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Study of Clinical Characteristics of Desquamative Gingivitis in 60 Patients in the North of Spain

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ABSTRACT

Objectives: The aim of this study is to know the clinical characteristics of desquamative gingivitis (DG) in a Spanish population in order to make an early diagnosis of this sign and, therefore, the underlying systemic disease.

Methods: A cross-sectional study was conducted. Patients who presented with DG and who met the established inclusion criteria were selected. The following variables were collected from the patient's clinical history, examination, and pathological anatomy report: age at diagnosis, gender, underlying diseases, extent of lesions, intraoral lesions or extraoral involvement, form of appearance, and symptomatology.

Results: The sample comprised of 60 patients. The mean age was 62.18 ± 11.22 years. The most common associated disease was OLP. The most common form of onset was erythematous (55%). 56.7% of the lesions appeared in the anterior and posterior region, and 68.3% appeared in all quadrants. 53.3% of patients were asymptomatic.

Conclusion: Diversity exists in terms of the appearance and extension of DG. It is important to stress to dental hygienists the importance of a proper diagnosis of any gingival lesions.

1 | Introduction

Desquamative gingivitis (DG) is a clinical condition in which patients present with severe erythema of gingivae and desquamation that can progress towards ulceration [1]. This condition belongs to a group of gingival diseases that are not induced by plaque and which, according to the current classification of periodontal diseases, are considered systemic pathologies [2].

DG presents as a sign of certain mucocutaneous disorders, such as oral lichen planus (OLP), mucous membrane pemphigoid (MMP), pemphigus vulgaris (PV), lupus erythematosus (LE), and erythema multiforme (EM), among others [3]. In 7% to 22% of the cases, DG is the first manifestation of the underlying disease [4].

The presence of clinical variations may result in late diagnosis and treatment, given that symptoms can range from a burning sensation or minor discomfort to intense pain that can lead to difficulties when eating and brushing teeth. This is common in patients with bad hygiene, and it can result in the progression of the underlying disease, the manifestation of new lesions, and deterioration in quality of life [5].

Since DG can affect different locations and it can present itself in different manners [6], it is important that healthcare professionals are able to recognise the signs of this disorder, and it is understood that making patients aware of these signs may also help to reduce diagnostic delay [4].

Diagnostic delay in autoimmune diseases can be caused by several patient or professional-dependent factors; early diagnosis is

important in order to avoid the evolution of these entities and the consequences they may have on the patient. Lack of clinician awareness of autoimmune diseases is one of the reasons for delay [7], and in the study by Dalbatan et al., it was observed that all patients with pemphigus vulgaris who had only oral lesions initially had been misdiagnosed [8]. In some cases, an accurate diagnosis was only reached when lesions on the skin or other organs were present, and the disease was at a more severe stage [8]. This situation worsens if the first sign of the underlying pathology is GD [9]. Dalbatan et al. describe a delay of 8.25 months in patients with GD compared to 4.78 months in those with ulcers as a sign of the disease [8]. Most patients have to visit several specialists before a definitive diagnosis can be made and appropriate treatment given [8, 9].

These delays in diagnosis are due to the lack of knowledge of the pathogenesis and risk factors of GD at present [10].

In the study of Dalbatan et al., they observed that 27% of patients with only oral involvement are diagnosed with plaque-induced gingivitis and undergo basic periodontal treatment [8]. These treatments are performed and assisted by dental hygienists, so it is very important that they are knowledgeable about DG in order to help in the diagnosis of underlying diseases.

The aim of this article was to study DG in a leading Oral Medicine Service in Santiago de Compostela, as well as determining the relationship between DG and the underlying diseases. Likewise, it looked to define the symptomatology and clinical characteristics of this condition, in order to increase the clinical evidence on this condition.

2 | Material and Method

A cross-sectional retrospective study was conducted, and the study group comprised of patients who had been referred to the Oral Medicine Teaching Unit of the Faculty of Dentistry in Santiago de Compostela between January 2019 and December 2021. The study protocol was approved by the Santiago-Lugo Research Ethics Committee under number 2021/442, the STROBE guidelines were adhered to [11], and all of the procedures were performed in accordance with the Declaration of Helsinki of 1964 and its subsequent amendments.

In order to be included in this study, the patients had to meet the following inclusion criteria: adult patients who presented with DG who had been provided with a conclusive clinical and histologic diagnosis of the treated underlying disease and who had given their written consent to participate in the study. The following exclusion criteria were established: minors, patients who did not present with DG, patients for whom a conclusive histological diagnosis of the underlying disease had not been established, and patients who did not give their written consent.

