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Original Article

Red gums as primary manifestations of skin diseases

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ABSTRACT

Background: Red gums, as a manifestation of chronic mucocutaneous diseases, is an infrequent oral complaint and are commonly due to plaque-induced gingival diseases in which a microbial biofilm and bad oral hygiene may precipitate gingivitis. **Patients and Methods:** This is descriptive, case-series study was conducted during the period from October 2019 to October 2020. Ten patients were presented primarily with red gums without an apparent identifiable cause. A full clinical history and examination were done. Laboratory investigations and biopsy were performed selectively. **Results:** Ten patients during the period of one year were included in this work. Two (20%) males and eight (80%) females were complaining of red gums. Their age on presentation ranged from 7 to 55 years, with a mean of 39.6 ± 12.4 years. Oral burning and discomfort with a bad odor were recorded in all patients, and this was moderate to severe, thus interfering with the process of consuming food. Also, gum bleeding after brushing or when minimally traumatized was a complaint in all patients. This study revealed that pemphigus vulgaris was the main diagnosis behind red gums in seven (70%) patients, followed by lichen planus in two (20%) patients, and viral reactionary gingival hyperplasia in one (10%) pediatric patient. Minimal skin involvement was observed in seven (70%) patients, with some patients unaware of its presence and it being discovered accidentally. **Conclusion:** Red gums are a common manifestation of chronic orodental conditions, yet could be part of systemic diseases and oral manifestations of primary cutaneous diseases. The current study highlighted that pemphigus vulgaris and lichen planus may initially and/or primarily present themselves as red gums, possibly delaying the proper diagnosis for months or even years. Hence, dermatologists and oral physicians should be aware of this clinical finding.

Keywords: Red gums; Pemphigus vulgaris; Lichen planus; Desquamative gingivitis

INTRODUCTION

Gingiva is a common location for both non-neoplastic and neoplastic lesions [1]. Gums presenting as shiny red, painful, and friable gingiva, which is clinically termed as desquamative gingivitis, may develop as a manifestation of various underlying conditions and may be divided into plaque-induced desquamative gingivitis and non-plaque-induced desquamative gingivitis. Plaque-induced desquamative gingivitis is a commonly recognized problem in daily dental practice [2]. Dental plaque-induced desquamative gingivitis is the most common form of gingival disease, in which the gingival inflammation results from microbial plaque accumulation. Local oral factors such as xerostomia and systemic conditions such as hyperglycemia, leukemia, and nutrient deficiencies may influence the severity of the inflammation. Red to deep purple and swollen gingiva with gingival bleeding is also a common sign in patients with leukemia. A deficiency of plasma ascorbic acid seen in scurvy is the only nutritional deficiency with documented effects on the periodontium, in which red, shiny, and swollen gums with bleeding on minor trauma, hyperkeratotic papules with corkscrew hairs in association with perifollicular hemorrhage, and petechiae and ecchymoses were the major mucocutaneous manifestations of scurvy [3,4].

Non-plaque-induced desquamative gingivitis is less frequent, yet often of great importance for patients [5],

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with middle-aged to elderly females being commonly affected. Mucocutaneous conditions, particularly lichen planus (LP), pemphigus vulgaris (PV), and mucous membrane pemphigoid (MMP), were responsible for the majority of these cases [2]. In LP, which is a chronic disease of an ill-defined etiology with an autoimmune reaction affecting the skin and the mucous membrane, isolated gingival involvement commonly presents itself as erythematous lesions affecting the gingiva, resulting in desquamative gingivitis; this was described in around 10% of patients [6]. PV is a rare, potentially fatal autoimmune disease in which oral lesions are the preliminary symptom in up to 70% of patients, with gingival lesions having been reported in a limited number of patients affected by PV, and is usually described as desquamative gingivitis manifested as red gingival erosions [7]. In MMP, the oral cavity, particularly the gingiva, is the most commonly involved site, in which gingival lesions are manifested by marked redness, erosions, and ulcerations [8].

In one review, oral LP was the major disease responsible for desquamative gingivitis in 75% of patients, followed by MMP (9%) and PV (4%), in a study performed by Lo Russo et al. on 125 patients with desquamative gingivitis [9], which is similar to a study by Leao et al., in which oral LP (71%), followed by MMP (14%) and PV (13%), was primarily responsible for desquamative gingivitis [10]. In another study, performed by Vaillant et al., MMP was the main cause of desquamative gingivitis in 39% of patients, followed by OLP and PV in 36% and 15% of patients, respectively [11].

Overall, MMP, oral LP, and PV are the main causes of desquamative gingivitis, with the first two accounting for about 80% of cases, whereas PV and other uncommon or rare disorders are responsible for the remaining proportion [9].

