Polycythemia and bleeding gum (clinical study)

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ABSTRACT
Background: The present study showed that patient with true polycythemia may manifest bleeding gum in addition to other systemic manifestations. The aim of the study to exclude bleeding gum is one manifestation of myeloproliferative disorder.

Patient and Methods: Full history and physical examinations were achieved to all the 22 patients, with PCV higher than 53. All patients were underwent plaque and calculus control, including motivation for good oral hygiene.

Results: We found that in secondary polycythemia 2 out 17 suffered from bleeding gum, these results made the percentage of bleeding gum in polycythemic patients 9.1%.

Conclusions: Bleeding tendency like bleeding gum is reported complications of true polycythemia, this is because of small blood vessels distention (congestion) and platelets dysfunction as in polycythemia rubra vera.

Key words: Polycythemia, packed cell volume, bleeding gum. (J Bagh Coll Dentistry 2010;22(4):78-80).

INTRODUCTION
Polycythemia is derived from Greek and literally translates “too many blood cells” (1). Polycythemia is a blood disease that occurs when too many red blood cells are found in the body. There are two main forms of Polycythemia: True Polycythemia which includes 1- Polycythemia Vera 2- Secondary Polycythemia and Apparent Polycythemia (2).

True Polycythemia:–
1-Polycythemia Vera
Is a stem cell disorder characterized as a panhyperplastic, malignant, and neoplastic marrow disorder. The most prominent feature of this disease is an elevated absolute red blood cell mass because of uncontrolled red blood cell production. This is accompanied by increased white blood cell (myeloid) and platelet (megakaryocytic) production, which is due to an abnormal clone of the hematopoietic stem cells with increased sensitivity to the different growth factors for maturation (3).

2-Secondary Polycythemia
Secondary polycythemia is caused by either appropriate or inappropriate increases in the production of erythropoietin that result in an increased production of erythrocytes. In secondary polycythemia their may be 6 to 8 million and occasionally 9 million erythrocytes per cubic millimeter of blood.

A type of secondary polycythemia in which the production of erythropoietin increases appropriately is called physiologic polycythemia. Physiologic polycythemia occurs in individuals living at high altitudes (4275 to 5200 meters), where oxygen availability is less than at sea level. Such people may have 6 to 8 million erythrocytes per cubic millimeter of blood. Other causes of secondary polycythemia include smoking, renal or liver tumors, or heart faults that result in hypoxia (4).

Apparent Polycythemia
Caused by most conditions that make acute depletion of plasma volume i.e. relative polycythemia are clinically obvious (e.g. severe dehydration, diarrhea, vomiting, use of diuretics, capillary leak syndrome, severe burns) and do not require diagnostic confirmation with the use of specialized test (1).

PATIENTS AND METHODS
From the 1st. of October 2006 till the end of October 2007, 22 patients were enrolled in this prospective study, in Sulaimaniah Teaching Hospital.

Criteria for selection of patients
Full history and physical examinations were achieved to all the patients, with PCV higher than 53. Sixteen of them were true polycythemic patients while the remaining six were suffered from apparent polycythemia, 5 cc of blood was aspirated for complete blood count (P.C.V., H.B., M.C.V., M.C.H.C., R.B.C.s count, W.B.C.s, and platelets count), and two patients for oxygen saturation and assay of serum erythropoietin which is low in polycythemia vera and bone marrow.
erythroid colony growth in addition to chest x-ray and Oxygen saturation using pulse oximetery.

All patients were underwent plaque and calculus control, including motivation for good oral hygiene, scaling, and mouth wash with

Age of the patients: The age of the patients ranged from 25 years to 65 years and the mean of ages was 46.91 years.

All patients were underwent plaque and calculus control, including motivation for good oral hygiene, scaling, and mouth wash with chlorohexidine for two week, before the examinations of bleeding from the gum.

RESULTS AND DISCUSSION

Sex: The majority of patients were males; 17 cases (77.27 %) and the remaining 5 cases (22.72 %), were females.

Figure 1: Pie chart showing male to female ratio

Figure 2: Bar chart showing distribution of age and sex of the polycythemic patients.

Table 1: The distribution of the patient with polycythemia

<table>
<thead>
<tr>
<th>Types of polycythemia</th>
<th>Apparent polycythemia</th>
<th>Secondary polycythemia</th>
<th>Polycythemia Vera</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>5</td>
<td>16</td>
<td>1</td>
<td>22</td>
</tr>
</tbody>
</table>

In this study there was increase risk of secondary polycythemia affection due to hypoxia because of the high altitude, in the north of Iraq.

In this study we found the followings, there was no bleeding from the gum in Apparent Polycythemia, while those patients suffered from Polycythemia Vera were gum bleeder either continuous or intermittently, while in Secondary Polycythemia we found that 1 out 16 suffered from bleeding gum, these results made the percentage of bleeding gum in polycythemic patients 9.1%.

The P-Value: P = 0.00261, P < 0.05, Significant

Bleeding tendency including bleeding from gum is a reported presentation of true polycythemic patient, this because of small blood vessel distention and abnormal platelet function (platelet dysfunction), perhaps after exclusion of common local cause of gum bleeding that means 2 out of 17 true polycythemic patients have this problem.

Our research came in the line with, "major hemorrhage is much less frequent but may precipitated by the use of aspirin or aspirin-like drugs. Minor mucocutaneous bleeding episodes are much frequent and include epistaxis, gingival bleeding, and ecchymoses"(1).
We agreed with "paradoxically there is also, frequently, an increased bleeding tendency. One reason for this is that the platelets, although increased in numbers, may be functionally incompetent"\(^5\).

The present study also supported by "patients with polycythemia may be thrombocytopenic and have depleted plasma coagulation factors as a results of thrombosis in small vessels if these changes are present the patient may have significant bleeding problems following scaling or surgical procedures and must be identified and given special attention before any dental treatments\(^6\).

In this study, the number of patients is small to reach statistical significance. Further studies with bigger number of patients are highly recommended.

**REFERENCES**