CASE REPORT

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Oral Clues to a Silent Systemic Disease: Acute Leukaemia

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Abstract

Oral health it is an essential aspect of overall wellness and a significant indicator of systemic health. The mouth is often described as a "window to the body" as it can reveal early signs of underlying systemic diseases. In certain instances, these oral symptoms may be the initial or even the sole indicators of disease, positioning a dentist or oral health professional as the primary line of defense in early detection. In this report, we present a case involving a 39-year-old woman who exhibited gingival swelling and ecchymoses in the palate, initially suspected to have leukaemia, which was later confirmed through haematological investigations. Therefore, oral clues are not just incidental findings but often the earliest and most overt signs of a "silent" systemic disease.

Key words: Leukaemia, dental, gingival enlargement, petechiae.

Introduction:

The oral cavity is widely recognised as a reflection of overall health, often revealing early signs of systemic diseases before other symptoms emerge. Although these oral manifestations are not always unique to a specific disease, they frequently serve as important early warning signs of underlying health issues[1]. In some instances, oral findings may be the first or sole clinical evidence of a systemic disorder, emphasizing the critical role of dental professionals in early detection. Early identification of such signs is vital, as it can help clinicians achieve accurate diagnoses and initiate treatment promptly, ultimately improving patient outcomes[2]. One such classic example is Leukaemia.

Leukaemia is a malignant haematopoietic disorder characterised by uncontrolled proliferation of abnormal white blood cells, often leading to anaemia, recurrent infections, bleeding tendencies, and oral manifestations such as gingival enlargement, petechiae, and spontaneous bleeding[3]. Among its subtypes, acute promyelocytic leukaemia (APML) is a distinct variant of acute myeloid leukaemia characterised by the accumulation of abnormal promyelocytes in bone marrow and peripheral blood. Unlike other leukaemias, the disease process involves complex molecular and haematological alterations that can influence the clinical presentation and course of the illness. The pathogenesis is strongly associated with a reciprocal translocation between chromosomes 15 and 17, leading to the PML-RARA fusion gene, which disrupts normal myeloid differentiation[4]. This alteration not only defines the disease but also provides a unique therapeutic target, making APML one of the most treatable forms of leukaemia when recognised early. However, its presentation may be atypical, and timely diagnosis is critical as patients are at high risk of life-threatening haemorrhage due to associated coagulopathy. In this report, we present an unusual case of APML first suspected and subsequently diagnosed in a dental setting. This highlights the pivotal role of oral healthcare providers in identifying early manifestations of systemic haematological malignancies, especially when patients present with atypical oral or bleeding symptoms.

Case Presentation

A 39-year-old woman reported with the chief complaint of gingival swelling persisting for one month. The swelling had a gradual onset, was progressive in nature, and had reached its present size without associated pain or discharge. Her medical history revealed an episode of typhoid fever one month earlier, for which she had discontinued the prescribed medication 15 days prior to presentation. The patient underwent oral prophylaxis 10 days before visiting department.

On examination, bilateral submandibular lymph nodes were palpable, tender, soft in consistency, and not fixed to underlying structures. Intraoral examination revealed generalised gingival enlargement involving both maxillary and mandibular arches. The enlargement extended up to one-third of the labial surface of the anterior teeth and two-thirds in the maxillary posterior region. The interdental papillae were observed to be rounded, with localised areas of erythema noted on the gingiva of the anterior teeth. Additionally, these areas were covered with a yellowish-white plaque that could not be scraped off. (Fig. 1). The periodontal examination indicated no formation of pockets,

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and no mobility of teeth was detected.

The palatal mucosa showed areas of ecchymosis at the junction of the hard and soft palate in the mid-palatal region, with diffuse borders, along with multiple pinpoint erythematous lesions that were more pronounced on the right side, approximately 1 mm away from the mid-palatal raphe, with no evidence of active blood discharge (Fig. 2).

Based on these clinical observations, a provisional diagnoses of gingival enlargement secondary to an underlying systemic condition and transient thrombocytopenic purpura, was made. The differential diagnosis included drug-induced gingival enlargement, gingival fibromatosis, and necrotizing ulcerative gingivitis.