Other causes of red gums include chronic ulcerative stomatitis, Crohn's disease, allergic reactions to chemicals or mouth wash [2], and specific infections, including herpes simplex virus types 1 and candidiasis [5].

Therefore, the aim of this study was to recognize the dermatologic causes behind red gingival lesions and to report the gums as the primary and/or the only site of involvement in potentially significant dermatologic diseases.

PATIENT AND METHODS

Ten patients complaining of red gums were involved in this descriptive, observational, case-series study. The study followed the principles of the Declaration of Helsinki and informed consent was obtained from each patient after explaining the nature of the study. Close-up photographs were taken at the same place with a constant distance and illumination. A comprehensive history regarding the age of onset, the duration and progression of the disease, the associated cutaneous symptoms, and systemic diseases was taken from each patient. A trauma history, an oral hygiene history, and a family history of any autoimmune diseases were also reviewed in each patient.

The oral cavity of each patient was closely examined with an appropriate light source. The gingival and buccal mucosa, tongue, and palate were carefully examined against discoloration, swelling, vesiculation, or ulceration. The skin, nails, hair, eyes, and genital mucosa were also included in the clinical examination in an attempt to detect any associated cutaneous lesions. The lymph nodes were also examined. Diagnosis primarily relied on the clinical presentation, examination with laboratory investigations, and biopsy, and these were performed selectively.

Statistical Analysis

SPSS, version 23, was employed for data entry and analysis. The data was statistically described in terms of means, frequencies (number of cases), standard deviations (SD), male-to-female ratios, and percentages (%).

RESULTS

Ten patients, two (20%) males and eight (80%) females complaining of red gums with oral burning and discomfort, were included in the present study. The age of the patients on presentation ranged from 7 to 55 years, with a mean of 39.6 ± 12.4 years. The characteristics of the lesions and their severity in the studied patients were illustrated in Table 1. In all patients, oral discomfort was moderate to severe, interfering with the process of consuming food. Gum bleeding after brushing or when minimally traumatized was a complaint in all patients. In addition, a bad mouth odor was reported by many patients. Isolated gingival involvement was a complaint in only one (10%) patient, while primary gingival involvement in association with minimal erythema or

erosions elsewhere in the mouth was observed in the remaining nine (90%) patients. Also, minor skin lesions of PV and LP were detected, yet were often neglected by the patients unless they were specifically asked about their existence or they were discovered accidentally on examination. Biopsy was performed in selected cases, revealing either intraepidermal blisters with numerous inflammatory cells consistent with the diagnosis of pemphigus or dense, band-like, lymphocytic infiltrate in the papillary dermis with acanthosis of the epidermis in the cases of LP. Accordingly, based on the clinical and histopathological findings in the studied patients, PV was the chief diagnosis behind red gums (Fig. 1), affecting seven (70%) patients, five (71.4%) females and two (28.6%) males, with a mean age of 43.3 ± 6 years. Gingival and other minor oral mucosal involvement were seen in all pemphigus patients, while mild extraoral skin involvement was observed in five patients. LP was the second most prevalent disorder, affecting two (20%) female patients, with a mean age of 43 ± 8 years, in whom the main problem was gingival involvement with minimal oral mucosal lesions in one case and skin lesions in both patients (Fig. 2).

In one (10%) young female patient with a history of a sore throat persistent for five days, presenting with an isolated red gingival lesion with no other oral or extraoral lesions, a complete blood count (CBC) was performed to exclude the possibility of leukemia. While CBC was normal, a diagnosis of viral gingivostomatitis (viral reactionary gingival hyperplasia) was established.

In nine patients, the diagnosis was delayed for months or years and the patients had attempted different treatment approaches by the dentist, yet with no beneficial results, while, in a young female, the diagnosis was made early on the first visit.

DISCUSSION

The mouth plays a paramount role in speech, mastication, digestion, and immunologic defense. The oral mucosa is a common site for primary inflammatory or neoplastic disorders. However, it may show the early manifestations of systemic disease and, in many cases, oral findings may precede systemic diseases by months or even years [12].

Because desquamative gingivitis is not a diagnosis and is only a clinical term commonly used to describe a shiny red, painful, and friable gingiva, and may be a misleading term, in the present work, we advise the use of the simple descriptive term *red gums*, as many dermatologists are more familiar with this description of the lesions. In addition, gum problems presented in the current study were just red, hyperplastic

Table 1: Characteristics of the lesions and their severity in the studied patients.

