THE PREVALENCE OF GINGIVAL RETRACTIONS.
ETIOLOGY AND CLASSIFICATIONS

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INTRODUCTION

Gingival retraction is defined as a noninflammatory deviation of the gingival ridge towards the apical region, leading to exposure of the dental roots and to dental sensitivity [1,2]. Gingival retraction belong to the affections having a negative facial aesthetic result, and, as a consequence, acting on the patinet’s psychic. Lately, we have noticed an increased preoccupation towards the treatment of inflammatory parodontal affections by means of parodontal surgery aiming at stabilizing the inflammatory process in paradontontology little attention being given to the real local retractions or to the general ones of a noninflammatory etiology and to those occurring after the parodontal surgery.

In the Russian literature, for a long time, gingival retraction was termed “retraction” or “gingival atrophy”. T.F. Vinogradova suggested for the gingival retraction to be defined as atrophic gingivitis in the shape of a Latin V.P.A. Leus and L.A. Kazenko [3] define gingival retraction as being a progressive deviation of the gingival ridge in the apical direction together with the exposure of the colet of the dental roots. In 1993, the authors suggested the following classification of the gingival retractions: according to the clinical forms – I Traumatic retraction (local and general); II Symptomatic retraction (local, general, systemic); III Physiological retraction (systemic). According to its severity – Minor condition up to 3 mm, Medium condition 3-5 mm, Severe condition 6 mm or more. The authors emphasise the fact that the extent and severity of retraction increase with age, namely: in patients between 21-30 years the mean gingival retraction can come to 0.37 mm on the upper arch and is 0.71 mm on the lower arch. In patients, between 31-40 years, gingival retraction varies between 1.1 and 1.5 mm; between 41-50 years it varies from 1.98 to 2.05 mm, and in patients of 51-61 years gingival retraction may reach 2.98 mm.

OMS, in the guide of dental affections, includes gingival retractions under the heading 06.00 and classifies them into generalised, localised, postinfectious and postoperative [4].

The best well konwn classification of gingival retractions remains the one made by P.D. Miller in 1985. [5]

I. Retraction does not extend beyond the muco-gingival limit (the height of the interdental papillas is not affected):
   A. Narrow retraction
   B. Wide retraction

II. Retraction extends beyond the muco-gingival limit (interdental papillas are not affected)
   A. Narrow retraction;
   B. Wide retraction.
III. Retraction affecting the bone tissue and the height of the interdental papillas
   A. Without involving the neighbouring teeth;
   B. Involving the neighbouring teeth.

   Nevertheless, the interdental papilla is placed closer to the apical region than to the enamel-cementum junction and the gingival ridge is closer to the coronal region of the vestibular surface.

IV. Loss of gum and bone tissue in the interdental area is circular in shape
   A. Limited (in the area of a few teeth)
   B. Generalized on a vertical line

   Miller’s classification has a great practical value in establishing the prognosis of the surgical treatment.

   From the literature data we note that retractions from class I and II can be 100% successfully treated, those in class III 70-80%, and those in class IV remain unsolved.

   My personal clinical findings and also on the basis of the analysis of literature allowed me to classify the main factors causing gingival retraction. [6]

ETIOLOGICAL FACTORS

I. Anatomo-physiological peculiarities of the structure of alveolar crests, examples:
   A. Teeth with big roots (e.g. the canines have a very thin cortex- in other cases the intraosseous vascularization of the vestibular alveolar crest is very low or even absent and the blood supply is provided by the periostal vessels and so the trauma to the periostal vessels can lead to the loss of cortical plate. In such a case there appear defects in the shape of a fissure (dehiscence or a fenestration), and in this region the gum becomes very sensitive to the mechanical factors or to microbes.
   B. The vestibule of the oral cavity is small. After Fevraleva [7] a small vestibule is the one with less than 5 mm in depth. Its depth is found out with a parodontal probe, representing the dimension between the fix gingival ridge and the mobile mucosa in the region of the lower incisors according to Ms Gorbatova, quoted by Oh. [8]
   C. In fact, of a great importance in the occurrence of gingival retraction is not the width of the fix gum but the relationship between the width of the fix gum and that of the free gum. In a correlation of 1:1, the number of patients with parodontal affections is 90.5%, while in the correlation 8:1, this indice goes down to 28.6%. From a clinical point of view, it would be advisable to reach an optimum correlation of 5:1. In such a case 5 mm would be the minimum dimension for enlarging the area of the fix gum for performing an operation. In the presence of a small fix gum, associated with a small vestibule of the oral cavity, there will be a permanent trauma upon the gum from the food and the disturbance in the vascularization of the gum which will lead to gingival retraction. The same mechanism will induce gingival retraction in the presence of muco-alveolar traction and of the labial deep inserted frenums. [9]

II. Anomalies of the teeth, of the dental arches and of the occlusion. In this group we include:
   A. Dental over contacts;
   B. Protrusion;
   C. Deep occlusion;
   D. Tortoanomalies;
   E. Vestibularized teeth;
   F. A slightly evident equator or its absence.