The collected variables included both demographic (age at the time of diagnosis and gender) and clinical data (associated disease, extension, location, symptomatology, and clinical form). The patients underwent an anatomopathological study to confirm the presence of the following associated diseases: OLP, PV, MMP, EM, plasma cell gingivitis (PCG), LE, and oral lichenoid lesion (OLL). A distinction between OLP and OLL was made using the differentiation criteria established by Warnakulasuriya et al. [12].

With regards to clinical manifestations, the affected areas were recorded. This assessment took into account the location of the lesion, determining whether the lesions appeared only in the gingiva, or in other locations as well [6]. It also determined whether the lesions appeared in the anterior (canines and incisors) or posterior areas (premolars and molars), or in both, and whether they affected only the upper or lower arch or both, as well as observing the involvement of quadrants.

If any of the patients presented affectation in other oral cavity locations, this was recorded according to the International Classification of Diseases ICD-ICD10 for oral neoplasms [13]. Symptomatology was classified as no discomfort, mild/moderate discomfort, severe pain, and burning sensation [6, 14]. In terms of the clinical form of onset, as in the study by Lo Russo et al. [15]., the present study also identified whether it was erythematous, erosive, ulcerated, vesicular, blistering, or pseudomembranous. All of these variables were collected by consulting the patients' clinical records, the data collection sheets for DG that were recorded through clinical examinations, and the pathological anatomy reports. The biopsies were taken in our department and were subsequently analysed in the Anatomical Pathology Department of the University Hospital Complex of Santiago de Compostela. The samples were sent in formalin for histopathological study, and fresh samples were sent for direct immunofluorescence to confirm suspected diagnosis of PV, MMP, and LE.

To date, no studies have looked to describe DG in a Spanish population. Consequently, it was not possible to calculate the minimum required sample size, as is mandatory by Strobe guidelines so our analysis should be considered as a pilot study. Statistical analysis was carried out using IBM SPSS Statistics 27.0 software for Windows (SPSS Inc., Chicago, IL, USA). Continuous variables were reported as mean ± standard deviation (SD) as upper and lower limits. Categorical variables were reported as percentages.

3 | Results

Data were collected from 67 patients who presented with DG. After applying the inclusion and exclusion criteria, the reports on the underlying disease corresponding to 7 of the patients were declared inconclusive, and as a result, these 7 patients were excluded from the study. Therefore, the final sample consisted of 60 patients.

Of the total number of patients, 10% (6) were male and 90% (54) were female, with an average age of 62.18 ± 11.22 years.

The most common associated pathology in this study group was OLP, with 81.7% of participants presenting with this pathology (49). The second most common pathology was MMP, which accounted for 8.3% of the participants (5), followed by LE and PCG with 3.3% (2), and only one patient was diagnosed with OLL and another with PV (Figure 1).

With reference to the intraoral involvement of the lesions, 90% (54) of patients presented with lesions in other areas of the oral cavity,

other than the gingiva. 73.3% presented with lesions in the buccal mucosa (44), 11.7% in the lingual dorsum (7), and 21.7% presented with lesions in lingual locations other than the dorsum (13), and other locations reported made up a percentage of 33.3% (20).

A total of 20% (12) of patients presented with extraoral lesions with different affectations as depicted in Table I.

Focusing on the location of the DG, data collection was divided into three different forms of gingival involvement. Pertaining to the distribution by arches, in 63.3% of the sample, affectation was found in both the upper and lower arches; when this was performed by regions, it was found in both the anterior and posterior region in 56.7% of the sample; and when it was done by quadrants, 68.3% of the cases involved all four quadrants. Table I shows the distribution of the total sample.

In relation to the form of onset, erythematous was the most common form of onset and this was present in 33 patients (55%) followed by erosive, which was present in 15 (25%) (Figure 2).

In terms of symptomatology, 53.3% of the patients (32) stated that they experienced no discomfort related to DG, 26.7% (16) experienced mild/moderate discomfort, 13.3% (8) experienced severe pain, and 6.7% (4) experienced a burning sensation (Figure 3).