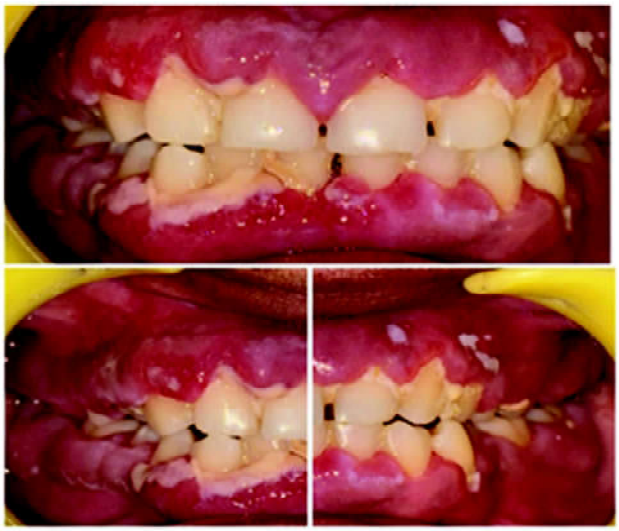

Fig. 1: *Generalised gingival enlargement.*

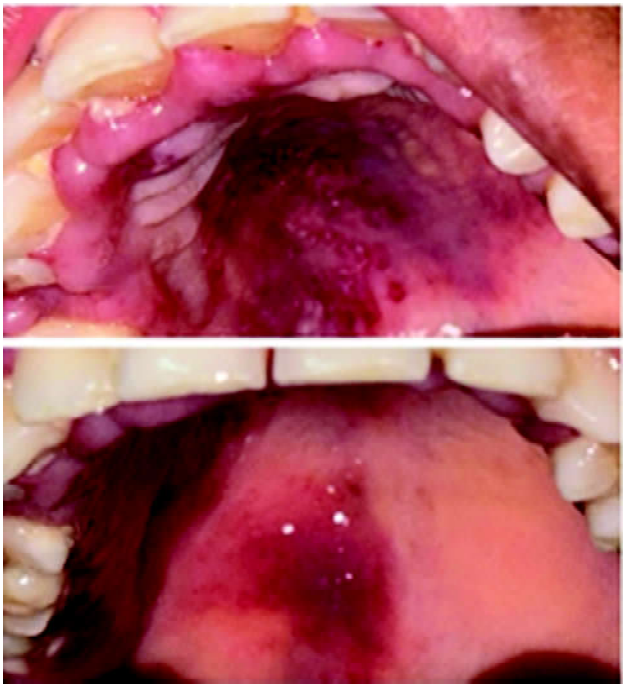

Fig. 2: *Ecchymosis on palate with multiple pin point erythematous lesions.*

The patient was advised to undergo haematological investigations, including a complete blood count (Table I), which, along with peripheral smear analysis, revealed the presence of macrocytic blast cells (Fig. 3), highly suggestive of leukaemia. The patient was then referred to a specialised oncology centre, where further diagnostic evaluation using flow cytometry, confirmed the diagnosis of acute promyelocytic leukaemia (APML). Flow erjternetric analysis revealed a blast population with CD45 din empression. Blasts showed bright CD33, moderate CD13, CD117, DR, CD99 cytofiasme MPO, TDT, and dis CD34 with abenant CD4 and CD7 cachrinian. The patient is currently undergoing chemotherapy.

Table I: Haemogram.

Haemoglobin	8.0 g/dl
White blood cells	2,32,800 cells/cumm
Platelets Blast cells	**70,000/cumm**
Promyelocytes	02%
Neutrophils	04%
Lymphocytes	22%
Monocytes	01%
Eosinophils	01%

