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Gingival recessions – to prevent or to treat

Gingival recession means the loss of gingival tissue which is possible to be clinically measured, consisting in a shift of the gingival margin towards the apex in relation to the enamel-cementum border. For the patient it usually means the loss of esthetics due to denudation of the root cementum surface, which in turn causes oversensitivity of the tooth to stimuli and also creates favourable conditions for the root cementum caries. Patients' subjective fear of teeth loss due to progressing gingival recession is also an important factor. Frequency and severity of recession is associated with age and it ranges between 6.3–100 per cent, definitely increasing with the age of patients (1, 3, 10, 20, 22, 23).

Recession is not usually caused by one factor, it is the final result of many different factors whose origin and degree of pathogenicity is very difficult or sometimes impossible to detect. The main recessionogenic factor is mechanical injury associated with an improper way of cleaning the teeth. It consists in mechanical injury of the gingiva caused by the wrong technique, hardness of bristles and the type of a toothbrush, too much pressure exerted while cleaning and the frequency of brushing. Recessions with this etiology are characterized by lack of dental deposits and gingival inflammatory conditions; they occur only on vestibular surfaces (4, 8, 9, 10, 21, 24). Gingival fissures are shallow, inflammation is not observed (15). Anatomical conditioning, also called developmental conditioning, is usually genetically determined (7). It comprises gingival, osseous and dental conditioning. Gingival factors include: thin gums and soft tissue defects such as: improper frenulum attachments, a shallow vestibule and a narrow zone of the attached gingiva. Osseous factors are: a thin lamella of bone covering the root or lack of the lamella: bone dehiscences or fenestrations. O l s o n and L i n d h e introduced the notion of a thin biotype of the periodontium (14), a thin gingiva and bone covering the root predisposing to formation of recessions. Dental factors include disturbances in the topography of teeth: tooth inclination towards the vestibule, crowding of teeth, extrapositional rotations. Every position of the tooth in the dental arch inclined towards the vestibule is associated with decreased thickness of the gum and bone, which simultaneously poses greater risk of injury while brushing (21). So the thickness of the gingiva is its most important structural element predisposing it or not to formation of recession (10). Long-term studies prove that the width of the attached gingiva does not significantly influence formation of recession, provided that proper oral hygiene is maintained (1, 22, 23). This anomaly, however, plays a role in choosing a method of surgical treatment of recessions (22).

Acquired factors constitute another group of etiological factors of recession: inflammations (diseases of the periodontium) and iatrogenic factors, connected with every kind of medical-dental procedure. Diseases of the periodontium lead to inflammatory bone resorption of the alveolar process, which also results in the loss of the connective tissue attachment and a shift of soft tissues of the periodontium towards the apex. Most surgical procedures performed during the treatment of diseases of the periodontium are also recessionogenic (post-surgical recessions). In some patients recession can be formed during orthodontic movement of teeth, this being largely influenced by the magnitude and time of action of the force exerted upon the tooth. It has been shown in experi-

mental studies that as long as a tooth is orthodontically shifted within the bone, the risk of recession is minimal: moreover, the movement of the tooth towards the vestibule decreases the width of the gum, and the movement towards the tongue increases the height and thickness of bone and may lead to the shift of the gingival margin towards the crown. Recessions which patients have when they begin orthodontic treatment may decrease because of the treatment (in adults) or completely disappear (for example in children after the treatment of partial anterior buccal occlusion) (15). What is important is the magnitude of forces exerted and also the occurrence of inflammation of the tissues towards which the tooth is moved (10). Application of controlled shifts leads to active remodelling of the periodontium, which can play a role in formation of mucogingival pathologies as well as in their removal and treatment (13, 16).

The importance of initial pre-orthodontic diagnostics and periodontal care for orthodontically treated patients should be emphasized here. If existing bone dehiscence is not diagnosed before orthodontic treatment, the shift of the tooth in its direction will always lead to formation of recession (22). Recessions formed during orthodontic treatment should be foreseen by an orthodontist and the mechanism of their formation should be explained to the patient, who, in this situation, ought to be referred to and possibly treated by a periodontist. From a patient's point of view esthetic significance of recessions frequently exceeds health aspects and it can be a cause of legal claims from patients who are unaware of a possibility of occurrence of this type of complications (15). Gingival recessions may be a result of conservative and prosthetic treatment (improper management of hard tissues of the tooth in the region adjacent to and below the gingiva). Inappropriately placed prosthetic clasps and surfaces of fixed prostheses are also recessionogenic factors.