4 | Discussion

As in other studies in which a prevalence of more than 65% in women was reported [4, 6, 14, 16–19], 90% of this study population was female. This may be due to the fact that women present a greater predilection for underlying diseases associated with

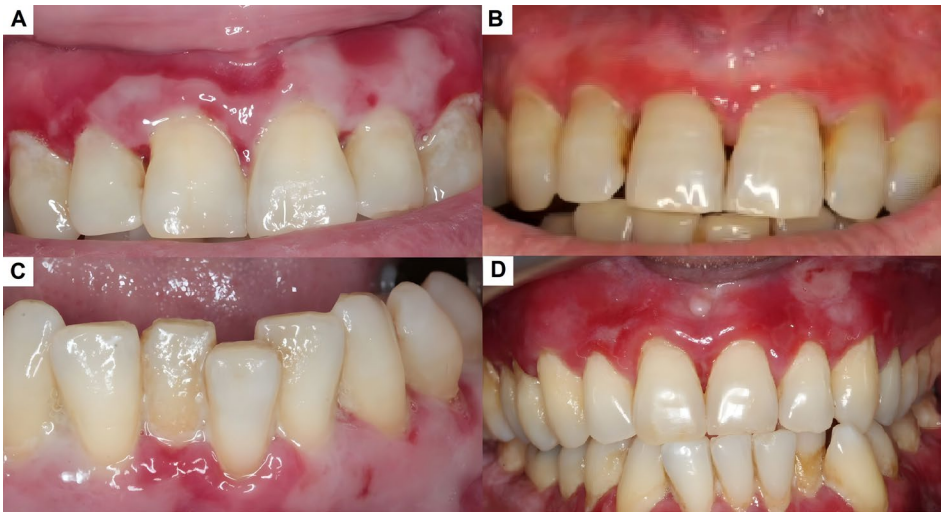

FIGURE 1 | (A) Desquamative gingivitis associated with pemphigoid. (B) Desquamative gingivitis associated to lichen planus. (C) Desquamative gingivitis associated to pemphigoid. (D) Desquamative gingivitis associated to lichen planus-pemphigoid.

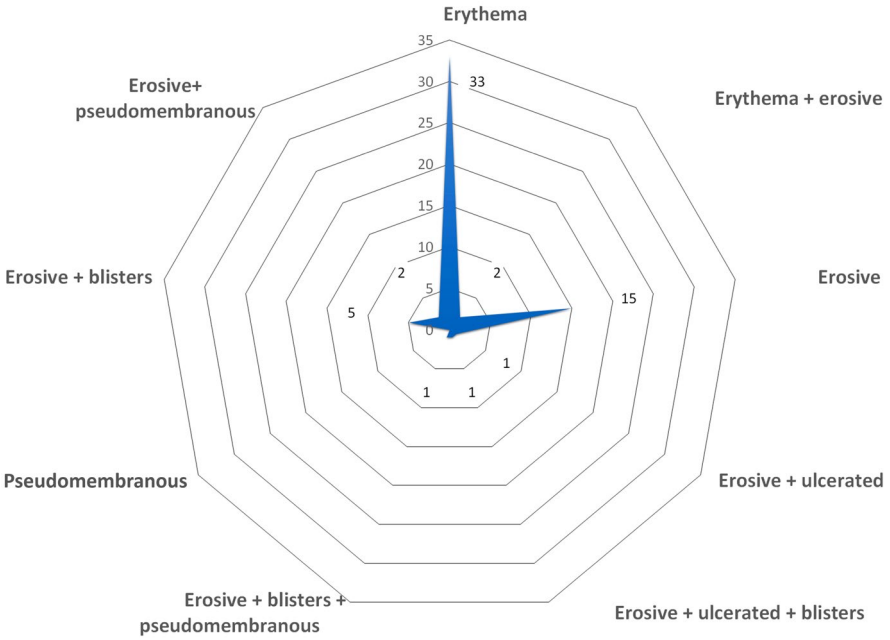

FIGURE 2 | Form of onset of desquamative gingivitis.