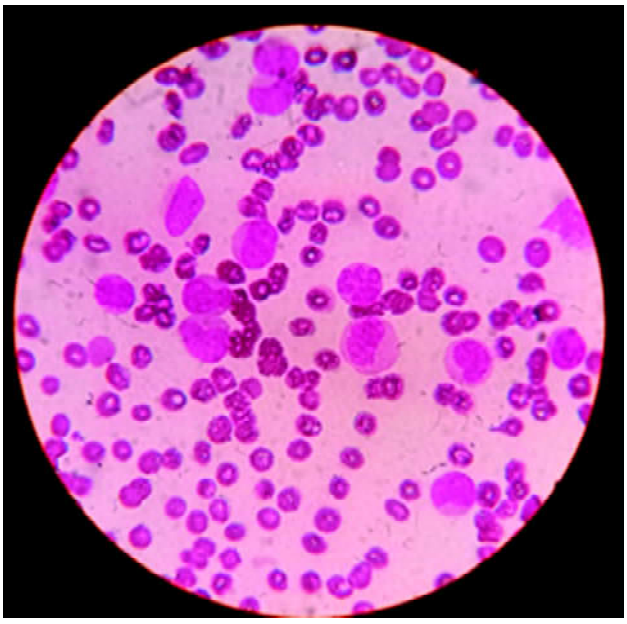

Fig. 3: *Peripheral smear showing blost cells.*

Discussion

Acute myeloid leukaemia (AML) is a rapidly progressing haematological malignancy, accounting for nearly one-fourth of adult leukaemias. Its clinical manifestations predominantly stem from haematopoietic failure, reflected as thrombocytopenia, anaemia, and leukocytosis with circulating blasts. These systemic alterations often have direct oral implications[3]. Hou *et al* reported that oral lesions are more commonly associated with acute than with chronic leukaemias[5]. Consistent with this, Adeyemo *et al* observed that within the acute subtypes, acute myeloid leukaemia (AML) occurs more frequently than acute lymphoblastic leukaemia (ALL), with oral bleeding presenting as the initial symptom in 43.2% of AML cases and gingival enlargement in 26.3% of patients[6]. These findings support the notion that oral changes may be both nonspecific and pathognomonic, serving as crucial diagnostic clues when systemic disease is not yet clinically apparent.

In the present case, generalised gingival enlargement, palatal ecchymosis, and pinpoint petechiae were the key findings that raised suspicion of an underlying haematological disorder. These features are consistent with reported oral presentations of AML, which commonly arise due to thrombocytopenia-induced bleeding tendencies, leukaemic infiltration of gingival tissues, and impaired host immune function[7]. Similarly, the ecchymoses and petechiae observed in our patient reflect platelet dysfunction and coagulopathy, hallmark complications of AML[8]. The concurrence of these manifestations in this case highlights the diagnostic value of oral findings and their potential role as sentinel signs of a life-threatening systemic malignancy.

Several case reports in the literature echo the present findings, where oral changes were the first sign of APML. Saito *et al* described gingival bleeding and pericoronitis as initial clinical manifestations[8], while Yoshida *et al* reported gingival swelling in the third-molar region as the earliest indicator[7]. Suárez-Cuenca *et al* observed that periodontal alterations can be the initial presentation of APML, stressing the importance of early recognition to prevent their rapid and potentially severe progression[9]. Collectively, these reports emphasize that oral healthcare providers must maintain vigilance when confronted with atypical gingival or mucosal lesions, particularly those accompanied by unexplained bleeding.

Conclusion

Oral changes such as gingival enlargement, ulceration, and spontaneous bleeding may represent the first clinical indicators of AML. Their early recognition is therefore crucial for timely referral and initiation of treatment. A collaborative approach between dental and medical professionals, together with patient awareness and gentle oral care practices, can help reduce diagnostic delays and treatment complications. Ultimately, prompt diagnosis and integrated management remains key to improving survival and quality-of-life in affected individuals.

References

1. Harish R, Reddy SSP, Krishnan SA. Diagnostic Clue: Oral Manifestations in a Case of Acute Myeloid Leukaemia. *Inter J Res Reports in Dentistry* 2023: 6 (2): 76-81.
2. Kulkarni R. The Mouth is the Mirror to the Body: Oral-Systemic Health. *Dela J Public Health* 2023; 9 (1): 50.
3. Christy AW, Raja Devathambi TJ, Lakshmi BD. Acute myeloid leukaemia presenting in oral cavity – A report of two cases. *J Indian Acad Oral Med Radiol* 2021; 33: 328-32.
4. Ryan MM. Acute Promyelocytic Leukaemia: A Summary. *J Adv Pract Oncol* 2018; 9 (2): 178-87.
5. Hou G-L, Huang J-S, Tsai C-C. Analysis of oral manifestations of leukaemia: a retrospective study. *Oral Dis* 1997; 3: 31-8.
6. Adeyemo T, Adeyemo W, Adediran A. Orofacial manifestation of haematological disor ders: haemato-oncologic and immuno-deficiency disorders. *Indian J Dent Res* 2011; 22: 688-97.
7. Yoshida Y, Kawasaki M, Shingu T. Acute Promyelocytic Leukaemia Diagnosed Due to Pericoronitis: A Case Report. *Yonago Acta Med* 2025; 68 (2): 165-8.
8. Daisuke Saito D, Kobayashi T, Oda Y. Oral manifestations of acute promyelocytic leukaemia: A case report. *Open J Stomatol* 2013; 3: 25-7.
9. Suárez-Cuenca JA, Arellano-Sánchez JL, Scherling-Ocampo AA. Rapidly progressing, fatal and acute promyelocytic leukaemia that initially manifested as a painful third molar: a case report. *J Med Case Rep* 2009; 3: 102.
10. Burket's Oral Medicine textbook, Green Berg, Michaeel Glick, Ship, 13th edition.