Abstract

Red blood cells diseases associated with oral manifestations are: iron deficiency anemia, hemolytic anemia, vitamin B12 and folate deficiency anemia, aplastic anemia and polycythemia. The clinical oral manifestations include pale mucosa, reactive keratosis, and different forms of candidosis, mucosal ulcers, gingival bleeding and various degrees of gingival enlargement. The dentist should be aware of all these manifestations and should be able to provide treatment according to the different hematological disorders.

Keywords: Anemia, Polycytemia, Dental care

Introduction

The oral manifestations of red blood cells disorders vary according to the severity and type of the main disease and other associated illnesses. The presence of oral lesions should alert the dentists as well as the hematologists. This is a key factor in the process of identifying and early diagnosing of the broad range of hematological conditions. Thus complications can be prevented and treatment can be started at an early stage, avoiding further damage.

The dentist-hematologist collaboration is very important and comprises of two main lines: dentist’s routine check-ups can discover some early oral signs of hematological disease and then refer the patient to the hematologist. The dentist is subsequently needed for the treatment of oral manifestations associated with the diagnosed hematological diseases.

Classification of red blood cells lineage’s diseases

Red blood cells lineage’s diseases are divided into anemias and polycytemias, according to the increase or decrease of the number of erythrocytes, respectively [1].

Depending on the size and hemoglobin content anemia can be devided into:
1. normochromic, normocyte: aplastic, hemolytic and sickle cell anemia.
2. hypochromic, microcytic: thalassemia and iron deficiency anemia,
3. normochromic, macrocyte: Vitamin B12 and folic acid deficiency anemia [2].

Dentist’s treatment protocols for the red line’s diseases

Treatment of iron deficiency anemia. The internist is in charge of the diagnosis and treatment of the
anemia. Usually oral manifestations disappear following treatment, with the exception of organic modifications (keratosis) which will be treated after the iron deficit has been addressed [3]. During the general treatment, the dentist will tend to the oral lesions associated with iron deficit: erosions and ulcerations of the atrophic mucosa [4], oral Candidosis and angular cheilitis, reoccurring oral thrush, reactive oral keratosis [3,5].

**Treatment of Biermer’s and folate deficit anemia.** Correcting the vitamin B12 and folate deficiency is an effective treatment and will cure all the associated lesions [6]. Reoccurring chronic oral thrush and reactive lingual keratosis will be addressed as well [6,7].

**Treatment of hemolytic anemia.** In thalassemia the goal is to reduce gingival hyperplasia [8]. In sickle cell anemia it is recommended total avoidance of anesthetics in the treatment process [9]. In drug induced hemolytic anemia the patient will not be prescribed hemolytic drugs (e.g. Penicillinum). In paroxysmal nocturnal haemoglobinuria the following will be treated: superinfected ulcerations, gingival bleeding following thrombocytopenia, random infections which are quite common [10].

**Treatment of aplastic anemia.** In parallel with the general treatment, the dentist will treat the following: neutropenic ulcerations, ulcero-necrotic gingivitis, oral Candidosis [11,12] gingival bleeding [13] gingival hyperplasia [11,13]

**Treatment of polycythemia vera.** General treatment is carried by the hematologist. Anti-inflammatory treatments will be applied locally; oral plaque is removed and strict oral hygiene is recommended [14,15]. Associated lesions will be treated: gingival hyperplasia and gingival bleeding [15,16].

**Treatment of red line derived oral lesions**

**Treatment of neutropenic ulcers.** Being microbial in nature, they succumb to broad spectrum antibiotics; antiseptic mouthwash helps as well [17]. Efficient oral hygiene, supra and sub gingival scaling as well as rigorous oral hygiene through correct teeth brushing with maximum efficiency and minimum trauma to the mucosa is recommended [18,19].

**Treatment of gingival bleeding.** Spontaneous gingival bleeding is treated through rigorous oral hygiene, supra and sub gingival scaling, correct teeth brushing after every meal [13]. In the case of serious bleeding, local periodontal dressings (e.g. Septo-pack) will be used as a haemostatic as well as sponges and fibrin nets (e.g. Surgicel) [20,21]. Antiseptic (chlorhexidine) toothpaste will be prescribed and teeth brushing will not be stopped as that would only aggravate bleeding [18]. In the case of bleeding originating in deep periodontal pockets the latter is cleaned and irrigated with 3% hydrogen peroxide, a thrombin soaked tampon is placed directly over the bleeding point, the area is dressed and pressure is applied for 15-20 minutes [21].

**Treatment of gingival hyperplasia.** For abscission the following can be used: gingivectomy, gingivoplasty, flap rising with the excision of the fibromatous gingival tissue [22]. The patient will be instructed how to brush properly as well as to use secondary hygiene tools: dental floss, gingival stimulators, 0.12% chlorhexidine mouthwash twice a day for two weeks [17,22].

**Treatment of extended oral Candidosis and angular cheilitis.** Local treatment is used more frequently. Antifungal Nystatinum are effective against most of the Candida strains and they are administered in the form of mouthwash suspensions or suckable tablets for 14-20 days [23]. General treatment is reserved for muco-cutaneous or sever cases of oral candidosis as well as immunodeficient patients where local treatment is not enough [24]. Ketoconazolum and Fluconazolum are used; treatment must be done with prudence given the toxic and medullar effects of these drugs. General and local treatments must be done concomitantly in order to suppress re-infective sources that could be present in the mouth [24,25].

**Treatment of reoccurring chronic oral thrush.** The mild forms fall into the local treatment category. Corticoids shorten the evolution of the lesions, speed up healing and alleviate the symptoms. Betamethasonum or Hydrocortisonum are used; they can be used as such or in other forms: mucosa adhesives (Orabase), suckable tablets (Betneval), complex mouthwashes or with other drugs (antibiotics, anesthetics) [27]. Tetracycline in combination with Nystatinum is recommended as antibiotic together with a mouthwash dissolved corticoid [26]. The role of the antiseptic is to prevent ulcer over infection. Watery solution of 0.05-0.2% Chlorhexidine is recommended (Eludril, Plack-out) [19]. Local anesthetics are incorporated into mouthwashes - Lidocainum 0.5-2% [26]. Local caustics such as silver nitrate 20-30% or trichloracetic acid 10-15% are used as pinpoint applications strictly on the ulcers, accelerating the healing process. After drying the mucosa, one application per day is recommended for 3-4 days [27].

**Attitude towards dental sources of infection.** The severity is directly correlated to the number of active sources such as: periodontal pockets, decayed teeth,
granulomas. Sanitizing these sources is problematic given the risk of heavy bleeding post extraction and post operative infections [28]. These maneuvers must be delayed until there is an improvement of the medullar status as well as a normalized CBC. Extractions will be performed under antibiotic protection, with good local hemostasis, noninvasive and associated with anti-hemorrhagic drugs [29].

Treatment of reactive keratosis located in the atrophic mucosa, it can be achieved with: vitamin A derivatives (retinoids) in local applications or beta-carotene and vitamin E (less toxic than retinoids) [17].

Conclusions

The diseases of the red cell line have diverse oral manifestations, which the dentist must identify and treat accordingly.

Any intervention must be done with care, without inducing trauma.

Infections will be prevented and if they still occur, will be treated with antibiotics and broad spectrum antifungal drugs. General treatment of the hematological disease will lead to improvements or even complete healing of the oral lesions; in the meantime, dental care has an important role in the success of the general treatment.

References

