Archives of Orofacial Sciences (2010), **5**(2): 69-72

CASE REPORT

Leukemic gingival enlargement: a report of two cases

Santosh Patil [a]*, Nitin Kalla [a], D.N.S.V Ramesh [b], A.R. Kalla [c]

[a] Department of Oral Medicine and Radiology, Jodhpur Dental College, Jodhpur National University, Jodhpur 342001, Rajasthan, India. [b] Navodaya Dental College and Hospital, Raichur 584103, Karnataka, India. [c] Department of Pathology, Dr. S.N. Medical College, Jodhpur 342003, Rajasthan, India.

(Revised manuscript accepted 7 November 2010)

Keywords

Acute lymphoblastic leukemia,
acute myeloid leukemia,
gingival enlargement.

Abstract Most of the systemic diseases manifest signs and symptoms in oral cavity. Periodontal lesions are common in patients with acute leukemia throughout the course of the disease. Although many cases of gingival enlargement in patients with acute myeloid leukemia have been reported in literature, cases of gingival hypertrophy secondary to acute lymphoblastic leukemia in adult female are rare. This is a case report of gingival enlargement in acute lymphoblastic leukemia along with a case of gingival enlargement in patient with acute myeloid leukemia.

Introduction

Leukemia is a malignant neoplasm resulting from proliferation of abnormal haemopoietic stem cells with uncoordinated differentiation, regulation and apoptosis (McKenna, 2000). According to the clinical behavior leukemias are classified into acute or chronic forms and characterized as lymphocytic and myelocytic, referring to its histogenetic origin. Acute lymphoid leukaemia (ALL) and acute myeloid leukemia (AML) are further subdivided within the French-American British (FAB) classification according to their degree of differentiation along cell lines and extent of cell maturation. AML is a clonal proliferation of immature myeloid cells and is further classified into eight sub groups according to FAB system (Dean *et al*., 2003). ALL accounts for 97% of all leukemias and constitutes 75% of acute leukemia. It is commonly seen in children and more frequently in males (Escalon, 1999). There are many etiologic factors of leukemia, including genetic factors, certain carcinogens like benzene, tobacco smoke, ionizing radiation, advancing age, immune deficiency, viruses like Epstein Barr Virus, and oncogenes (Kinane, 1999). A decrease in the production of erythrocytes, granulocytes and platelets gives rise to the clinical signs of weakness, fatigue, increased susceptibility to infection and hemorrhage. As compared to acute leukemia, oral changes are non specific in patients with chronic leukemia (Anil *et al.,* 1996). Gingival enlargement is reported to be the most consistent symptom leading to a diagnosis of leukemia that directs the patient to seek early dental consultation.

*** Corresponding author:** Dr. Santosh Patil, Tel: +91 98 8777 9845. Email: drpsantosh@yahoo.com

Case History

Case 1

A 28 year old female patient presented with a complaint of generalized enlargement of gingiva associated with dull aching localized pain since three months. There was neither significant medical and family history nor any history of medication. On examination, there was prominent gingival enlargement which was bulbous and lobulated except in the maxillary anterior and left quadrant. Bleeding from the gingival margin was noted in the lower jaw (Figure 1). No positive findings were noted on the radiographs. Patient was advised to undergo full blood examination and smear. The haematological investigation revealed haemoglobin (Hb) values of 4 gm %, red blood cells (RBCs) count of 2.5 million/mm^3, white blood cells (WBCs) count of 40000/mm^3, platelets

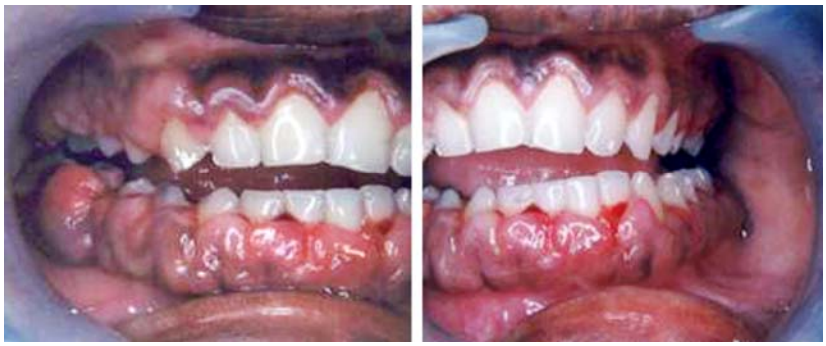

Figure1 Generalized gingival enlargement.

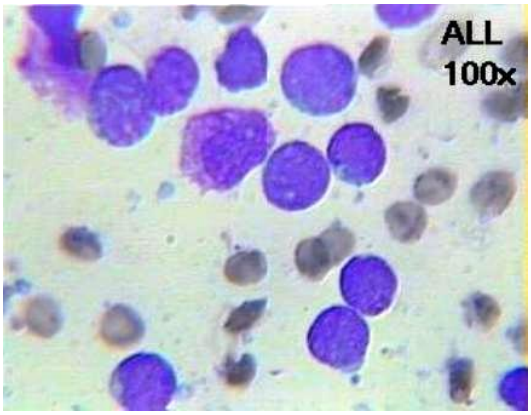

Figure 2 Smear showing cells with clumped nuclear chromatin and ill defined nucleoli.

