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A Case of Myeloid Sarcoma Presenting as Tongue Ulceration

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Abstract

Myeloid sarcoma (MS), also known as chloroma, is a rare extramedullary tumor composed of immature myeloid cells and is frequently associated with acute myeloid leukemia (AML). Oral involvement is uncommon and may represent the first manifestation of systemic disease. A 32-year-old male presented with a 3-week history of a non-healing ulcer on the lateral border of the tongue. Clinical examination revealed a solitary indurated ulcer measuring approximately 2 × 2 cm. Hematological investigations showed leukocytosis, anemia, and thrombocytopenia. Histopathological examination demonstrated diffuse infiltration of malignant myeloblasts. Immunohistochemistry revealed positivity for LCA, CD34, ERG, and Bcl-2, with focal positivity for MPO, confirming the diagnosis of myeloid sarcoma. Oral manifestations may be the initial presentation of hematologic malignancies. Early recognition by dental practitioners is essential for prompt diagnosis and management.

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Introduction

Myeloid sarcoma (MS), also known as chloroma, is a rare malignant neoplasm characterized by the extramedullary proliferation of immature myeloid cells and is commonly associated with acute myeloid leukemia (AML).^{1,2} It may occur in various anatomical locations, including soft tissues, lymph nodes, bone, and skin.¹ Recent studies have provided further insight into the molecular pathogenesis and clinical heterogeneity of MS, emphasizing its diagnostic complexity and variable presentation.^{3,4} Oral manifestations may represent early signs of systemic diseases, including hematological malignancies. Leukemia is among the most prevalent hematologic cancers and is characterized by uncontrolled proliferation of immature white blood cells.^{3,5}

Common oral manifestations include mucosal pallor, gingival enlargement, spontaneous bleeding, petechiae, and ulcerative lesions.⁶⁻⁹ These may result from direct leukemic infiltration or secondary hematological abnormalities such as thrombocytopenia and neutropenia.^{4,10}

Although oral lesions are frequently observed in leukemia, involvement of the oral cavity by myeloid sarcoma is rare. Early diagnosis is critical, as MS may precede or coincide with systemic leukemia. This report describes a rare case of MS presenting as a tongue ulcer.^{6,11,12}

Case Presentation

A 32-year-old male presented with a 3-week history of a persistent ulcer on the lateral border of the tongue (Figure 1). The patient reported fatigue, malaise, and mild weight loss. There was no history of recurrent ulceration.

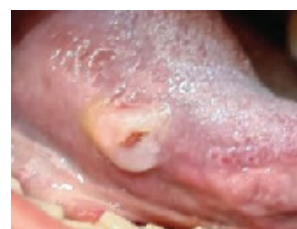


Figure 1: Clinical photograph showing ulcer on the lateral border of the tongue

Clinical examination revealed a solitary ulcer measuring approximately 2 × 2 cm with raised, indurated margins, clinically suggestive of malignancy. Mild gingival bleeding was observed on probing. No cervical lymphadenopathy was detected; however, the patient appeared pale.

Laboratory Findings

Leukocytosis

Moderate macrocytic anemia

Thrombocytopenia

Histopathological Findings

Microscopic examination revealed ulcerated stratified squamous epithelium with underlying diffuse infiltration of malignant myeloblasts (Figure 2). Tumor cells exhibited irregular nuclei, fine chromatin, and scant cytoplasm, with frequent mitotic figures (Figure 3).

