

Clinical Investigation of Patients with Oral Hematoma and Anemia Linked to Symptoms of Indigestion: A Case Report

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Background: Oral cavity is the gateway to the digestive system and a window to general human health. Anemia is one of the health problems in the world characterized by various clinical conditions, including in the oral cavity.

Purpose: This case report aims to present the results of a clinical investigation of a patient who had oral hematoma and anemia with indigestion symptoms.

Case Presentation: A 59-year-old male complained of a lump on his tongue two months prior, which was painless and frequently bleeding. The complaint was followed by abdominal discomfort, difficulty defecating, weight loss, and decreased appetite. The patient only ate porridge and lacked water intake. Intraoral examination showed a blackish-red, irregularly shaped, painless hematoma on the dorsum of the tongue and a negative diascopy test. Hematology examination showed anemia with hemoglobin 6.7g/dL, hematocrit 21.4%, erythrocytes $3.08 \times 10^6/\mu\text{L}$, MCV 69.5fL, MCH 21.8pg, and MCHC 31.3g/dL. The diagnosis of the tongue lesion was an oral hematoma.

Case Management: Pharmacologic therapy included antifibrinolytic agents and hematinic supplementation. Non-pharmacologic therapy included dental health education, a balanced lifestyle, and avoiding triggers for tongue bleeding. Management in other fields was also carried out in parallel, including oral surgery and internal medicine. The general condition of the patient general condition improved through multidisciplinary monitoring.

Conclusion: Clinical investigations that include signs and symptoms of disease in a patient with bleeding disorders such as hematoma and anemia need to be carried out in detailed aid examinations, especially if other symptoms are found, such as digestive disorders.

Keywords: anemia, bleeding, hematoma, indigestion, oral

Introduction

The impact of oral health on overall health emerged in 1989, and since then, it has been described as a window into a person's general health.¹ The oral cavity is the most important connection between the human body and the external environment, and it also serves to protect the body from pathogen invasion.² Various tissues of the oral cavity, including the lips, tongue, gingiva, mucosal surfaces, teeth, and bone are involved in presenting disease states.³

Anemia is a condition in which the hemoglobin concentration and/or red blood cell count is lower than normal and thus insufficient to meet a person's physiological needs. Anemia affects one-third of the world's population and contributes to increased morbidity and mortality, decreased work productivity, and impaired neurodevelopment.⁴ Based on the Household Health Survey, the prevalence of anemia among Indonesians is around 40.1%; according to Basic Health Research data in 2018, the prevalence of anemia among adolescents in Indonesia is 32%.⁵ The most frequent clinical manifestation of anemia is hematinic deficiency, such as iron, vitamin B12, and folate. Hematinic deficiencies can be due to dietary or gastrointestinal factors, as well as iron loss due to heavy or chronic bleeding.⁶⁻⁸

Gastrointestinal symptoms are very common, but many individuals have no explanation for their causation. The spectrum of symptoms caused by the gastrointestinal tract includes abdominal pain, diarrhea, constipation, bloating, decreased appetite, weight loss, nausea, and vomiting.⁹ Unwanted weight loss is a frequent phenomenon, especially in the elderly, and can be caused by various pathophysiology, socioeconomic factors, and mental health. One of the factors associated with weight loss is poor oral health. Decreased appetite in the elderly may result from reduced food and nutrient intake and changes in food preferences.¹⁰

The oral cavity exists as a highly dynamic microbial environment with different substrates and microenvironments to host diverse microbial communities. The composition of the oral microbiome is shaped throughout life by factors that include host genetics and maternal transmission, as well as by environmental factors, such as dietary habits, oral hygiene practices, medications, and systemic factors. This dynamic ecosystem presents opportunities for oral microbial dysbiosis and the development of dental and periodontal diseases. Poor oral health, in particular, periodontal disease has been linked to diabetes, metabolic syndrome, eating disorders, Alzheimer's disease, obesity, cardiovascular disease, liver disease, rheumatoid arthritis, poor pregnancy outcomes, and cancer.¹¹

Oral examination can reveal signs and symptoms of immunologic diseases, endocrinopathies, gastrointestinal and hematologic conditions, systemic infections, and nutritional disorders. A thorough clinical investigation should include an assessment of mucosal changes, periodontal inflammation, bleeding, and the condition of the dentition. Identification of these oral findings can enable early diagnosis and treatment of a disease.³ This case report aims to present the outcome of clinical investigations in a patient who presented with oral hematoma and anemia with symptoms of gastrointestinal distress.