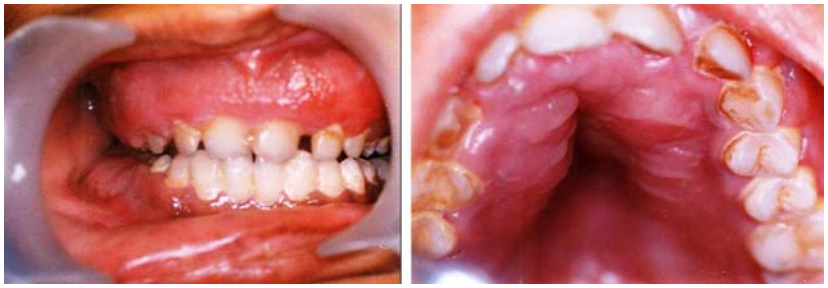

Figure 3 Gingival enlargement with prominent palatal involvement.

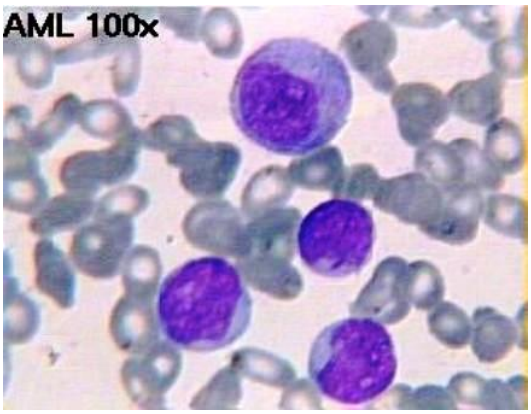

Figure 4 Film showing cells with large nucleus and distinct nucleoli.

(70,000/mm^3), neutrophils (3%), lymphocytes (58%), monocytes (0%), eosinophils (0%), basophils (0%), bleeding time (4mins), clotting time (4mins 30secs). Smear examination revealed larger cells with scanty cytoplasm, clumped nuclear chromatin and ill defined nucleoli (Figure 2). On the basis of these findings the final diagnosis of ALL was made.

Case 2

A 22 year old female reported with a complaint of swelling in the gums since one month which was spontaneous and causing difficulty in chewing. Patient gave a history of intermittent fever at evening time and slight weight loss. No significant drug history and family history was elicited. Intraoral examination revealed generalized gingival enlargement, which was more pronounced on the palatal aspect (Figure 3). Bilateral submandibular lymph nodes were enlarged. The gingiva was pink in colour and firm in consistency. Her oral hygiene was fair. No significant findings were noted on the radiographs. The patient was referred for complete haematological examination along with a smear. The reports revealed that the patient had haemoglobin (Hb) values of 7.3 gm %, red blood cells (RBCs) count of 2.5 million/mm^3, white blood cells (WBCs) count of 12,500/mm^3, platelets (92,000/mm^3), neutrophils (17%), lymphocytes (36%), monocytes (1%), eosinophils (4%), basophils (0%), bleeding time (3 mins 30 secs), clotting time (5 mins 40 secs). Examination of the film revealed large cells with large nucleus with distinct nucleoli which were more than three with fine nuclear chromatin which thus confirmed the diagnosis of AML (Figure 4).

Discussion

Oral lesions may be the presenting feature of acute leukemias and are therefore important diagnostic indicators of the disease. Oral manifestations of the disease lead majority of the acute leukemic patients to consult the dentist and in most of the cases the underlying disease is diagnosed from clinical findings during periodontal examination (Stafford *et al.,* 1980). According to reports, the most common findings in the oral cavity include gingival enlargement, local abnormal color or gingival hemorrhage, petechiae, ecchymoses, mucosal ulceration and oral infections (Soheylifar *et al.,* 2009). In some rare cases atypical features like, chin numbness and tooth pain has been reported (Çetiner *et al.,* 1999). Gingival overgrowth has several causes, including poor oral hygiene, drugs, systemic illnesses and neoplastic conditions. The presenting characteristics of gingival enlargement vary according to its etiology. The gingiva show slow growth rate and appear pink with firm consistency with minimal inflammatory component when it is genetically induced. In case of blood dyscrasias, the gingiva appears soft and edematous with tenderness and bleeding tendency (Demirer *et al.,* 2007). In contrast, these features were absent in Case 1. Gingival tissues are considered more susceptible to leukemic cell infiltration because of their microanatomy and expression of endothelial adhesion molecules which enhance infiltration of leukocytes (Kinane, 1999). In a study by Dreizen *et al.* (1983) gingival involvement is common in AML and was found in 66.7% of the 1076 leukemic M5 patients. As reports of gingival enlargement in ALL adult female population are scarcely reported in literature, Case 1 could be considered as a rare one.

Presenting features were different in both of the cases. In Case1, the gingiva was lobulated, soft in consistency with bleeding tendency, whereas in Case 2 the gingiva was pink and firm with marked enlargement on palatal aspect. In both cases the patients were unaware of the underlying disease and the diagnosis was confirmed by the authors after clinical examination and obtaining hematological investigation report. No surgical interventional procedures had been carried out because acute exacerbation with serious consequences has been reported after such procedures (Anil *et al.,* 1996). Both the patients were referred to the oncology centre for the further management but within a span of four weeks the authors had been informed that both patients had died.

Conclusion

As oral lesions are one of the earlier manifestations of acute leukemia and may serve as diagnostic indicator of the disease, the dental surgeon may be the first to diagnose it. The dentist should always be aware of the presenting feature and various complications associated with leukemia to enable early diagnosis, timely and prompt referral for subsequent management.

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