III. Microbial factor (soft or hard dental deposits)

IV. Repeated trauma on the gum
   A. Excessive brushing or the use of a tooth brush with hard hair. We should also add that the incorrect brushing may lead to cuneiform defects.
   B. Prominent edges of the small crowns and obturations.

V. Visious habits
   A. Using matches or keeping flutes, pencils or pens in the mouth
   B. Traumtizing the gum with the nails (in persons with emotional problems);
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C. External trauma (e.g., in dental luxations with the fracture of the vestibular wall may also lead to a severe retraction).

VI. Orthodontic treatment – may expose to retraction those teeth subjected to traction

VII. Iatrogenic pathologies. In this context we can present the following factors:

A. The arsenic paste in contact with the gum causes necrosis of the soft and hard tissues favouring gingival retraction.

B. The mechanical trauma of the gum made by the fraise or the separation discs.

C. Quite often, gingival retraction occurs in chronical periapical affections in cases of resorbtion or radicular perforation. As a rule, this is the result of an endodontic or orthopedic treatment in cementing the core, or in corono-radicular constructions. The osseous resorbtion will be more severe when the vestibular radicular wall is perforated, which will further destroy the bone and lead to the occurrence of fistula and retraction. When perforation progresses asymptomatically, gingival retraction can be the first symptom of this iatrogenic pathology.

D. Traumatic extraction of the neighbouring teeth can also lead to gingival retraction.

E. Subgingival preparation of the abutment teeth altering the biological width, and, taking the impression under pressure, gingival retraction can result.

F. Restoration of exposed roots using obturation materials can lead to the progress of retraction.

AIM OF STUDY

The present study has in view to assess the prevalence of noninflammatory gingival retraction in young people and in adults as well, the identification of the clinical type according to Miller’s classification and to find out some peculiarities of its evolution by making the anamnesis, a clinical and radiological evaluation of patients and to establish the factors that cause gingival retraction.

MATERIAL AND METHODS

The study included a group of 67 patients, selected according to the way they came for medical care to the University Dental Clinic of USFM “Nicolae Testemitianu”, Chisinau, Moldova; out of these, 51 (76.1%) were females and 16 (23.9%) were males. According to their age, patients were grouped: 14-25 years old 9 patients (13.4%); 25-35 years old 19 patients (28.3%); 35-50 years old 39 patients (58.2%).

The method of evaluation was: anamnesis, the clinical radiological evaluation of patients and the presentation of the factors that cause gingival retraction.

RESULTS AND DISCUSSION

There are a few studies focussed on the correlation existing in noninflammatory parodontal affections, studies which tried to establish the degree of connection between the nature, type and the degree of extent of gingival retraction.

By means of the clinical radiological examination and by anamnesis there were evaluated the local factors that had the potential to cause gingival retraction in all 67 patients, the depth of the retraction was assessed with a parodontal probe, from the edge of the enamel up to the gingival edge, and for the width of the retraction there was determined the widest area in the region of enamel-cementum.

As the result of the present study the following data have been obtained:

1. the age group 14-25 years old made up of 9 patients (13.4%); in 6 patients (8.9%), it was found retraction Miller class I (the causal factor being the treatment with orthodontic devices and poor hygiene) and in 3 patients (4.5%), it was found retraction Miller class I (the causal factor being the lip frenulum which was deeply inserted).

2. the age group 25-35 years old made up of 19 patients (28.3%), retraction Miller class I was found in 14 patients (20.9%), the causal factor in 7 patients (10.4%) was a thin biotype of the gum, and in the other...
7 patients (10.4%), the causal factor was a small buccal vestibule. In 5 patients (7.5%) of this age group, gingival retraction Miller class II was found, the causal factor being – occlusal overstress, incorrect brushing and a thin biotype of the gum.

3. The age group 35-50 years old made up of 39 patients (58.2%), retraction Miller class I was found in 19 patients (28.3%), the causal factors being: incorrect hygiene, thin biotype of the gum, small buccal vestibule and the presence of the mucosal brides. In 9 patients (13.4%) (females) gingival retraction Miller class II was found, causal factor – menopause. In 11 patients (16.4%) Miller class IV was found, the causal factor being the prior parodontal treatments.

Gingival retraction is a polyetiologial affection. Its occurrence being determined by anatomical conditions like: bone deshiscence, shortage of keratinized gum, small vestibule, and a thin biotype of the gum. Under the action of traumatic factors as: incorrect and under pressure brushing, occlusal trauma, iatrogenic factors, the gingival edge moves towards the apical area, uncovering the vestibular surface. The pre and post menopause period, due to the deficit in estrogens and progesteron leads to an important loss of attachment. As a result of the treatment of noninflammatory parodontal affections, the gum migrates to the apical area, uncovering the dental roots with an unpleasant and unesthetic aspect of the patient. [10] In establishing the diagnosis, one must take into account all the mentioned eitological factors without neglecting any one of them.

CONCLUSIONS

As a result of this study, it was noticed that most frequently gingival retractions occur on the vestibular surfaces of the front teeth and of the premolars, more rarely on the vestibular surfaces of molars.

References

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