Case Presentation

A 60-year-old man who came to the Padjadjaran University Dental Hospital complained of a lump on the tongue two months prior, which was painless and often accompanied by bleeding when consuming acidic foods or drinks. The complaint was followed by abdominal discomfort, difficulty defecating, weight loss, and decreased appetite. The patient had eaten only porridge and lacked water intake for the past two months. The general condition of the patient at the first visit appeared weak and pale with normal vital signs.

Extraoral examination revealed anemic conjunctiva and icteric sclera. Intraoral examination showed multiple and branching fissures on the median dorsum of the tongue; multiple depapillation scattered on the anterior third of the tongue dorsum surface resembling islands with hyperkeratotic edges; and hematoma on the posterior one-third of the tongue dorsum, blackish red in color, irregular shape, negative diascopy test (Figure 1). The diagnoses of tongue lesions

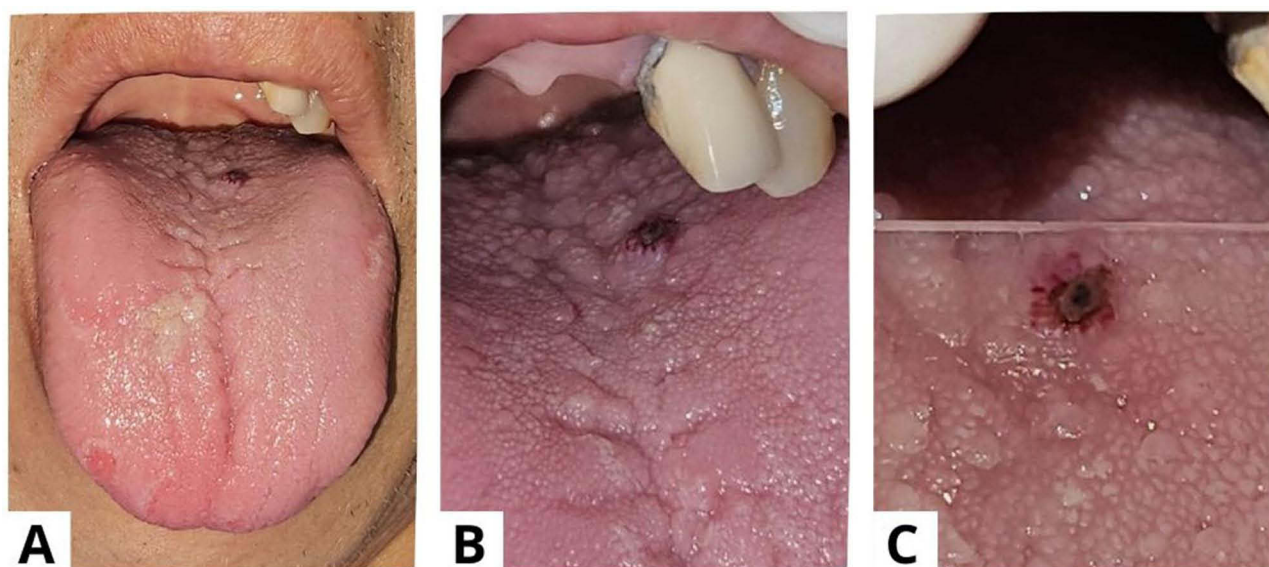


Figure 1 Fissured tongue and geographic tongue on tongue dorsum (A); blackish-red hematoma lesion with irregular shape (B); negative diascopy test (C).

