

Gingival Bleeding - Systemic Causes

Dr. E.Rajes, Dr T. Alamelu Mangai, Dr.N.Aravindha Babu, Dr. L.Malathi

*Department of Oral Pathology and Microbiology,
Sree Balaji Dental College and Hospital, Chennai.
Bharath Institute of Higher Education and Research.*

ABSTRACT:

Gingival bleeding is a common, mild form of gum disease. It is a primary sign of gingival disease such as gingival inflammation or Gingivitis is caused by accumulation of plaque at the gum line. Gingiva becomes swollen, reddish and irritable to the patient due to plaque accumulation. Plaque which is not removed will harden into tartar. This will lead to severe advanced gum disease and its progresses to periodontitis and finally tooth loss. Bleeding gums or Gingival Bleeding can cause discomfort to the patient both physically and mentally. Every dentist must know the underlying causes of gingival bleeding based on both local and systemic factors. This article aims to discuss the systemic causes of GINGIVAL BLEEDING.

KEYWORDS: *Gingival bleeding, Gingivitis, Bleeding gums, plaque, Gingival inflammation*

INTRODUCTION:

Gingival bleeding is a primary symptom of gingival disease. The other systems are redness, inflammation of the gingiva, pain and difficulty in chewing. Primarily accumulation of plaque at the gum line is the cause for gingival bleeding. It will lead to Gum inflammation called gingivitis or inflamed gingiva. Bleeding on probing clinically is easily detectable and therefore of great value for the early diagnosis and prevention of more advanced Gingivitis¹. Bleeding gums appear earlier than change in color or any other visual signs of inflammation². Gingival bleeding on probing indicates an inflammatory lesion both in the epithelium and in the connective tissue. Bleeding may occur on a periodontium with no attachment loss or on a periodontium with attachment loss that is stable and not progressing³. Gingival bleeding may be caused by local and systemic factors.

LOCAL

Gingivitis
Periodontitis
Improper use of floss
Vigorous brushing
Poor oral hygiene
Decayed tooth

SYSTEMIC

Drug induced bleeding
Diabetic Mellitus
Pregnancy
vitamin-k deficiency
vitamin -c deficiency
Leukemia
Von willibrands disease
Platelet disorder
Aplastic anemia

I LOCAL FACTORS:

1) Chronic and recurrent bleeding :

The most common cause of abnormal gingival bleeding is chronic inflammation⁴. The bleeding is chronic or recurrent and it is caused by mechanical trauma (tooth brushing, food impaction, biting solid foodsetc)

2) Acute Bleeding :

Acute episodes of bleeding occur spontaneously caused by acute gingival disease.

II SYSTEMIC FACTORS:

1) DRUG INDUCED GINGIVAL BLEEDING :

Drugs such as antiplatelet medications (e.g. Aspirin) or anticoagulants (e.g. Warfarin) that are prescribed for certain medical conditions also increase the bleeding tendencies of gingival tissues. Women taking oral contraceptives are significantly more prone to gingivitis and therefore to gingival bleeding³.

2) DIABETIC MELLITUS :

Diabetic mellitus is a metabolic disorder characterized by deficiency of Insulin. Consists of 2 types. Type 1 – Insulin dependent diabetes, Type 2- Non insulin dependent diabetes. Gingival bleeding is caused by increased blood sugar level. The impact of glycosylation of membrane protein basement membranes thickens and it will cause thickening of blood capillaries leading to defect in oxygen diffusion to gingival^{5,6}. Author witzum suggested free oxygen radicals lead to tissue destruction and increase the gingival inflammation⁷. The high blood glucose level in GCF (Gingival crevicular fluid) alters the plaque microbial flora and increases the gingival bleeding⁸.

3) PREGNANCY:

Gingival bleeding at the time of pregnancy due to fluctuating estrogen and progesterone levels on the periodontium start as early as puberty⁹. Gingival bleeding characterized by mild to severe levels along with inflammation, pain and hyperplasia. Most times it will resolve automatically after delivery, when the hormonal levels return to normal.

4) VITAMIN –K DEFICIENCY :

Vit-k is required for the production of blood clotting factors, and essential for coagulation. Deficiency of vit-k leads to lack of active prothrombin in the circulation. The result is that blood coagulation is adversely affected. Vit-k deficiency can lead to gum bleeding, nose bleeding and increased clotting time. Normal value being 90- 120 mg¹⁰.

