

DIET INDUCED EROSION - IMPROVING DIAGNOSIS AND THERAPY IN PROSTHESES RELATED INFLAMMATIONS

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ABSTRACT. Dental erosion, a non-cavitary injury, is a frequent injury that we meet in our practice, being a consequence of some factors. The factors that can initiate apparition of dental erosion are: solubility of dental structure to acid, the anatomy of soft tissues, the occlusion and dental anatomy, the teeth's shape, the deglutition, the mineralization of hard tissue and the presence of fluorapatite instead of hidroxiapatite. The factors that produce the dental erosion are represented by the diet, which contains:food acids and drinks, sweet food, fruit juice. Drugs, different oral hygiene products and life style are also factors that can determine erosion. Early recognition of the injury, which is defined by a loss of rough dental tissue caused by a chemical prosses, is important to prevent irreversible damage. This is the main reason why it is necessary to know the clinical aspect, etiology and all the risc factors, is in order to establish a well defined protocol to diagnose it. **KEYWORDS:** diet, erosion, dental abrasion, gastric acid, regurgitation

INTRODUCTION:

The erosion is a non-cavitary injury and it is defined by loss of rough dental tissue caused by a chemical phase, not by bacteria, differing from tooth decay. The pathogenesis of the dental erosion is not well known to date (Gavrilă L., 2009). We know that this disease has more than one factor that starts the dental attrition (Gavrilă L., 2009).

Except the physiological abrasion there are different pathological forms that are characterized by a rapid and intensive enamel and dentine abrasion in a relatively short period of time.

Patological abrasion assumes pronounced wear of enamel and dentine. It's estimated that approximatively 11.8% of world population suffers from this affection, the masculine gender being more predisposed (62, 5%).

Foods and drinks, especially fruit, fruit juice and sweet drinks can contain different acids that can affect the dental tissue, especially citric acid that can determine sever injuries to the tissue (Gavrilă M., 2012). The fruit juices represent 40% of the etiological factors of dental erosion. Other drinks that have a high impact on the tissue are wines and champagne. The main acids are the malic and tartric acids that have a concentration of 5-8 g/l. The people that work in the wine industry and the wine tasters suffer for dentinal hipersensibility (Grivu et al., 2006).

Ironic, the healthy diet that contains fruit and vegetables can have a major impact in the etiology of dental erosion. Epidemiological studies show that 75% of the lacto-vegetarian persons suffer from dental erosion (Linkosalo et al., 1985). If you brush your teeth after you consume fruit juice, the risk of dental erosions raises. In this case brushing your teeth will remove the organic matrix and the remineralization can't take place (Gavrilă M., 2012, Grivu et al., 1995). If the teeth are not brushed 2-3 hours after you consume acid drinks they will remineralized through the calcium ions and saliva phosphates, and there will not be any permanent damage.

The logical option is to advise the patients to brush teeth before ingesting an acidic beverage. It is sufficient to wash your teeth with water and only after 2-3 hours to brush the teeth (Gavrilă L., 2009).

ETIOLOGY

Etiology of the process is multiple, and the abrasion can be seen as a result of endogenous and exogenous factors acting. From endogenous factors are considered metabolic disorders, the process of hard tissues mineralization imbalance, the imbalance of endocrine glands (Grivu et al. 2006). It is known that one of the most important role of the saliva is to dilute and



regulate the acid that enters the oral cavity. It also acts as a lubricant during the mastication. If the saliva flow is reduced, the potential of dental erosion raises. Some scientists noticed that if the saliva flow is reduced, the calcium appositium is prevented, which would regulary med the small flaws of the enamel. Also new reserches show that the saliva takes part in the pH neutralisation through the coenzyme VI (Grivu et al., 2006). The coenzyme stimulates the transformation of carbonic acid to water and carbon dioxide, enableing the bicarbonate ion to efficiently neutralize the saliva's pH.

The factors that can determin the appariton of dental erosion are: solubility of dental structure to acid, the anatomy and fiziology of soft tissue, the occlusion and dental anatomy, the teeth's shape, the deglutition, the mineralization of hard tissue and the presentce of fluorapatite instead of hidroxiapatite. The factors that produce the denat erosion are represented by the diet, which contains: acid foods and drinks, sweet food, fruit juice. Retching, medicamentation, different oral hygiene products and life styleare also factors that can determin it.

Endogen factors:

The regurgitation represents return of the gastric content in the oral cavity and it is described as involuntary or voluntary. Psycho-somatic disorders like anorexia are situations in which the regurgitation is voluntary. The somatic reasons include pregnancy, alcoholism, gastro-intestinal diseases. The gastric content is acids, with a pH of 2 and it can expose the teeth to high acid attack (Grivu et al., 2006, Gray et al., 1998).

