CASE REPORT

Aplastic anemia presenting as bleeding of gingiva: Case report and dental considerations

Arpita Rai a,*, Vanita Vaishali b, Venkatesh G. Naikmasur c,1, Ansl Kumar d, Atul Sattur c

a Department of Oral Medicine and Radiology, Faculty of Dentistry, Jamia Millia Islamia, New Delhi 110025, India
b College of Dental Sciences and Hospital, Indore, India
c Department of Oral Medicine and Radiology, S.D.M. College of Dental Sciences & Hospital, Dharwad, Karnataka 580 009, India
d Dr. RML PGIMER Hospital, New Delhi, India

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Abstract The article describes a case of aplastic anemia in a 44-year-old male patient which presented as spontaneous bleeding of gums. Though bleeding of gums is a very common complaint encountered in a dental clinic, bleeding of gums due to systemic causes is an infrequent finding. Patient from blood dyscrasias may present in a dental office with bleeding of gums as sole or the first complaint. The acknowledgment of the patients underlying condition is the responsibility of the dentist for pertinent referral and further management.

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1. Introduction

Aplastic anemia is a serious and often fatal hematologic disorder characterized by hypoplastic bone marrow and peripheral pancytopenia. Aplastic anemia is a rare, non contagious and potentially life threatening disorder caused by destruction of pluripotent stem cells in the bone marrow with an annual incidence of 2 to 6/1,000,000.1 In contrast to the term ‘aplastic anemia’, suggesting suppression of erythropoietic cell lines, all cell lines may be affected in this disorder.2 Depending on affected cell lines, aplastic anemia is associated with not only fatigue, but also bleeding due to thrombocytopenia and recurrent infections due to neutropenia.3 The diagnosis ‘aplastic anemia’ is confirmed by hypocellularity of the bone marrow. The remaining cells are morphologically unaffected without malignant infiltration.

Aplastic anemia is classified as acquired or congenital. The congenital type is rare and usually associated with Fanconi’s anemia and dyskeratosis congenita.4 In more than 50% of the acquired cases of aplastic anemia, the cause is unknown. Potential triggers for the onset of aplastic anemia include T-cell mediated auto-immune disease, iatrogenic agents, viral infection and pregnancy.1 This notion is supported by the similar incidence of aplastic anemia in men and women.1 It
is more common in Asian countries than in the United States and Europe with about 6000–7000 new diagnosis reported annually worldwide. It can appear at any age but is most commonly diagnosed in children aged 2–5 years, young adults between 20 and 25 years and adults aged 55–60 years.\(^5\)

A wide array of disorders of red cells and hemostasis encountered in internal medicine has manifestations in the oral cavity and the facial region. These manifestations must be properly recognized if the patient must receive appropriate diagnosis and referral for treatment. Though bleeding of gums is a very common complaint encountered in a dental clinic, bleeding of gums due to systemic causes is an infrequent finding. Patients from blood dyscrasias may present in a dental office with bleeding of gums as the sole or the first complaint. Acknowledgment of the patients underlying condition is the responsibility of the dentist for pertinent referral and further management.

2. Case report

A 44-year-old patient reported to the Department of Oral Medicine and Radiology with complaints of bleeding of gums for the duration of 1 month. Bleeding of gums was spontaneous and continuous. Greater frequency of bleeding was noticed in the early mornings. Bleeding occurred from all quadrants of the mouth and the patient reported that about one cup of blood per day was oozing from the gums. The patient reported a negative history of rectal bleeding, hemoptysis or hematemesis. The patient had visited a local physician 20 days back and had been prescribed antibiotics (metronidazole, albendazole), vitamin C supplement and a multivitamin. He also gave a history of acid peptic disease for the past 25 years. Patient reported a history of easy bruising and reported ecchymosis and petechiae on arms, legs and buttocks. On examination, extreme pallor of lower palpebral conjunctiva (Fig. 1), nail beds (Fig. 2) and palms was evident. Ecchymotic patches were present on the left lower limb, right arm and dorsogluteal region bilaterally. Intra oral examination revealed generalized pallor of the oral mucosa. There was presence of multiple hematomas on the oral mucosa, one on the right buccal mucosa (Fig. 3), two on the left buccal mucosa and two on the upper labial mucosa (Fig. 4). The hematomas were bluish red, approximately 2–3 mm in size and non-tender. The tongue showed pallor and three hematomas were present on the dorsal surface (Fig. 5). Pallor of hard and soft palate was marked. Generalized gingival recession was evident with oozing of blood from the gingiva which was more evident in the lower anterior region (Fig. 6). There was collection of blood in the lower vestibule. On manipulation, there was accentuated bleeding of gingiva (Fig. 7).