Table 1 Hematology Examination Result

Parameter	Result	Reference	Value
Routine hematology			
Hemoglobin	6.7 ^L	13.2–17.3	g/dL
Hematocrit	21.4 ^L	40–52	%
Erythrocyte	3.08 ^L	4.4–5.9	10 ⁶ /μL
MCV	69.5 ^L	80–100	fL
MCH	21.8 ^L	26–34	pg
MCHC	31.3 ^L	32–36	g/dL
Platelets	382	150–440	10 ³ /μL
Leukocyte	12.0 ^L	3.8–10.6	10 ³ /μL
Immunoserology			
VDRL/RPR	Non-reactive	Non-reactive	IU/mL
TPHA	Non-reactive	Non-reactive	
Allergy			
Ig-E Total	14.7	< 150	KIU/L

Abbreviations: L, low; MCV, Mean corpuscular volume; MCH, Mean corpuscular hemoglobin; MCHC, Mean corpuscular hemoglobin concentration; VDRL, Venereal disease research laboratory; RPR, Rapid plasma reagin; TPHA, Treponema pallidum hemagglutination assay; Ig-E, Immunoglobulin-E.

were fissured tongue, geographic tongue, suspected syphilitic ulcer, suspected oral squamous cell carcinoma (OSCC), and suspected oral hematoma.

Referrals for routine hematology, Venereal Disease Research Laboratory (VDRL), Treponema Pallidum Hemagglutination Assay (TPHA), and total Immunoglobulin-E (Ig-E) were performed with results shown in Table 1. Serologic examination of VDRL, TPHA, and total Ig-E was conducted to exclude the differential diagnosis of bleeding lesions of the tongue. Based on the laboratory examination results, the diagnosis of bleeding lesions on the tongue was oral hematoma.

Case Management

Pharmacological therapy in the first visit included anti-fibrinolytic agents and hematinic supplements for one week, and non-pharmacological therapy consisted of instructions to maintain oral hygiene, a healthy lifestyle, and avoid trauma factors that trigger bleeding. Figure 2 illustrates the patient's management flow in the initial appointment. A referral to the internal medicine department and oral surgery were given to the patient for follow-up on tongue lesions.

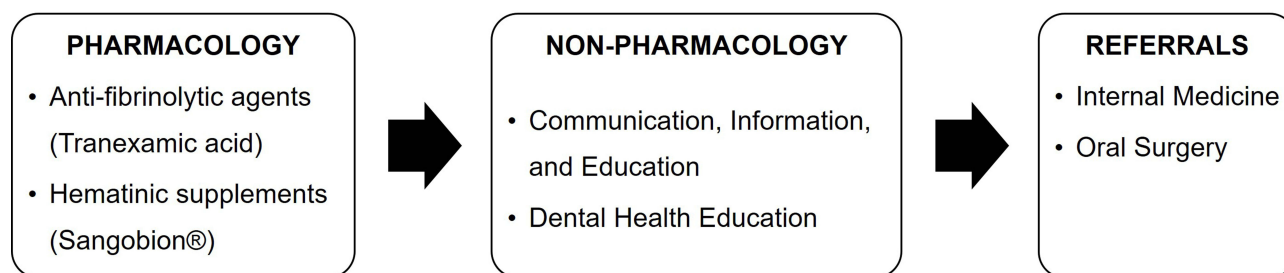


Figure 2 The case management flow consists of pharmacological therapy, non-pharmacological therapy, and referral.

