



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2023; 9(4): 231-234
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www.oraljournal.com
Received: 02-10-2023
Accepted: 05-11-2023

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Gingival Recessions

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DOI: <https://doi.org/10.22271/oral.2023.v9.i4d.1876>

Abstract

Introduction: Gingival recessions are associated with dentin hypersensitivity, root caries, esthetic problems. In many occasions orthodontic treatments and the thickness of the gingival tissue and keratinized tissue play an important role in the etiology.

Objective: To analyze the literature on gingival recession. The topics of gingival biotypes, etiology, signs, symptoms and treatment will be reviewed.

Methodology: Electronic databases such as PubMed, Scopus, Google scholar, Scopus were consulted, using the keywords "gingival recession, treatment, signs and symptoms, treatment".

Results: Gingival recession is one of the pathologies in which the main factor that causes it is unknown, however studies have shown that patients with a thin gingival biotype have a greater predisposition to suffer this type of lesion and as a consequence cause esthetic problems, hypersensitivity, root caries, etc. That is why over time various methods have been studied to treat this disease, being the connective tissue graft with flap the "gold standard".

Conclusion: Gingival recessions play a very important role in oral pathologies; since nowadays it is one of the most frequent, affecting patients with periodontitis and healthy periodontium. Therefore, being a disease of multifactorial origin, its treatment sometimes becomes complex due to the need to restore esthetic and physiological aspects.

Keywords: Gingival recession, gold standard, healthy periodontium

Introduction

Medical and/or economic significance

Gingival recessions are associated with dentin hypersensitivity, root caries, aesthetic problems, in many cases orthodontic treatments, the thickness of the gingival tissue and keratinized tissue play an important role in the etiology. (Alsahi RH *et al.*, 2021) ^[2].

General Background

Gingival recessions are one of the pathologies whose etiology is unknown, mainly affecting the population over 50 years of age, without having a predilection for any gender. (Sawan NM *et al.*, 2018) ^[3]. Resulting in aesthetic problems, hypersensitivity, root caries, etc. This makes the treatment one of the most common and complex in dental practice.

Particular Background

Gingival recession is defined as "the displacement of the apical marginal tissue to the cement-enamel junction" (Camargo *et al.*, 2001) ^[8] It is a dental condition that affects more than 60% of the population today, regardless of age, gender, race and socioeconomic status, it should be added that the prevalence, extent and severity of gingival recessions increase with age and at least 40% of young people and the 88% of adults have a lesion with at least 1 mm of gingival recession. (Chan *et al.*, 2015) ^[10].

Specific Background

The etiology of gingival recessions has a multifactorial development, since it is considered as a final effect of the various interactions of the etiological factors, so it is not possible to identify and define what the range of influence is. (Dominiak M *et al.*, 2014) ^[14].

On some occasions it could be considered that brushing techniques and hygiene habits can contribute to the appearance of gingival recessions (Chan *et al.*, 2015) ^[10], however it is important to note that this pathology can occur in patients with good hygiene and poor hygiene.

Justification

Gingival recessions are one of the pathologies that have the greatest impact on patients today, however, there is still no knowledge about what is the main cause of this disease. That is why it is of utmost importance to analyze the literature to gain an in-depth understanding of the different factors that contribute to its appearance.

Objective

To analyze the literature on gingival recessions. Topics on gingival biotypes, etiology, signs, symptoms, and treatment will be reviewed.

Methodology

An exhaustive search was carried out and electronic databases such as PubMed, Scopus, Google scholar, Medline were consulted, using keywords such as "gingival recession, treatment, signs and symptoms, treatment"

Results

Biotypes

Nowadays "gingival biotype" is used to refer to what was previously known as "gingival phenotype", which describes the bucco-lingual dimension (Malpartida-Carrillo *et al.*, 2021) ^[24], however, it does not only refer to clinical variations in gingival thickness. It also refers to the width of the keratinized tissue, bone morphology, tooth shape, etc.