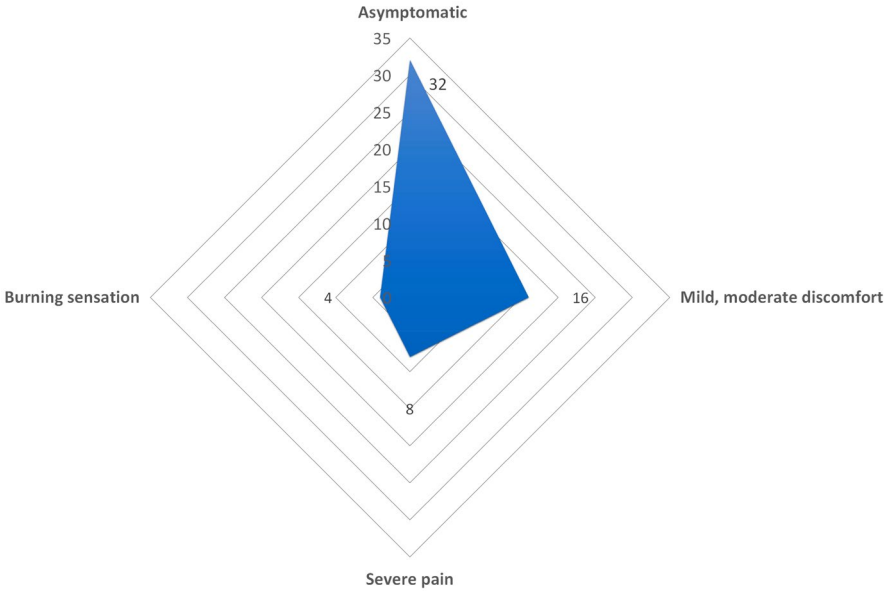

FIGURE 3 | Symptomatology of patients.

the presence of DG, such as PV and MMP [20]. This is consistent with the scientific literature which has suggested that the female population has a greater predisposition to developing diseases related to alterations of the immune system [21, 22].

OLP was present in 81.7% of the participants in this study group, a proportion similar to that recorded from Shaqman et al., which was 80.5% [4], Leao et al. was 70.5% [14] and Lo Russo et al., which was 75% [6]. Skalavounou et al. described the presence of OLP in less than half of their patients (40.54%); nonetheless, it was still the most prevalent disease within their study group [18]. Perhaps these results differ due to the date of publication, considering that older studies present a higher prevalence of DG in MMP. Likewise, the studies conducted by Rogers et al. only included 1 patient with OLP, with MMP being the most prevalent disease in this group, accounting for 90% of the participants [23]. 35% of patients in the study by Nisengard et al. presented with OLP [17], and this disease was present in 39% of patients in the study by Vaillant et al. [18]. MMP was the second most prevalent disease in our study (8.3%), in line with the studies conducted by Leao et al. (14%) and Lo Russo et al. (9%) [6, 14]. Markopoulos included the same population of OLP and MMP patients in their study, observing a higher incidence of DG in MMP patients (41.6%) than in OLP patients (6.8%) [16]. Vaillant observed an incidence of 85% in MMP patients and of 21% in OLP patients [19], and Skalavounou et al. observed an incidence of 63.3% in MMP patients and of 25% in OLP patients [18]. In terms of the composition of the study population, the results of this study were in line with the published geographical variations of the underlying diseases. In a recent systematic review, González-Moles described a prevalence of 10,100/million for OLP globally, and a prevalence of 13,200/million in Europe [24]. Likewise, Alpsoy described a prevalence of 0.5–8/million for PV and 2.5 to 42.8/million for MMP [20].

With regards to PCG, a prevalence of 3.3% was recorded from this sample. Despite the fact that DG is a sign of several diseases including PCG [25], no reference was made to DG in the reviewed studies [6, 14, 16–18], which may be due to the fact that it is less common than the other described conditions [15].

The onset of diseases, such as OLP, increases with age [24] and Lo Russo et al. affirmed that there was a higher incidence of the group of pathologies related to DG in patients between the 4th and the 6th decades of life [15]. This would justify the reason why a population group comprised of individuals over the age of 45 years was considered in this study [4, 6, 14, 16–19]. This was also in line with the average age of the population group included in this study, which was 62.18 ± 11.27. Out of all of the studies included in the literature this group had the highest average age, followed by the study carried out by Vaillant et al. in which the average age of the participants was 60 years [19]. These two studies presented the highest minimum ages of 39 and 41 years, respectively, in contrast to studies, such as the one by Lo Russo et al., which included participants from 13 years onwards [6].

Previous studies, such as the ones conducted by Lo Russo et al. and Rogers et al., described extraoral affectation in 50.4% and 43.9% of cases, respectively [6, 23], which contrasts with the 20% attained in this study population. Cutaneous affectation was greater in this study (Table 1), while Lo Russo's study reported higher levels of affectation in the genital region (26%). Lo Russo's study population, similar to the one included in this current study, consisted of a majority of patients with OLP. The difference observed in the results may be explained by the fact that Lo Russo et al. collaborated with other specialists for patients with extraoral pathologies [6]. Cassol-Spanemberg et al. found a higher percentage within OLP, of skin lesions (6.6%) in our setting, followed by genital lesions (4.4%) and even affectation of both locations (2.6%) [26].

