

# Oral Manifestations of Bicytopenia: A Case Report

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## ABSTRACT

Cytopenia's are frequently seen haematological disorders encountered in daily clinical practice. Bicytopenia is defined as a decrease in any of the two cell lines of the blood i.e., Red Blood Cells (RBC), White Blood Cells (WBC), or platelets. Though bleeding gums is a common complaint in dental practice, bleeding of gums as a result of systemic diseases is rare. The author presents a case of a 65-year-old male patient who reported spontaneous bleeding of the gums. The patient was diagnosed with gingival bleeding secondary to bicytopenia. Gingival bleeding was treated with local styptic agents and systemic platelet infusion as recommended by a haematologist. The patient was also prescribed antifibrinolytics and antibiotics for further dental management. This case reports highlights the concerns about the oral manifestations and the dentist's responsibility to be familiar with the recognition and customised management of patients with Bicytopenia by analysing the clinical and haematological profiles of patients.

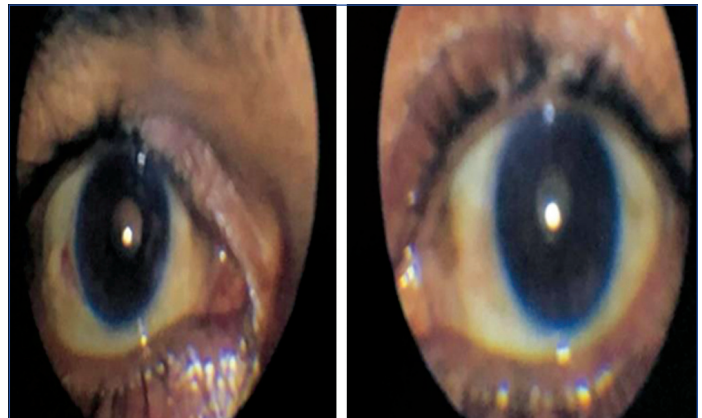
**Keywords:** Bleeding disorder, Gingival bleeding, Haemorrhage

## CASE REPORT

A 65-year-old male visited the Outpatient Department (OPD) in with chief complaint of spontaneous and persistent bleeding gums with mild to moderate, intermittent pain in upper and lower front teeth region for three months which aggravated on mastication and subsided on its own. Bleeding frequency was higher in early morning and evident during brushing and mastication. No history of rectal bleeding, haemoptysis, haematemesis, or similar problems in any of the family members was reported. The patient's medical report showed history of diabetes and cardiovascular disease and had been on medication Clopiket-a 150 mg for the same for 10 years. There was no hepatosplenomegaly or lymphadenopathy. Patient gave no history of deleterious habits. Patient had undergone uneventful extraction of upper and lower front teeth before seven years and had a fabricated prosthesis for the same. Patient reported with the oral manifestation for the first time.

On general physical examination, patient appeared weak and pale. The pallor in conjunctiva was significant [Table/Fig-1]. No abnormality in digits was noted. Intra oral examination revealed poor oral hygiene with extensive calculus, extrinsic stains and generalised pallor of the oral mucosa. Class III gingival recession (Miller's classification) was noted in the lower anterior teeth region [1] [Table/Fig-2a]. On manipulation, there was accentuated bleeding of gingiva and a collection of blood in the lower vestibule. A brownish red petechial haemorrhage approximately 5-7 mm in size, non tender was noted in left maxillary posterior teeth region [Table/Fig-2b,c]. The dorsum of tongue had a black coloured coating due to poor oral hygiene [Table/Fig-2d]. Removable dental prostheses were noted in relation to 11, 21, 31, 32, 41, 42. Other findings included generalised cervical abrasion, generalised mobility of teeth were grade II and grade III (Miller's classification), generalised periodontal pockets measuring about 3-5 mm (as measured by William's probe) [1]. The provisional diagnosis of bleeding gums secondary to bleeding disorders was established. Differential diagnosis of bleeding gums associated with haematological disorders includes aplastic anaemia, disseminated intravascular coagulation, pancytopenia and coagulopathies.

Informed consent was obtained from the patient. After clinical evaluation, a thorough debridement of gingiva was done using hydrogen peroxide (6% concentration) and then the patient was advised to get a complete blood count and bone marrow aspiration cytology in consultation with the haematologist. The complete



[Table/Fig-1]: Pallor in the conjunctiva.



[Table/Fig-2]: a) Bleeding gums in the mandibular posterior region; b) Intra oral examination reveals spontaneous bleeding gums on probing; c) Petechial haemorrhage in left posterior maxillary region; d) Black tongue due to poor oral hygiene.

haemogram report revealed reduced haemoglobin level of 6.2 gm/dL, RBC count of 1.67 cells/cumm, platelet count of 17000 cells/cumm, and Packed Cell Volume (PCV) of 18.30% with elevated

lymphocytes [Table/Fig-3]. The peripheral smear report was suggestive of megaloblastic anaemia with bicytopenia. The bone marrow smear report showed hypocellular marrow with reduced megakaryocytes [Table/Fig-4]. The diagnosis of bleeding gums secondary to bicytopenia was established, considering clinical and haematological profile of the patient.