Panoramic radiograph revealed generalized extensive alveolar bone loss. Hemogram of the patient revealed pancytopenia with RBC count of 1.92 millions/mm\(^3\) and hemoglobin was 6.6 gm%. Total leukocyte count was 1100 cells/mm\(^3\) (P–40%, L–60%, M–0%, E–0%, B–0%). ESR was raised to 92 mm in the 1st hour. Bleeding time was more than 15 min, though the Clotting time was 4.30 min. Platelet count had reduced to 19,000 cells/mm\(^3\). The peripheral smears revealed anisopoikilocytosis in relation to red blood cells. There was reduction in the number of white blood cells with a shift to the left. There was also a reduction in the number of platelets.
Bone marrow aspiration cytology was advised to the patient which revealed bone marrow aplasia (Fig. 8). The diagnosis of aplastic anemia was established and the patient was referred to a higher center for further investigation and management.

Oral hygiene instructions were given to the patient. The patient was also advised to use tranexamic acid mouthwash to control spontaneous gingival bleeding. Further management of chronic periodontitis was synchronized with platelet transfusions received by the patient.

3. Discussion

Aplastic anemia is a rare hematologic disease characterized by a hypoplastic bone marrow and peripheral pancytopenia. A pancytopenia is diagnosed when two of three criteria are met: a neutrophil count of less than $0.5 \times 10^9$ cells/L, a platelet count less than $20 \times 10^9$ cells/L and a reticulocyte count less than 1%. When the neutrophil count is less than $0.2 \times 10^9$, the disease is then characterized as severe.4

Oral manifestations are common in patients with aplastic anemia and are directly associated with pancytopenia. These manifestations include petechial hemorrhages, gingival swelling and spontaneous bleeding, ulceration, pallor and severe periodontal disease.4,6–8 Gingivitis and periodontitis have been reported in 36.36% of the patients with Fanconi’s anemia which is not associated with the lower platelet count but is attributed to poor oral hygiene.9 Cases of advanced or rapidly progressive periodontitis have been reported to occur with prolonged neutropenia and may be due to several qualitative and quantitative neutrophil defects, including neutropenia, agranulocytosis and leukocyte adhesion deficiency.5 In addition, thrombocytopenia can induce compromised clotting, so surgical intervention should be delayed until the patient is controlled with platelet administration.4 Gingival bleeding is another common manifestation associated with decreased platelet level seen in aplastic anemia patients.7 Oral traumatic and petechial hemorrhagic lesions have been associated with the decreased platelet level.8 Brennan6 describes the risk factors associated with oral manifestations of aplastic anemia and suggests that the level of thrombocytopenia is not necessarily indicative of the degree of petechial hemorrhaging. These lesions most likely result from the thrombocytopenia-induced clotting disorder, which causes excessive bleeding after minor trauma associated with normal oral functioning.

In patients first choice therapy for aplastic anemia is allogenic stem cell transplantation with a 5-year survival of 70–80%.10 Graft rejection and graft-versus host disease remain serious risks, but can be contained by careful patient management. A supportive therapy with erythrocyte and platelet transfusions is a widely used, reasonable alternative. The benefit of transfusions to prevent bleeding should be weighed against the likelihood of developing HLA antibodies and hemochromatosis.11 In case the patient responds insufficiently to supportive therapy, immune-modulating treatment based on a short course of anti-thymocyte globulin or anti-lymphocyte globulin and several months of cyclosporin to modulate the patient’s immune response may be tried. The prognosis of the immune-modulating treatment is relatively high, with 5-year survival rates of up to 75%.12

Little research has been published about gingival bleeding in aplastic anemia. In fact, only case reports and series with small sample sizes are available. The present case exemplifies the role of the oral physician in diagnosing one of the critical
conditions like aplastic anemia through its oral manifestation. Any signs of excessive bleeding, or a poor response to the standard treatment of infections and oral ulcerations, should be investigated to rule out a possibility of pancytopenia. Correlation of the oral presentation of spontaneous and remarkable gingival bleeding with intra-oral hematomas, ecchymotic patches elsewhere in the body and severe pallor led to the suspicion of pancytopenia. Further investigations in the form of hemogram and bone marrow aspiration cytology confirmed the diagnosis of aplastic anemia. Early referral of the patient for specialized care will undoubtedly be of considerable value to the patient in the management of this potentially fatal disease.

Dental management of patients of aplastic anemia requires interdisciplinary care with the consultation of the treating dentist with hematologist. It is advisable to perform dental treatment on the day of platelet transfusion. To reduce the risk of uncontrolled bleeding during major dental treatments, the patients should take antifibrinolytics. These agents may decrease bleeding, particularly oral mucosal bleeding, in patients with thrombocytopenia by stabilization of thrombi. Jones et al have reported a case of idiopathic aplastic anemia which was treated with a combination of modalities including initial platelet transfusion, oral hygiene instruction, dental prophylaxis and systemic aminocaproic acid. Patients with aplastic anemia are more susceptible to infection; therefore, dental treatment should be postponed until the patient’s white blood cell count rises to a normal level. Dentists should consider prescribing antibacterial mouthwash and oral antibiotics before dental procedures. Since chronic periodontitis is a focus of infection and considered a potential risk for systemic infection in patients with aplastic anemia, it would be prudent to treat this condition in consultation with a hematologist.

Conflict of interest

None.

References