Lesion Characteristics	Number of Patients	Percentage of Total
Only gingival involvement	1	10
Gingiva and other minor oral mucosal lesions	9	90
Diffuse involvement of the gums	10	100
Burning and discomfort	10	100
Bleeding on brushing or minor trauma	10	100
Minor cutaneous lesions	7	70

Figure 1: (a-b) 39-year-old female with pemphigus vulgaris showing red gums with minimal mucosal ulceration; (c) histopathology for the same patient showing an intraepidermal blister with numerous inflammatory cells (H&E, 10×).

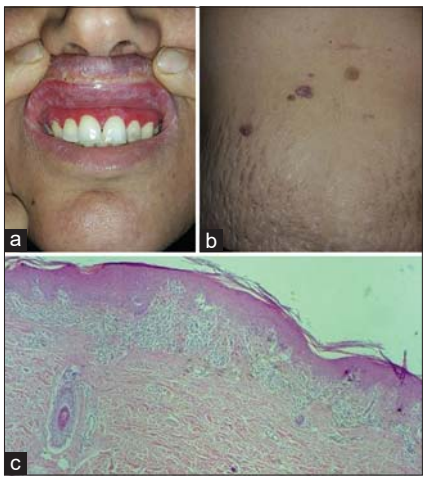

Figure 2: (a) 37-year-old female with lichen planus showing red gums and scaly lips; (b) cutaneous lichen planus lesions on the abdomen and (c) showing histopathology of lichen planus of the skin. (H&E, 10×).

discolorations of the gingival mucosa rather than inflammation, desquamation, or ulceration.

Red gums may develop as a manifestation of various underlying dermatological disorders [2]. In the literature, LP [13] and MMP [11] were the most prevalent etiologies behind red gums.

In the present work, diffuse gingival involvement was the predominant complaint observed in all patients with pemphigus, and LP manifesting itself as red gums was a finding consistent with a previous report [13].

This study clearly revealed that the two disorders were the main causes responsible for the development of red gums, including PV (70%) and LP (20%), which were documented in a period of one year.

Pemphigus vulgaris is a rare, potentially fatal autoimmune disease in which the oral mucosa is the first site involved in up to 70% of patients [7]. While in the Iraqi population, PV is not an uncommon endemic skin problem [14], this is the reason why, in the present study, pemphigus vulgaris was the major cause of red gums in seven (70%) patients. This finding is inconsistent with other studies, in which LP and MMP were the most prevalent diseases [11,13]. The mean age of the presenting patient was 43.3 ± 6 years and females were mainly affected. This finding agrees with a previous report [15].

Also, the present study showed that LP was the second disease responsible for red gums, affecting two (20%) female patients, although LP is a common problem in the Iraqi population [16,17]. This finding is inconsistent with previously mentioned studies [11,13]. The mean age of the presenting patient was 43 ± 8 years, and females were largely affected, which is in correspondence to another study [18].

Children may be affected by numerous gingival diseases, which may be due to local oral factors or reflect serious systemic diseases such as leukemia. Viral, fungal, and bacterial infections may result in non-plaque-induced gingival diseases in children. Viral infection of the gingiva may affect all age groups, presenting with a diffuse, erythematous, shiny gingiva and adjacent oral mucosa [19].

In the present work, one (10%) young female patient presented with an isolated red gingival lesion with no other oral or extraoral lesions. While CBC was normal, a diagnosis of viral gingivostomatitis manifested itself as viral reactionary gingival hyperplasia, a condition that may be commonly encountered in children, and this finding is in line with previous reports [19].

The present work did not report MMP, which is in contradiction to previous reports [11,13]. This may be explained by the rarity of cases of MMP in comparison with PV and LP in the Iraqi population [14,16].

Also, lupus erythematosus as a cause of gingivitis was not observed in this study, which is inconsistent with a previous study, in which gingivitis and red gingival macules were a common finding in patients with systemic lupus erythematosus [20].

The present work is one of the most important reports highlighting the significance of red gums (desquamative gingivitis) as the only or the earliest manifestation of skin diseases such as PV and LP.

It has been considered that the oral cavity is a diagnostic mirror and may be deemed as a window of the body, reflecting numerous important systemic diseases in their early stages [21]. The current work demonstrated that the mouth may be considered a mirror for dermatological disorders, as numerous skin diseases such as PV and LP may manifest themselves in the mouth as red gums prior to skin involvement.

CONCLUSION

The present work is an important documented report, revealing that PV and LP may manifest themselves as red gums earlier in the course of the disease, which makes the diagnosis especially difficult, possibly leading to unnecessary investigations and unsuccessful therapies. Hence, dermatologists and oral physicians should be aware of this clinical observation.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

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