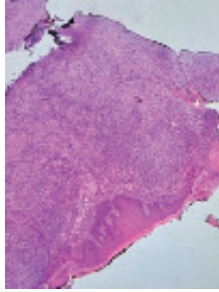


Figure 2: H&E (100x) showing diffuse myeloblast infiltration

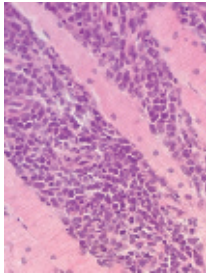


Figure 3: H&E (400x) showing malignant cells infiltrating muscle fibers

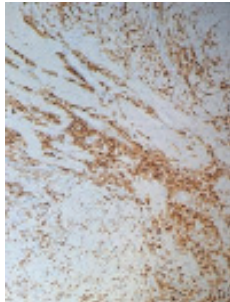


Figure 4: Immunohistochemistry showing LCA positivity

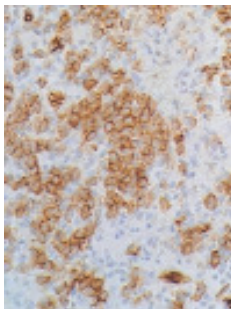


Figure 5: Immunohistochemistry showing CD34 positivity

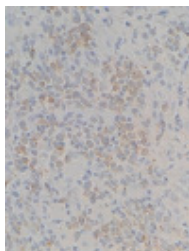


Figure 6: MPO positivity in tumor cells

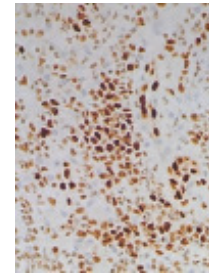


Figure 7: ERG positivity in tumor cells

Immunohistochemistry

Positive: LCA (Figure 4), CD34 (Figure 5), ERG, Bcl-2

Focal positivity: MPO (Figures 6 and 7)

Negative: CD3, CD2, CD20, CD79a, CD30, CK

Ki-67 proliferation index: approximately 40%

Peripheral blood smear revealed 45% myeloblasts. Bone marrow aspiration demonstrated hypercellularity with 88% myeloblast infiltration.

Based on these findings, a diagnosis of myeloid sarcoma associated with acute leukemia was established.

Written informed consent was obtained from the patient.

Discussion

Myeloid sarcoma is a rare entity that poses significant diagnostic challenges due to its diverse clinical presentation and histopathological overlap with other malignancies. Accurate diagnosis requires integration of clinical findings, histopathology, and immunohistochemistry.^{2,13}

Recent literature has highlighted advances in molecular characterization and targeted therapeutic approaches, improving understanding of disease pathogenesis and clinical outcomes.^{1,3,14}

Oral manifestations are more frequently observed in acute leukemia and may precede systemic symptoms. In the present case, the oral lesion represented the initial clinical presentation, emphasizing the critical role of dental professionals in early detection. Although rare, oral myeloid sarcoma has been increasingly reported as either an initial manifestation or an indicator of relapse in AML patients.^{4-6,12}

The differential diagnosis of tongue ulcers includes squamous cell carcinoma, lymphoma, metastatic lesions, and benign conditions such as fibroma, papilloma, and hemangioma. Due to its nonspecific clinical appearance, myeloid sarcoma is frequently misdiagnosed, with reported rates reaching up to 46%.⁵

Recent studies have demonstrated variability in treatment response, including the use of novel therapeutic regimens such as venetoclax-based therapies.¹⁵ In addition, molecular analyses have identified gene mutations associated with disease progression and therapeutic response, supporting the development of targeted treatment strategies.^{3,13,15}

If left untreated, isolated myeloid sarcoma may progress to acute myeloid leukemia within 5-12 months.^{2,11} Additional case reports and recent analyses reinforce the importance of early diagnosis and systemic evaluation, particularly in atypical presentations involving uncommon anatomical sites such as the oral cavity.^{11,12}

Conclusion

Myeloid sarcoma of the oral cavity is a rare but clinically significant condition. Persistent oral ulcers should be thoroughly evaluated to exclude underlying systemic malignancies.

This case reinforces the importance of considering hematologic malignancies in patients presenting with non-healing oral lesions, particularly when associated with systemic symptoms or abnormal hematological findings. Early diagnosis through clinical examination, histopathology, and immunohistochemistry is essential for timely management and improved patient outcomes.

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Conflict of Interest

The authors declare no conflicts of interest.

Patient Consent

Written informed consent was obtained from the patient.

