [20-24]. The patient also presented fungal infections in the labial commissure, which can be attributed to ALCL-related immunosuppression [4].

Treatment involved the debridement of hemorrhagic crust and necrotic tissue with benzocaine topical anesthesia [25] and photodynamic therapy to improve cicatrization and tissue regeneration [26]. In addition, topical nystatin was prescribed for fungal infections [27], and vitamin E for hydration and antioxidant benefits [28].

The primary limitation of this case report lies in the scarcity of similar clinical conditions.

Nevertheless, the individualized oral care protocol led to full resolution of the lesions, improved patient nutrition, pain relief and overall physical and emotional well-being. This case highlights the importance of a multidisciplinary approach in managing oral complications in oncohematological patients. It also serves as a valuable resource for care teams of the oncohematologic patients, providing insights into the diagnostic approach and decision-making process when confronted with similar complications.

## CONCLUSION

This case-report highlights the therapeutic challenges in managing oral complications among pediatric oncology patients. An interdisciplinary approach, thorough clinical examination, detailed medical history, deep patient record analysis and in-depth evaluation of complementary laboratory

exams were all crucial in addressing the patient's complex needs. Thus strengthening the concept of orofacial care based on the individual rather than disease. Evidence-based dental treatment tailored to the patient's specific condition significantly improved prognosis and restored vital oral functions, including chewing, swallowing, digestion, taste, and speech [4]. Consequently, this treatment redefined the significance of a smile in oncohematological care.

## Author's Contributions

VBF, ISOR, LSP, GMCF: Conceptualization. VBF, ISOR: Data Curation. VBF, ISOR, GMCF: Formal Analysis. VBF, ISOR, GMCF: Investigation. GMCF, TCE, MGAMC: Methodology, Project Administration and Validation. ISOR, GMCF, MGAMC, CPN, TCE: Resources. GMCF, MGAMC, TCE: Supervision. ISOR, VBF, GMCF, CPN, JCF, LSP: Visualization. ISOR, VBF, GMCF, JCF, LSP, MGAMC, TCE: Writing - Original Draft Preparation. ISOR, VBF, GMCF, CPN, JCF, LSP, MGAMC: Writing - Review & Editing.

## Conflict of Interest

The authors declare no conflict of interest.

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None.

## Regulatory Statement

This study was approved by the Ethics Committee of the Universidade Federal de Juiz de Fora.

The approval code for this study is 3.294.048.

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