5) VITAMIN –C DEFICIENCY (SCURVY):

Vitamin –c is required for collagen production, maintenance of normal connective tissue and wound healing process. Severe deficiency of vit -c causes bleeding gums, spongy or sore gums, loose teeth, delayed wound healing process. Due to the impairment in the synthesis of collagen, and antioxidant property of vit –c leads to delayed wound healing. Normal value is 75 –125 mg¹⁰.

6) LEUKEMIA:

The Leukemia is a malignant neoplasm of the hematopoietic stem cells characterized by diffused replacement of the bone marrow by neoplastic cells¹¹. The abnormal leukemic cells disseminate into peripheral blood, so the blood cell count increases. Leukemia is the primary disorder of the bone marrow. The depression of normal bone marrow function leads to anemia, fever, fatigue and repeated infection (due to absence of matured leukocytes.) can easily occur. Bleeding becomes (petechiae, ecchymoses, epistaxis, gum bleeding) secondary to

thrombocytopenia due to platelet level. Leukemic cells can directly affect the lymph nodes, central nervous system and gingiva¹¹.

7) VON –WILLIBRANDS DISEASE: (VWD)

It is the hereditary blood clotting disorder characterized by spontaneous bleeding from mucous membranes, excessive bleeding from wounds, menorrhagia and prolonged bleeding time in the presence of normal platelet count¹¹. In case of severe deficiency continuous bleeding and post operative bleeding after tooth removal can occur. Platelet or bleeding disorders can alter the normal homeostasis mechanism that induced bleeding. Deposition of blood products can attach to the teeth surfaces and turn the tooth into brown color because of continuous gingival bleeding for a longtime¹². In hemophilic patients (Factor VIII and IX) 64% gingival bleeding occurs when compared to other oral sites¹².



Spontaneous Bleeding in Hemophilic patients.

Spontaneous bleeding and clot Formation in von Willibrand disease

(Ref : Clinical Periodontology – Carranza)

8) PLATELET DISORDERS: THROMBOCYTOPENIC PURPURA:

Thrombocytopenic purpura characterized by a low platelet count, a prolonged clot retraction and bleeding time, normal or slightly prolonged clotting time. There is spontaneous bleeding into the skin or from mucous membranes. Small tiny blood clots and hemorrhagic vesicles occur in the oral cavity. Gingiva is swollen, soft, friable and gingival bleeding occurs spontaneously. Removal of local irritants can reduce the severity of gingival bleeding¹.

9) APLASTIC ANEMIA:

It is a hematological disorder, rare type, applied to pancytopenia characterized by 1) anemia 2) Neutropenia 3) Thrombocytopenia . If the neutrophil counts less than 0.2×10^9 , then it is considered as severe form of Aplastic anemia¹³.

Orally spontaneous gingival bleeding due to decreased platelet level, severe periodontal diseases, pallor, and oral ulceration are found¹⁴. Before treating the patient in dental clinics one must consult with hematologist and be advised to do the treatment on the day of platelet infusion¹⁵. In the uncontrolled bleeding patient the patient should take antifibrinolytics before the procedure is begun. It will reduce the bleeding especially mucosal bleeding. Aplastic anemia leads to many infections so one must postpone the dental treatment until the patient reaches normal blood cell count and must prescribe proper antibiotics prior to the treatment.



Oozing of blood from the
gingival sulcus.

Accentuated bleeding from gingiva on
Manipulation

[Ref --- Arpita Rai, Vanita Vaishali, Venkatesh G. Naikmasur, Ansul Kumar, Atul Sattur Aplastic anemia presenting as bleeding of gingiva: Case report and dental considerations
PII: S2352-0035(15)00016-7 DOI: 10.1016/j.sjdr.2015.04.004 Reference: SJDR 49]

CONCLUSION:

GINGIVAL BLEEDING is a common clinical finding in gingival diseases. Bleeding gums due to local causes (plaque induced gingival bleeding) is common. As discussed above, systemic factors also induce gingival bleeding. It is the earliest symptom of all systemic diseases. Oral health care providers should be aware of knowing the oral manifestations of all systemic disorders. Especially masters in oral pathology have to find out the early symptoms and diagnosis of the oral bleeding. It is essential to know about the local and systemic causes of gingival bleeding and must refer the patient to hematologist for further investigation and treatment.

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