Commonly used and helpful from the clinical point of view is the classification according to Miller from the year 1985 (12). This division takes into account not only the extent of recession but also the condition of periodontal tissues in interdental spaces and the occurrence of dental defects. The main asset of the classification is that we can use it to make predictions of the efficacy of surgical treatment. The treatment regimen should take into consideration: recession class, the patient's age, activity or stability of recession, planned complex treatment (conservative, orthodontic, prosthetic), the patient's esthetic expectations. Reconstructive management in young patients with recessions who are in the process of dentition development ought to be postponed. The development of jaw bones may lead to spontaneous cure, and observation with monitoring of the changes can help to choose the right method of treatment. In opposition to the treatment of children, surgical intervention is usually indicated in adults with progressive active recession. The initial management before the procedure aiming at detection, elimination and reduction of influence of etiological factors is essential in every case of treating recession. The most important are professional instructions and motivating the patient to ensure proper oral hygiene. Special attention should be paid to the brushing technique, the degree of pressure and hardness of a toothbrush. Sanation of the oral cavity should be performed, zero values of hygiene indices should be achieved in the area of the planned procedure and soft tissue defects should be eliminated at least one month before recession surgery. Orthodontic solutions of the problem of recession and dental defects should also be considered. Application of controlled orthodontic shifts leads to active remodelling of the periodontium, which can play a role in formation of mucogingival pathologies as well as in their removal and treatment (13, 16).

Contemporary periodontology offers a range of methods of surgical correction of gingival recessions (2, 3, 5, 6, 11, 17, 18, 19, 25); those which are most frequently used are the following: • lateral shift of a flap • shift of a flap towards the crown • shift of a bridge bipediced flap towards the crown • shift of a flap towards the crown with steered tissue regeneration using regenerative membranes • shift of a flap towards the crown with the connective tissue graft • graft of a loose flap of the mucous membrane or skin • a connective tissue - bone graft in combination with derivatives of the enamel matrix.

It can be concluded from the presented considerations that the problem of gingival recessions has complex etiology and various effects for the patient which are connected with objective unpleasant complaints and also – more and more often – acceptance of esthetics. The problem re-

quires complex, careful, often interdisciplinary approach from dentists of different specialties, beginning from the stage of identification of causes through their thorough removal to treatment of a formed pathology and surgical correction in order to restore esthetics and function of the periodontium required by the patient. This treatment, beside the possibility of esthetic correction of soft tissues, always carries probability of complications and failures, which should be included in the risk of performing procedures. Secondary recessions resulting from disease or its therapy can be treated at any age, although not always successfully. Knowledge of causes and symptoms of possible complications may help to avoid adverse effects and favourably influence the results of the chosen treatment, as well as to ensure long-lasting effects. Thus gingival recessions can be treated and should be prevented.

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SUMMARY

On the basis of available literature we presented contemporary theories on etiology of gingival recessions and their methods of treatment. The formation of gingival recessions is determined by a number of etiological factors whose action is frequently accumulated. Identification of a given factor and its range of influence upon formation of recessions are sometimes difficult to specify, therefore it is important to analyse all possible causes and remove them carefully, frequently involving doctors of different specialties. Surgical correction does not always lead to *restitutio ad integrum*. Prevention of formation of these pathologies, correction of anomalies and avoidance of iatrogenic mistakes, as well as making patients aware of causes which they can control seem to play a key role in elimination of these disorders from clinical practice.

Recesje dziąsłowe – zapobiegać czy leczyć

Na podstawie dostępnego piśmiennictwa przedstawiono współczesne poglądy na etiologię recesji dziąsłowych i metody ich leczenia. O powstaniu recesji dziąsła decyduje wiele czynników etiologicznych, których działanie często ulega kumulacji. Identyfikacja i zakres wpływu danego czynnika na powstanie recesji bywa trudne do sprecyzowania, dlatego ważna jest analiza wszystkich możliwych przyczyn i rozważne, często angażujące specjalistów wielu dziedzin ich usunięcie. Korekta chirurgiczna nie zawsze prowadzi do *restitutio ad integrum*. Zapobieganie powstawaniu tych patologii, korygowanie nieprawidłowości oraz unikanie błędów jatrogennych, a także uświadamianie pacjentom stwierdzanych przyczyn zależnych od nich samych, wydaje się mieć kluczowe znaczenie w eliminacji tych zaburzeń z praktyki klinicznej.