

Gingival Bleeding

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ABSTRACT:

Gingival bleeding is the first clinical sign of periodontal disease. This clinical sign indicates the beginning of the destructive process involving the supporting tissues around the tooth or some serious systemic problems. There are various causes for gingival bleeding. The main factor responsible for gingival bleeding is the formation and accumulation of plaque due to improper oral hygiene. There are various systemic factors (Diabetes, hypertension, blood disorders, hormonal imbalances & nutritional deficiencies) and other local factors responsible for gingival bleeding. The examination of bleeding of gums is done by using a periodontal probe. The evaluation of the gingival health is assessed by calculating the number of bleeding sites which is recorded using the gingival bleeding index score. This condition can be controlled by following proper oral hygiene measures, regular dental check-ups and treating the root cause of the bleeding (both systemic and local factors).

KEY WORDS:

Gingival bleeding, periodontal diseases, oral hygiene practices, gingival bleeding index, periodontal probe.

INTRODUCTION:

Bleeding gums is one of the most common condition affecting the oral cavity. The Chinese noticed bleeding gums as early as 2500 BC. They termed the associated diseases as “**Ya-Kon**” meaning diseases of the soft tissue surrounding the teeth. Bleeding gums indicates a slowly progressing disease of the gums, which may further involve the bone supporting the teeth and result in tooth loss.

What Is Gingival Bleeding?

Bleeding gums as the name suggests is the bleeding from gums spontaneously or on any mild trauma. Bleeding gums are the most common symptom of gum disease and also point to other health problems. It indicates the beginning of a destructive process involving the supporting tissue around the tooth or some serious underlying systemic problems.

Causes Of Gingival Bleeding:

- ▶ Plaque accumulation is the major cause of bleeding gums due to poor oral hygiene like no proper brushing and other oral hygiene practices.
- ▶ Tobacco use
- ▶ Vitamin K or Vitamin C deficiency
- ▶ Stress
- ▶ Use of blood thinners
- ▶ Any bleeding or clotting disorders
- ▶ Diabetes or any hereditary conditions
- ▶ Hormonal changes
- ▶ Infection
- ▶ Mouth sores
- ▶ Dentures that don't fit.

Signs And Symptoms:

- ▶ The gingiva becomes soft, swollen and spongy.
- ▶ The bleeding is noticed mainly while brushing the teeth, in saliva or while spitting.
- ▶ Eating of any coarse food items will induce bleeding of gums.
- ▶ Bleeding of gums may occur with or without pain.
- ▶ If present also it will be a dull pain.
- ▶ Bad breath will be there.

Gingival Bleeding On Probing:

The two earliest signs of gingival inflammation preceding established gingivitis are

- A. Increased gingival crevicular fluid production rate
- B. Bleeding from the gingival sulcus on gentle probing

Gingival bleeding varies in severity, duration, and ease of provocation. Bleeding on probing is easily detected clinically. It is of value for the early diagnosis and prevention of advanced gingivitis. Bleeding on probing appears earlier than a change in color or other visual signs of inflammation. The use of bleeding rather than color change to diagnose early gingival inflammation is advantageous in that bleeding is a more objective sign that requires less subjective estimation by the examiner. Gingival bleeding on probing indicates an inflammatory lesion both in epithelium and in the connective tissue that exhibits specific histological differences compared with healthy gingiva. (6)

Gingival Bleeding As Risk Markers / Predictors:

Bleeding on probing is the best clinical indicator of gingival inflammation. Although this indicator alone does not serve as a predictor for loss of attachment, bleeding on probing coupled with increasing pocket depth may serve as an excellent predictor for future loss of attachment. Lack of bleeding on probing does appear to serve as an excellent indicator of periodontal health. (7).