There is a vast variety of chemical factors that can determine the appearance of the dental erosion. They can be classified as biological and favoring factors (Grivu et al. 2006). The biological ones, which cannot be changed by the diet, take part of ability of the saliva to regulate its pH (Kivelä et al., 2008).

There are multiple classifications in specialty literature that wants to systematize the gravity of substance deficit, taken as benchmarks affected tissues, depth, plan of abrasion.

Exogenous factors:

From the exogenous factors, a special importance is allocated to the overstrain of teeth, witch can be influenced by partial edentation, in relation with the restant teeth number and absent teeth, the mastication type, hyper function of muscles, the character of food, bruxism, and muscular parafunctions.

Because of endogenous and exogenous factors, abrasion of hard tissues takes place; this is considered a physiological process (Grivu et al., 1995). This phenomenon goes slowly to a change in teeth form and shape that is called second morphology (Gavrilă L., 2009).

MATERIALS AND METHODES:

In the first session the patient addresses to the dentist he does not know what he wants and how it might be accepted. Based on the experience and on the psychological knowledge, the doctor has to strenghten the pacient's personality. Through this method, the practician has to find the way to educate the patient.

In the second session, the practician will tell the patient the results for the clinical and the radiological examination. The dentist will not will not attract the patient's attention to the lack of hygiene because he will not accept to collaborate anymore. By highlighting plaque by staining it instead, the dentist will arouse his interest. The patient is invited to ask questions. This will determinate him to engage himself in a discussion about his case.

The third session represents a turning point in the motivational program, there can be seen a noticeable improvement of the dental and periodontal health.

CLINICAL RESULTS:

Erosion may have different aspects depending on the evolution. It may appear as a hollow in the enamel with irregular edges (Gray et al., 1998).

In general erosion it can be affected the whole crown. The surface is glossy and smooth, and the enamel edges become smooth as the erosion progresses. When the enamel is destroyed and appears the excavation, the dentin is exposed and dental wear evolve faster because the dentin has a medium hardness (fig.1).

When the erosion has affected vestibular or palatal faces in cervical area, it can be observed a central area with exposed dentin which is surrounded by unaffected enamel. On lateral teeth, the erosion may cause a loss of tissue with the blunt of tip cusps and the occurrence of concave surfaces (fig. 2).

The erosion cause by the environment, this was study elsewhere by Grivu O., Gavrilă-Ardelean M. et al., appears to the people that work in pollute environments, especially if they are exposed to acids (Grivu et al., 2006). This illness appears on the vestibular surfaces of the superior an inferior incisors (fig. 3), especially at the patients that breathe using their mouth. The level of destruction depends on the lever of the lips, the acids concentration and the length of the exposure. The evolution of the erosion is slow which can make it sometimes hard to diagnose.

Another factor that should be taken in consideration is represented by medication. Athletes are also likely to have erosion problems due to the fact that they consume large quantities of sweets and acid drinks stay hydrated during their practice (Linkosalo et al., 1985). Another factor is the drug abuse.



Fig.1. Affected crowns by diet induced dental erosion.



Fig. 2. Primary oclussal trauma.



Fig. 3. Local dental abrasion.

The diagnosis of dental erosion arises when there are the following factors: exposing the root surface with gingival retraction based on history by establishing the eating habits.

By the histological view erosive lesions can be active lesions with enamel prisms dissolved. In dentin, the low acidity determinates the decalcification of intracanalicular dentin, and the strong acid affects the pericanalicular dentin which is highly calcified (7).

Because dentin is an active tissue the changes of structure are more important than changes that occur in enamel structure. Under the influence of external stimulus, the complex pulp-dentin forms the tertiary dentin or dentin reaction. The opaque dentin is formed due to low sensitivity.

Dental caries are caused by chemical factors. The difference between dental erosion and dental caries is that the caries have a slow progress, and the erosion requires a high demineralization.

Regular removal of bacterial plaque is essential because it can prevent dental caries and marginal periodontal diseases (Gavrilă M., 2012, Grivu et al., 2006).

The regurgitations represent a clinical aspect of the erosion (Grivu et al., 2006). The signs of erosion can be found on the oral surfaces of the superior teeth, the inferior ones are somewhat protected by the tongue. The patient that suffers from anorexia can have the signs of erosion spread in the entire oral cavity.

CONCLUSION:

Dental erosion it is most located on the palatal face of anterior teeth, on vestibular face of all teeth, and on the occlusal face of lateral teeth.

Clinical aspects of the teeth with dental erosion : loss of tooth surface, tooth discromia, loss of incisal

translucency, incisal edge thinning, areas where the enamel is missing, sensitive teeth.

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