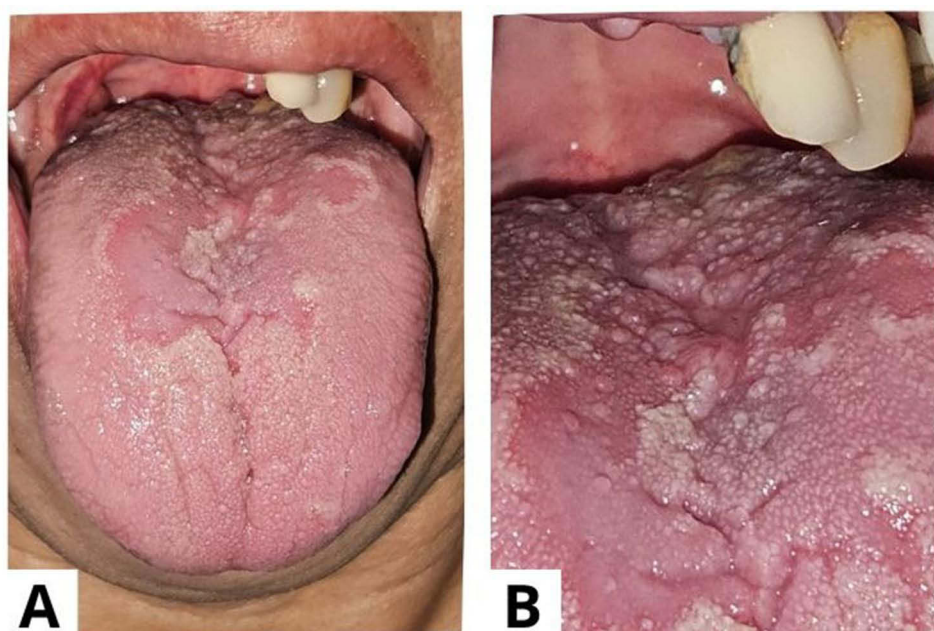


Figure 3 Fissured and geographic tongue on the dorsum of the tongue (A); healed oral hematoma (B).

Instructions to consult the internal medicine department were given, and the patient was immediately given a blood transfusion and scheduled for an excisional biopsy of the tongue lesion. The excision biopsy was performed by an oral surgeon to be analyzed by the anatomical pathology department. The results of the histopathological-anatomical examination showed sub-epithelial fibro collagenous connective tissue and muscular fibers with mononuclear and polymorphonuclear inflammatory cells so that the lesion was impressed as granulation tissue by nonspecific infection without signs of malignancy.

The tongue lesion improved during the follow-up appointment at the oral medicine department. The complaint of a lump on the tongue that bleeds easily has disappeared, and the patient is now more comfortable eating. Difficulty in defecation was no longer felt. A healthy lifestyle is implemented by regularly eating vegetables and drinking enough mineral water, but the patient consumes fruit and red meat infrequently. The general condition of the patient seems healthy and has experienced an increased body weight of five kilograms. Anemia condition has shown improvement, as shown by the patient being able to perform blood donation, with a hemoglobin value at that time of 12.8 g/dL.

Extraoral examination revealed non-anemic conjunctiva and icteric sclera. Intraoral examination still showed multiple and branching fissures on the median dorsum of the tongue, as well as a map-like appearance with filiform papillae atrophy (Figure 3). The oral hematoma was healed, and the diagnosis at this visit was a fissured tongue and geographic tongue.

Pharmacological therapy such as a folic acid supplement of 400 µg once a day and vitamin B12 twice a day were given at this visit as supportive therapy for geographic tongue lesions. Instructions to continue a balanced lifestyle and maintain oral hygiene were given as non-pharmacologic therapy. The patient was also educated about the condition of the fissured and geographic tongue is a normal variation of the oral cavity that is not dangerous.