Gingival Bleeding In Diagnosis:

The insertion of a probe to the bottom of the pocket elicits bleeding if the gingiva is inflamed and the pocket epithelium is atrophic or ulcerated. Non-inflamed sites rarely bleed. Bleeding on probing is an earlier sign of inflammation than gingival color changes. If periodontal treatment is successful then bleeding on probing will cease. To test for bleeding after probing, the probe is carefully introduced to the bottom of the pocket and gently moved laterally along the pocket wall. Sometimes bleeding appears immediately after removal of the probe, other times it may be delayed for few seconds. The clinician should recheck for bleeding 30 to 60 seconds after probing.

When To Probe?

Probing is done at various times for diagnosis and for monitoring the course of treatment and maintenance. The initial probing of moderate or advanced cases is hampered by the presence of heavy inflammation and abundant calculus and cannot be done very accurately. Probing at this stage is also difficult as the result of the discomfort and pain that occurs when the gingival tissues are inflamed. The purpose of this initial probing, together with the clinical and radiographic examination, is done to determine whether the tooth can be saved or should be extracted. The purpose of the second probing is to accurately establish the level of attachment and degree of involvement of roots and furcation. Later in periodontal treatment, probings are done to determine changes in pocket depth and to ascertain healing progress after different procedures.

Gingival Bleeding In Smoking And Necrotizing Ulcerative Gingivitis:

Smoking:

Numerous studies show that current **cigarette smoking suppresses the gingival inflammatory response**, and smoking was found to exert strong, chronic, dose – dependent suppressive effect on gingival bleeding on probing in the third National health and Nutrition Examination Survey (NHANES III). It also reveals that an **increase in gingival bleeding on probing in patients who quit smoking.** (4)

Necrotizing Ulcerative Gingivitis:

Oral characteristic lesions are punched-out, crater-like, depressions at the crest of the interdental papilla, subsequently extending to the marginal gingiva and rarely to attached gingiva and oral mucosa. The surface of the gingival craters is covered by gray pseudomembranous slough, demarcated from the remainder of the gingival mucosa by a pronounced linear erythema. **Spontaneous gingival hemorrhage or pronounced bleeding after the slightest stimulation** are additional characteristic. (5)

Local Factors Associated With Gingival Bleeding:

The local contributing factors to plaque retention that may lead to gingivitis include anatomic and developmental tooth variations like

- ❖ Caries
- ❖ Frenum pull
- ❖ Iatrogenic factors
- ❖ Malpositioned teeth

- ❖ Mouth breathing
- ❖ Overhangs
- ❖ Partial dentures
- ❖ Lack of attached gingiva
- ❖ Recession
- ❖ Orthodontic treatment and fixed retainers

Types Of Gingival Bleeding – Chronic And Recurrent:

The most common cause of abnormal gingival bleeding on probing is chronic inflammation. The bleeding is chronic or recurrent and is provoked by mechanical trauma (eg. From tooth brushing, toothpicks or food impaction) or by biting solid foods such as apples (1). The severity of bleeding and the ease of provocation depend on the intensity of the inflammation. After the vessels are damaged and ruptured, interrelated mechanisms induce hemostasis. The vessel wall contracts, blood flow diminishes, blood platelets adhere to the edges of the tissues and a fibrous clot is formed, which contracts and results in approximation of the edges of the injured area. Bleeding recurs when the area is irritated. In moderate or advanced periodontitis, the presence of bleeding is considered a sign of active tissue destruction. Acute episodes of gingival bleeding are caused by injury and can occur spontaneously in gingival disease. Laceration of the gingiva by toothbrush bristles during aggressive tooth brushing or by sharp pieces of hard food can cause gingival bleeding even in the absence of gingival disease. Gingival burns from hot foods or chemicals increase the ease of gingival bleeding. Spontaneous bleeding or bleeding on slight provocation can occur in acute necrotizing ulcerative gingivitis. In this condition, engorged blood vessels in the inflamed connective tissue are exposed by ulceration of necrotic surface epithelium.

Systemic Factors Associated With Gingival Bleeding:

In some systemic disorders, gingival hemorrhage occurs spontaneously or after irritation and is excessive and difficult to control. These hemorrhagic diseases represent a wide variety of conditions that vary in etiologic factors and clinical manifestations.