Rogers et al. described greater affectation in the pharyngeal-laryngeal area (39%) [23], although it is worth noting that the patients presented with MMP, unlike those included in this sample and in Lo Russo's study where OLP was the main lesion [6]. Vaillant et al. discriminated according to the underlying

TABLE 1 | Clinical features/associated pathology.

	No. of patients (%)	LP	MMP	LE	PCG	OLL	PV
Gender		49 (81.7)	5 (8.3)	2 (3.3)	2 (3.3)	1 (1.7)	1 (1.7)
Male	6 (10)	4 (6.7)	1 (1.7)			1 (1.7)	
Female	54 (90)	45 (75)	4 (6.7)	2 (3.3)	2 (3.3)		1 (1.7)
Extraoral affectation							
Oral only	48 (80)	40 (66.7)	4 (6.7)		2 (3.3)	1 (1.7)	1 (1.7)
Cutaneous	5 (8.3)	4 (6.7)	1 (1.7)				
Cutaneous + genital	1 (1.7)	1 (1.7)					
Cutaneous + internal organs	2 (3.3)	1 (1.7)		1 (1.7)			
Genital	2 (3.3)	2 (3.3)					
Internal organs	2 (3.3)	1 (1.7)		1 (1.7)			
Distribution by arches							
Both	38 (63.3)	31 (51.7)	4 (6.7)	1 (1.7)	1 (1.7)		1 (1.7)
Upper arch	21 (35)	18 (30)	1 (1.7)	1 (1.7)	1 (1.7)		
Lower arch	1 (1.7)					1 (1.7)	
Distribution by regions							
Both	34 (56,7)	26 (43,3)	4 (6,7)	1 (1,7)	1 (1,7)	1 (1,7)	1 (1,7)
Anterior	19 (31,7)	18 (30)			1 (1,7)		
Posterior	7 (11,7)	5 (8,3)	1 (3,3)	1 (1,7)			
Distribution by quadrants							
All	41 (68.3)	34 (56.6)	4 (6.7)		1 (1.7)		1 (1.7)
Upper quadrants	13 (21.7)	12 (20)			1 (1.7)		
Lower quadrants	1 (1.7)	1 (1.7)				1 (1.7)	
1st quadrant	2 (3.3)	1 (1.7)	1 (1.7)				
2nd quadrant	1 (1.7)			1 (1.7)			
1st, 3rd quadrants	2 (3.3)	2 (3.3)					
Form of onset							
Erythema	33 (55)	31 (51.7)		1 (1.7)	1 (1.7)		
Erythema + erosive	2 (3.3)	1 (1.7)				1 (1.7)	
Erosive	15 (25)	13 (21.7)	1 (1.7)		1 (1.7)		
Erosive + ulcerated	1 (1.7)		1 (1.7)				
Erosive + ulcerated + blisters	1 (1.7)			1 (1.7)			
Erosive + blisters + pseudomembranes	1 (1.7)		1 (1.7)				
Erosive + blisters	5 (8.3)	2 (3.3)	2 (3.3)				1 (1.7)
Erosive+ pseudomembranes	2 (3.3)	2 (3.3)					
Symptomatology							
Asymptomatic	32 (53.3)	27 (45)	2 (3.3)	1 (1.7)		1 (1.7)	1 (1.7)
Mild, moderate discomfort	16 (26.7)	14 (23.3)	1 (1.7)		1 (1.7)		
Severe pain	8 (13.3)	5 (8.3)	2 (3.3)	1 (1.7)			
Burning sensation	4 (6.7)	3 (5)			1 (1.7)		

disease, describing a greater affectation in the ocular area (54%) and ENT (46%) in patients with MMP, and a greater affectation in the genital region (41%) in patients with OLP [18]. However, it is worth noting that this information was not collected in the majority of studies [14, 16–18].

Likewise, a differentiation of lesions in the oral cavity was also considered, observing different prevalence among the different population groups. In this study, 90% of patients presented with non-gingival involvement, compared with 78% of patients in the study conducted by Lo Russo et al. [6]. This can be justified by the greater presence of patients with OLP in these groups. This pathology suffers the highest prevalence of lesions in the oral cavity within the underlying diseases, as observed in the study by Markopoulos et al. [16]. In contrast, the study carried out by Rogers et al. found an affectation of 36.59% [23], and Nisengard et al.'s study found an affectation of 36% [17], that is to say, a population with a higher presence of PMM. In terms of the location, lesions were found on the buccal mucosa in a large number of patients (73.3%), which is consistent with the composition of our sample of patients with OLP, as this entity has a greater presence of lesions on the buccal mucosa and tongue [24].