Date of examination	Haemoglobin (gms%)	RBC (cells/cumm)	WBC (cells/cumm)	Platelet count (cells/cumm)
1 <sup>st</sup> month	6.2	1.67	5400	17,000
2 <sup>nd</sup> month	5.5	1.45	4600	13,000
3 <sup>rd</sup> month	9.2	2.80	6700	15,000
4 <sup>th</sup> month	5.2	3.13	4900	10,000
5 <sup>th</sup> month	9.1	2.85	5400	10,000

**[Table/Fig-3]:** Timeline of events, variations in blood count. The result revealed megaloblastic anaemia with bicytopenia.

Date of examination	Investigation	Impression
29/05/20	Bone marrow study	Hypocellular Marrow
26/06/20	Bone marrow study	Cellular marrow with erythroid hyperplasia and reduced megakaryocytes

**[Table/Fig-4]:** Bone marrow aspiration cytology revealed hypocellular marrow with reduced megakaryocytes.

A complete debridement of gingiva was performed, followed by treatment of gingival bleeding with a local styptic agent ethamsylate 200 mg [Table/Fig-5a]. Systemic platelet infusion was done in private medical centre where the platelets were extracted from donors. The patient was further referred to a periodontist for oral prophylaxis. Antifibrinolytic tranexamic 500 mg and antibiotic therapy amoxicillin (500 mg, thrice daily) with metronidazole (400 mg, twice daily) were given two days prior to periodontal therapy. Scaling was completed in multiple visits to prevent excessive bleeding. Initially, supragingival scaling was performed [Table/Fig-5b]. An antiseptic rinse with chlorhexidine was prescribed to promote oral health. The patient was directed to follow strict oral hygiene instructions including brushing habits, to use dental auxiliary aids and regular dental visits to avoid complications in the future. Routine blood investigations with periodic follow-ups were recommended on a regular basis, once in a month for five months [Table/Fig-3]. Patient was concerned on blood loss from bleeding gums. The cause for bleeding gums was explained and the patients concern was effectively addressed with the management protocol which reduced patient's agony.



**[Table/Fig-5a,b]:** Postmedical management without intraoral bleeding.

The patient was lost to subsequent follow-up visits due to COVID-19 lockdown. Through teleconsultation, the patient stated that he was receiving treatment for the underlying haematological disorder.

## DISCUSSION

Bicytopenia is a condition in which two of three blood cell lines (RBC, WBC and platelets) are reduced [2]. Bicytopenia occurs in all age groups with average age of 38.8 years, incidence in different age groups is 6% for new-borns, 7% for infants, 25% for children, 17% for adolescents, 85% of adults, and 11% of the elderly [3,4]. In

the present case, the presence of spontaneous gum bleeding with intraoral haemorrhage and pale oral mucosa led to the diagnosis of underlying bicytopenia upon thorough blood investigations.

Bicytopenia may represent as a single entity, or it may be the first manifestation of the development of pancytopenia [4]. The commonest causes of bicytopenia are non malignant (56%), infectious (31.7%), malignant (8.3%) and drug induced (4%). Amongst the non malignant group, megaloblastic anaemia is the main cause of Bicytopenia (37.68%), followed by immune thrombocytopenic purpura and alcoholic liver disease [5].

Megaloblastic anaemia is a disease in which the bone marrow produces abnormally large and immature RBCs. The two most common causes of megaloblastic anaemia are vitamin B12 and vitamin B9 deficiency [5]. A study in Pakistan found that megaloblastic anaemia is the common aetiological factor for bicytopenia and pancytopenia in bone marrow aspirations performed in their paediatric ward [6]. Studies by Tilak V and Jain R Khunger JM et al., found megaloblastic anaemia to be the most important cause of pancytopenia in adults [7,8]. Some of the systemic factors causing bleeding gums include uncontrolled diabetes mellitus, drug induced (antiplatelet and anticoagulants), haematological disorders, Vitamin K deficiency, and Vitamin C deficiency [9].

The treatment of patients with bleeding disorders depends on the severity of the condition and the invasiveness of the planned dental surgery. If a patient undergoes minimally invasive surgery, fewer or no treatments are required. For patients with severe bleeding disorders, the objective is to reduce the risk of bleeding by using local and auxiliary methods to maintain haemostasis [10]. Before any invasive treatment, the patient's general practitioner should be consulted. All routine and specific dental procedures are performed extremely carefully and meticulously [11]. Dentists should recommend antibacterial mouthwashes and oral antibiotics before dental treatments [11]. Once the inflammation subsides, subgingival scaling can begin. Treatment may require multiple visits to avoid excessive blood loss. Direct compression or periodontal dressings with or without topical antifibrinolytic medications can be used to reduce blood loss [12].

## CONCLUSION(S)

Bicytopenia is an important discovery used as a diagnostic clue for the study of various haematological diseases. Bicytopenia manifests as bleeding with organ enlargement, indicating underlying bone marrow pathologies. The incidence and prevalence of bicytopenia is ongoing research. There is a constrained range of research in the literature evaluating bicytopenia and its dental management. The present case raises the dentist's concern about gathering knowledge and evaluating the oral manifestations and management of the patient's condition, as well as his recommendation on handling the patient before and after surgery.

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