There are 3 types of dental biotypes: Fine, medium and coarse, which influence the suffering of gingival recessions, clinically it has been shown that the transparency of the periodontal probe through the gingival margin can effectively differentiate a thin, medium or thick gum in a reproducible way (Barootchi S *et al.*, 2020) ^[5].

On the other hand, gingival phenotypes are thought to be associated with specific tissue characteristics and the outcomes of dental treatments (Fischer KR *et al.*, 2021) ^[15], which in turn can be modified by environmental factors. Clinical interventions such as restorations, orthodontics, or gingival grafting procedures. (Kim DM *et al.*, 2020) ^[22], however, several authors over time emphasize that the gingival biotype is genetically predetermined and cannot be modified, which is why it continues to be an object of study.

The thin periodontal biotype is one of the risk factors for gingival recession (Jing WD *et al.*, 2019) ^[20] in addition to several studies indicating that patients who have this type of dental biotype are more susceptible to plaque and soft tissue defects.

The thick gingival biotype is commonly seen in patients with short but wide crowns, with evident cervical convexities and wide contact areas (Assiri M *et al.*, 2019) ^[4] in turn thick gingival tissues have been described to be more resistant to recession (Belak S *et al.*, 2021) ^[6].

Currently, the term "periodontal phenotype" encompasses the aspects gingival phenotype (three-dimensional gingival volume) and dentoalveolar bone morphotype (Lin Gh *et al.*, 2020) ^[23], the use of this new terminology has been accepted by periodontic specialties.

Different types of gingival phenotypes respond differently to dental treatments, inflammation, trauma, etc. Therefore, it is

vitaly important to use the different methods that exist today to evaluate and recognize the degree of success and prognosis of dental treatments.

Etiology

Gingival recessions are one of the most common aesthetic and functional problems in the periodontium, but also one of the most complex in terms of etiology and treatment methods. Gingival recession is defined as the displacement of the apical gingival margin to the cement enamel junction of a tooth or the platform of a dental implant (Imber JC *et al.*, 2021) ^[19].

The etiology is related to various factors such as anatomical, pathological and physiological, it is important to note that it can be classified as localized or generalized (Guttiganur N *et al.*, 2018) ^[17], depending on the number of areas it covers, as well as being related and even being a determining sign of periodontal disease. On the other hand, it can affect patients with good and poor oral hygiene, but with a higher prevalence in older men. (Shkreta M *et al.*, 2018) ^[32].

In the prosthetic field, gingival recessions represent a major problem, as they significantly change the axial center of rotation of a tooth (Robo *et al.*, 2021) ^[29]. This is one of the most common aesthetic problems related to the oral cavity (Bhat M *et al.*, 2019) ^[7], so the recession worries patients and clinicians as it is considered a health and aesthetic problem (Handelman CS *et al.*, 2018) ^[18].

It should be considered that, in the same way, the presence of orthodontic problems such as anterior crossbite can lead patients to the appearance of abrasion facets in the incisal region of the upper incisors and, consequently, gingival recessions (Rauten AM *et al.*, 2020) ^[28].

As is evident, they cannot be associated with a single etiological factor, which makes clinical diagnosis and treatment even more difficult (Tomina D *et al.*, 2021) ^[33].

From this it can be deduced that they appear as a response to various local irritants, such as biofilm, tartar, oral perforations, etc., and even due to the inability of the oral mucosa to adapt to excessive occlusal forces.

Treatment

Over time, different types of treatment have been tried, such as free gingival grafts, coronary advancement flaps with or without connective tissue grafting, platelet-rich fibrin, the lateral pedicle flap, and the tunnel access technique (Gummaluri SS *et al.*, 2021) ^[34].

Thus, numerous periodontal plastic surgery techniques have been suggested to treat recessions, coronally flapped connective tissue grafts are the "gold standard" (Akcan Sk *et al.*, 2020) ^[1] which is one of the most widely used for root coverage, as it produces substantial results and shows improvements in recession depth. Probing depth, clinical attachment level, and keratinized gum width (Deo SD *et al.*, 2019) ^[13].