In relation to gingival involvement, only 2 studies made reference to the degree of gingival affectation, those of Leao et al. and Lo Russo et al. [6, 14]. The most prevalent lesions in this study were those affecting the anterior and posterior region, followed by those that only affected the anterior region, and finally those that only affected the posterior region. The diffuse involvement described by Lo Russo is understood as the localisation in both regions, and the results of this study were in line with those of Lo Russo's study [6]. On the other hand, Leao et al. classified their sample as localised (72%) and generalised GD (28%) [14]. If the latter term is understood as the involvement of both regions, the data from Leao et al.'s study is in contrast to the data attained in both this study and in Lo Russo et al.'s study; however, we do not know if the localised form could correspond to an involvement of different regions. Based on the understanding that this could cause confusion, it would be advisable to unify the criteria regarding the clinical characteristics of DG so that the data from the different studies can be compared objectively, mainly in terms of extension, either by quadrants or by regions.

There are no unified criteria for the collection of symptomatology, with this being described in different ways, ranging from a total absence of pain to the presence of intense pain. Leao et al. reported the presence of pain (92%), pain accompanied by burning sensation (1.6%), pain with mucosal ulceration (5%), and pain with mucosal blistering [14]. Lo Russo et al. described mild–moderate discomfort with burning sensation in 90% of participants, severe pain in 10% of participants, and 1 patient was asymptomatic [6]. In this study, data were collected using a visual analogue scale (VAS). The data from the aforementioned studies was in contrast to the data from this study in which 53.3% were asymptomatic, followed by 26.7% who presented with mild to moderate discomfort. This could be due to the presence of other lesions, as this study differentiated between discomfort exclusively localized in the gingiva. It may be more convenient to assess pain using a VAS scale, as was done in the study by Lo Russo et al. 2009, given that this data is based on the qualitative rather than quantitative collection of symptomatology data.

This study presented certain limitations in terms of the sample size, in particular, in terms of vesiculobullous lesions that are not common to our environment. On the other hand, we only perform immunofluorescence on biopsies of suspected bullous diseases. It also presents the limitations inherent to a retrospective cross-sectional observational study.

The strength of our work is that the Oral Medicine Unit of the USC is a reference at the Galician level of oral pathology. We treat patients referred from the public and private health services.

On the other hand, in Spain we did not find any research on the clinical characteristics of desquamative gingivitis, so this pilot study allows us to have an overview of the disease in our environment to design other prospective studies.

5 | Conclusions

It can be observed that the most common disease associated with DG in our environment is OLP. Nonetheless, there are other diseases with systemic implications that also present this characteristic symptom; therefore, it is worth noting the diversity that exists in terms of the appearance and extension of DG. Likewise, it is important to stress to dental hygienists the importance of a proper diagnosis and the assessment of any gingival lesions that do not disappear following adequate periodontal treatment as these may indicate the presence of a systemic disease.

6 | Clinical Relevance

There is diversity in the clinical characteristics of desquamative gingivitis. The knowledge of this entity helps an early diagnosis and prevents the progression of the underlying disease. This study helps to know the different forms of the disease in a population.

Author Contributions

Conceptualization: Pilar Gándara-Vila, Andrés Blanco Carrión, Valeria Sanmartín Barragáns. Methodology: Pilar Gándara-Vila, María Dolores Reboiras López, Abel García García. Validation: Mario Pérez-Sayáns García, Pilar Gándara-Vila. Formal analysis: Alejandro Ismael Lorenzo Pouso, Mario Pérez-Sayáns García. Investigation: Valeria Sanmartín Barragáns, Pilar Gándara-Vila, Andrés Blanco Carrión. Resources: Eva María Otero Rey, Pilar Gándara-Vila. Writing Original Draft: Valeria Sanmartín Barragáns, María Dolores Reboiras López. Writing Review and Editing: Mario Pérez-Sayáns García, Pilar Gándara-Vila, Alejandro Ismael Lorenzo Pouso. Visualisation: Andrés Blanco Carrión, Pilar Gándara-Vila Supervision: Abel García García. Project administration: Pilar Gándara-Vila.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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