▶ **Hemorrhagic Disorders:** In which abnormal bleeding is encountered include

- ❖ Vascular abnormalities (vitamin C deficiency or allergy),
- ❖ Platelet disorders (thrombocytopenic purpura), (2)
- ❖ Hypothrombopenia (vitamin K deficiency),
- ❖ Other coagulation defects (hemophilia, leukemia, Christmas disease),
- ❖ Deficient platelet thromboplastic factor (PF3) resulting in uremia,
- ❖ Multiple myeloma,
- ❖ Postrubellapurpura.

▶ **Hormones:**

- ❖ The effects of hormonal therapy, oral contraceptives, pregnancy and the menstrual cycle are also reported to affect gingival bleeding.
- ❖ Changes in androgenic hormones have long been established as significant modifying factors in gingivitis, especially among adolescents.
- ❖ There are some notable effects of fluctuating estrogen/progesterone levels on the periodontium starting as early as puberty.

▶ **Diabetes:**

- ❖ Among pathologic endocrine changes, diabetes is an endocrine condition with a well-characterized effect on gingivitis.
- ❖ There is marked inflammation that affects both the epithelial and connective tissues, which leads to degeneration of the dermal papilla, increase in number of inflammatory cells, destruction of reticulin fibers, and accumulation of dense collagen fibers that causes fibrosis. (3)

▶ **Medications:**

- ❖ Some medications have also been found to have adverse effects on gingiva.
- ❖ For example, it is important to consider aspirin's effect on bleeding during a routine dental examination to avoid false-positive readings.

TREATMENT:

- ▶ Applying pressure
- ▶ Proper dental hygiene
- ▶ Vitamin supplements
- ▶ Dentures only during meals
- ▶ Brush twice daily with soft tooth brush
- ▶ Regular dental check-up.
- ▶ Rinse mouth with salt and warm water or hydrogen peroxide and water.

Gingival Bleeding Index (Ainamo And Bay 1975):

- ▶ Gingival bleeding index is based on the recordings from all four tooth surfaces of all teeth.
- ▶ Recorded as 1. Bleeding present (+)
2. Bleeding absent (-)
- ▶ The minus sign indicates the gingival score of 0-1
- ▶ The plus sign indicates the gingival score of 2-3
- ▶ It is useful for routine basis in individual patients and in experimental studies.

Sulcus Bleeding Index (Muhlemann H.R And Sons 1971):

Scoring Criteria:

- ▶ Score 0 – Healthy looking papillary and marginal gingiva, no bleeding on probing.
- ▶ Score 1 – Healthy looking gingiva, bleeding on probing present.
- ▶ Score 2 – Bleeding on probing, Change in color, no edema.
- ▶ Score 3 – Bleeding on probing, change in color, slight edema.
- ▶ Score 4 – Bleeding on probing, change in color, obvious edema.
- ▶ Score 5 – Spontaneous bleeding on probing, change in color, marked edema.

Four gingival units are scored systematically for each tooth: the labial and lingual marginal gingival units and mesial and distal papillary gingival units. Scores from these units are added and divided by four gives the sulcus bleeding index.

Modified Sulcus Bleeding Index (Mombelli, Van Oosten Et.Al 1987):

Scoring Criteria:

- ▶ Score 0 – No bleeding when probe is passed along the gingival margin.
- ▶ Score 1 – Isolated bleeding, spots present.
- ▶ Score 2 – Blood forms a confluent red line on margins.
- ▶ Score 3 – Heavy or profuse bleeding.

CONCLUSION:

Gingival bleeding is the first risk indicator of future periodontal disease. Bleeding is caused due to various factors both local and systemic. Early diagnosis and treatment is necessary for reducing the severity of periodontal disease. There are indices to grade the severity of the bleeding and proceed the treatment accordingly. This bleeding of gums can be treated by proper oral hygiene methods and regular dental visits. Knowing the root cause of this bleeding and finding the cure is necessary.

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