Use of Artificial Intelligence

No artificial intelligence tools were used in preparing this manuscript.

CRedit Authorship Contribution

Elkabir: Conceptualization, Writing – Original Draft.

Shgroni: Histopathology, Illustrations.

Sacarani: Review & Editing.

Elkabir: Data Curation

References

1. Diamantidis MD. Myeloid sarcoma: novel advances regarding molecular pathogenesis, presentation and therapeutic options. *J Clin Med*. 2024;13:6154. doi:10.3390/jcm13206154
2. Byrd JC, Edenfield WJ, Shields DJ, Dawson NA. Extramedullary myeloid cell tumors in acute nonlymphocytic leukemia: a clinical review. *J Clin Oncol*. 1995;13(7):1800-1816. doi:10.1200/JCO.1995.13.7.1800
3. Fu L, Zhang Z, Chen Z, et al. Gene mutations and targeted therapies of myeloid sarcoma. *Curr Treat Options Oncol*. 2023;24(4):338-352. doi:10.1007/s11864-023-01063-6
4. Franciconi CF, Caldas RJ, Martins LJO, Rubira CMF, Santos PSS. Leukemic Oral Manifestations and their management. *Asian Pac J Cancer Prev*. 2016;17(3):911-915. doi:10.7314/apjcp.2016.17.3.911
5. Gomez RS, Duarte ECB, Guimarães ALS, et al. B-leukemic infiltrate in palate. *Oral Oncol Extra*. 2004;40(3):54-57. doi:10.1016/j.ooe.2004.02.002
6. Hasan S., Khan NI. & Reddy LB. Leukemic gingival enlargement: report of a rare case with review of literature. *Int J Appl Basic Med Res* 2015;5(1):65-67. doi:10.4103/2229-516X.149251
7. Deliverskal EG, Krasteva A. Oral signs of leukemia and dental management: Literature data and case report. *J IMAB Ann Proc (scientific papers)* 2013;19(4):388-391. doi:10.5272/jimab.2013194.388
8. Copete MA, Sheridan DP. Large granular lymphocyte leukemia and its association with oral neutropenic ulcerations: A case report. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2000;90(4):474-477. doi:10.1067/moe.2000.107972
9. Reenesh M, Munishwar S, Rath SK. Generalised leukaemic gingival enlargement: a case report. *J Oral Maxillofac Res*. 2012;3(3):e5. doi:10.5037/jomr.2012.3305
10. Stafford R, Sonis S, Lockhart P, Sonis A. Oral pathoses as diagnostic indicators in leukemia. *Oral Surg, Oral Med, Oral Pathol*. 1980;50(2):134-139. doi:10.1016/0030-4220(80)90200-5
11. Kirnbauer B, Wölfler A, Sill H, Beham A, Prettenhofer U, Jakse N. Myeloid sarcoma in the oral cavity an unusual case of therapy-related myeloid neoplasm. *Int J Stomatol Occlusion Med*. 2013;6(2):65-69. doi:10.1007/s12548-012-0071-6
12. Meena A, Rout N, Ganesh RN, Ramassamy S. Oral myeloid sarcoma as Marker of Relapse in Acute Myeloid leukemia. *Am J Dermatopathol*. 2024;46(12):868-870. doi:10.1097/DAD.0000000000002843
13. Swerdlow SH, Campo E, Harris NL, et al. WHO classification of tumours of haematopoietic and lymphoid tissues. International Agency for Research on Cancer (IARC); 2017; revised 4th ed.
14. Semary SF, Hammad M, Soliman S, et al. Myeloid sarcoma, spectrum of clinical characteristics, prognostic impact, and treatment outcomes. *Beni-Suef Univ J Basic Appl Sci*. 2024;13:80. doi:10.1186/s43088-024-00516-7
15. Jian X, Cha J, Lin Z, et al. "Real-world experience with venetoclax-based therapy for patients with myeloid sarcoma." *Discov Oncol*. 2024;15:210. doi:10.1007/s12672-024-01068-z