Discussion

The oral cavity is described as a window into a general health that also serves as a gateway to the digestive system.^{1,12} The oral cavity and gut are anatomically adjacent regions that are connected via the gastrointestinal tract. Both parts are chemically connected as saliva and digested food pass through the digestive tract. The oral cavity as the gateway to the digestive tract is directly exposed to the external environment such as microorganisms, nutrients, and other xenobiotic

agents.¹³ Abnormalities in the oral cavity can cause serious functional restrictions, discomfort, and pain that lead to physical and psychological, or social disorders that significantly impact the patient's quality of life.¹⁴

Anemia is defined as a reduction in the absolute number of circulating red blood cells or a condition in which the number of red blood cells is insufficient for physiological needs.⁴ The prevalence of anemia is more prevalent in developing countries compared to developed countries. Africa and Southeast Asian countries are the most affected, with an estimate of about half being caused by iron deficiency.¹⁵ Anemia, at a biological level, develops due to an imbalance of erythrocyte production with erythrocyte loss; this can be caused by ineffective or deficient erythropoiesis (eg due to nutritional deficiencies, inflammation, or genetic disorders of hemoglobin) and/or excessive erythrocyte loss (due to hemolysis, blood loss, or both).⁴

A thorough examination of the oral cavity should include an assessment of mucosal changes, periodontal inflammation, bleeding, and the general condition of the dentition.³ Oral manifestations of anemia that are often found include pale oral mucosa, angular cheilitis, opportunistic infections, glossitis, oral purpura, and delayed wound healing.^{6–8} The intraoral examination of the case report patient showed oral hematoma on the dorsum of the tongue accompanied by geographic tongue or benign migratory glossitis and fissured tongue. Geographic tongue has no definite etiology, but some literature suggests an association with several systemic changes, including nutritional deficiencies, anemia, stress, and diabetes.¹⁶ Geographic tongue often presents together with a fissured tongue.¹⁷

Oral hematoma is a disorder of the oral cavity characterized by blood collection in the oral mucosal tissue. Oral hematoma often occurs due to trauma such as surgery, bite, biopsy, dental procedures, or bleeding disorders.^{18,19} Hematoma of the tongue is mostly traumatic or spontaneous which is associated with the use of thrombolytic agents or other anticoagulants. The tongue is a vascular-rich structure, mainly supplied from the branches of the lingual artery. Hematomas on the tongue can enlarge, and rapid progression may obstruct the airway as it continues to displace the tongue posteriorly and superiorly.¹⁹

Diascopy is a procedure where the lesion of a vascular abnormality is examined by applying gentle pressure to see the change in color of the lesion. Loss of color or the paleness of the tissue indicates that the reddish color is caused by blood contained in the blood vessels. This examination may support the clinical impression of benign vascular proliferation. In contrast, areas of recent bleeding will not be pale.²⁰ Diagnosis of hematoma is essentially based on clinical examination and investigation for the cause of bleeding. The history should include questions regarding trauma, dental procedures, and anticoagulants or other medications. A further investigation to exclude an underlying tumor should be done if no clear etiology has been found.¹⁸

A diascopy examination was performed on the hematoma lesion in this case, and the results were negative. Vascularization of a malignant character is often poorly established with extensive erythrocyte extravasation, so a negative diascopy should be correlated with a complete clinical picture.²⁰ The suspicion of OSCC was ruled out by screening with toluidine blue, which was negative, and there was an absence of signs of malignancy on histopathology. The underlying cause of the hematoma was not found though the patient had a history of right upper molar extraction before the appearance of the hematoma on the tongue.

The patient often experiences a history of bleeding in this case and lasts for a period of seconds to minutes. The recurrence of bleeding in the oral cavity for two months may increase the risk of anemia and decrease the quality of life of the patient. The diagnosis of anemia is most often based on low hemoglobin concentration or hematocrit. Still, anemia can also be diagnosed by red blood cell count, mean corpuscular volume (MCV) or the mean volume of blood cells, blood reticulocyte count, or hemoglobin electrophoresis.⁴ The diagnosis of anemia in this case was made based on laboratory results that showed hemoglobin, hematocrit, red blood cell count, MCV, mean corpuscular hemoglobin/MCH, and mean corpuscular hemoglobin concentration/MCHC values were below normal.