Although flaps are the gold standard for treating them, there are other alternatives such as acellular dermal matrices, xenogenic collagen matrices and xenogenic acellular dermal matrix (Mathias Santamaria IF *et al.*, 2022) ^[25], platelet-rich fibrin has also been shown to rapidly stimulate healing through cell proliferation (Miron RJ *et al.*, 2017) ^[26] thus promotes tissue repair and angiogenesis at the site of injury.

While subepithelial connective tissue grafts, coronal flap alone or associated with another biomaterial, and guided tissue regeneration can be used as treatments for localized or generalized recessions, with excellent results There is also some weak evidence to suggest that acellular dermal matrix

grafts appear as the soft tissue substitute that may provide the results most similar to those achieved with connective tissue grafts subepithelial (Chambrone L *et al.*, 2018) ^[9].

Eventually, over time, dentistry has evolved and with it treatments. Microsurgery is one of the advances in the field of periodontal plastic surgery; which consists of the use of microscopes and microsurgical instruments to improve visual acuity and reduce surgical trauma, therefore studies have shown that microsurgical instruments lead to better vascularization and the possibility of primary wound closure (Goyal L *et al.*, 2021) ^[16], it is equally important to mention the non-invasive surgical technique called "pinhole surgical technique", as it reverses the recession without using a donor graft, flap lift, or sutures (Mosfata D *et al.*, 2021) ^[35].

Finally, it should be noted that these treatments are indicated in patients who are in advanced stages, on the other hand, when the cases are not so severe, we can limit ourselves to maintaining control and making follow-up appointments with patients, as long as the integrity of the tooth is not affected.

Signs and symptoms

Defects caused by gingival recessions are highly prevalent among different populations and can even affect up to 100% of people, regardless of oral hygiene conditions. Aesthetic complaints and dentin hypersensitivity are common problems that motivate patients to seek treatment (Santa Maria MP *et al.*, 2021) ^[30], because the displacement of the marginal gum in relation to the cement-enamel junction can result in root caries (Sawan NM *et al.*, 2018) ^[31].

It is important to note that clinical gingival health can be found in an intact periodontium, i.e. without loss of clinical junction or bone loss and in a reduced periodontium (Chapple ILC *et al.*, 2018) ^[11], therefore this pathology does not discriminate against any gender and consequently can be found in a large part of the population; despite the good hygiene that certain patients have, it has been shown that gingival recessions in these cases are more frequently found on the vestibular surfaces of the canines and premolars (D'Silva E *et al.*, 2020) ^[12], in addition to studies that have corroborated that the inferior anterior crossbite is associated with gingival recession (Alyami B *et al.*, 2022) ^[3].

As is evident, gingival recessions represent a great challenge for clinicians and also great discomfort for patients since in addition to the previously mentioned problems, patients also complain of trauma and the inflammation it causes (Gummaluri SS *et al.*, 2021) ^[34] It is also often associated with problems such as cervical root abrasions (Bhat M *et al.*, 2019) ^[7] and, as a consequence, the loss of periodontal fixation (Katti N *et al.*, 2022) ^[21].

Finally, it is of utmost importance to identify the signs and symptoms of gingival recessions, as they can often be warning factors for other more complex diseases such as periodontal disease.

Conflict of Interest

Not available

Financial Support

Not available

Conclusion

Gingival recessions play a very important role in oral pathologies; Nowadays it is one of the most frequent, affecting patients with periodontitis and healthy periodontium. Therefore, being a disease of multifactorial

origin means that its treatment sometimes becomes complex due to the need to restore both aesthetic and physiological aspects.

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How to Cite This Article

Subiaur CP, Fierro NC, Palencia PG. Gingival Recessions. *International Journal of Applied Dental Sciences.* 2023;9(4):231-234.

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