A clear understanding of the relationship between oral health and the digestive system is important for screening for undiagnosed conditions and their management.⁷ Signs and symptoms of digestive disorders include abdominal pain, diarrhea, constipation, bloating, decreased appetite, weight loss, nausea, and vomiting.⁹ Poor appetite can be a causal pathway between oral health and weight loss. The patient, in this case, showed symptoms of abdominal discomfort, difficulty defecating, decreased appetite, and weight loss since the presence of complaints in the oral cavity. Several studies have suggested that poor oral health, including wearing dentures, poor oral hygiene, and oral dryness, are associated with loss of appetite.¹⁰

The patient experienced a change in food preference, consuming only porridge as they worried that other foods could cause bleeding. Food is digested slowly through the gastrointestinal tract, and the intestine functions to assimilate

calories and nutrients essential for the formation and maintenance of normal body functions.⁷ This change caused the patient to lose six kilograms in two months and rarely do activities due to feeling weak. Gastrointestinal functional abnormalities show a relationship between consumption of certain foods and symptoms. Dietary changes can alter the gastrointestinal microbiome which may be a relevant factor in the symptoms of gastrointestinal functional disorders.²¹

Pharmacological therapy given by the oral medicine department at the first visit included oral hematinic supplements containing iron multivitamins and anti-fibrinolytic agents to control bleeding. Iron fulfillment includes oral or intravenous iron formulations. Oral iron is currently still the therapeutic choice for the treatment of anemia, especially iron deficiency in stable patients, but intravenous iron should be considered if a poor response to oral iron is expected or a rapid hematologic response is desired.²²

Anti-fibrinolytic agents including tranexamic acid, as administered to the patient are effective in preventing bleeding complications in various hemostatic challenges, as well as reducing mortality with minimal side effects in some situations. Tranexamic acid is an attractive hemostatic agent as a component of supportive therapy for various forms of pathological bleeding related to dental procedures.²³ The patient was treated with oral hematinic supplements and anti-fibrinolytic agents along with instructions to attend the emergency department and internal medicine department regarding a very low hemoglobin level (6.7 g/dL). The patient received two flasks of blood transfusion from the internal medicine department and was immediately scheduled for an excisional biopsy performed by an oral surgeon.

The geographic tongue is generally asymptomatic as reported in this case report. Management of tongue lesions such as geographic tongue and fissured tongue should focus on correcting deficiencies and providing adequate energy, protein, fluids, and nutrients to promote healing.²⁰ Vitamin B12 and folic acid supplements are given as supportive therapy for geographic tongue conditions. The biological effects of some vitamins and minerals, such as vitamin B12 and folic acid, play an important role in wound healing.²⁴

An understanding of oral health is an effective way to introduce signs and symptoms in the oral cavity with various systemic diseases.¹ The limitation of this article is that only presented one case of oral hematoma and anemia linked to symptoms of indigestion. This condition may not be generalizable, so further investigation and examination data on gastrointestinal abnormalities are needed to rule out the other factors. Comprehensive clinical investigations accompanied by supporting examinations have represented a valid diagnostic tool.²⁵ Identifying various abnormalities in the oral cavity as early as possible can help the clinician make a diagnosis and determine the treatment plan needed, especially those related to systemic disorders.⁷

Conclusion

Dentists are the frontline in oral disease screening, and it is important to update their knowledge and educate patients on the relationship between oral health and systemic disease. Clinical investigations that include signs and symptoms of bleeding diseases such as oral hematoma and anemia need to be carried out in detail, especially when other symptoms such as gastrointestinal disorders are present. Education and increased public awareness of the oral-systemic health relationship are needed along with interpersonal collaboration to manage sequelae of oral infection on overall health to improve the quality of life.

Consent Statements

The patient has approved and written informed consent for the publication of this case report including the images. The institution has also approved the publication of this article.

Acknowledgments

The authors would like to thank the patient who generously participated in this study. The authors would also like to thank the staff of Dental Hospital Universitas Padjadjaran and the Oral Medicine Department, Faculty of Dentistry, Padjadjaran University.

Funding

This research was funded by Padjadjaran University.

Disclosure

The authors report no conflicts of interest in this work.

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