

DIAGNOSIS OF CHRONIC MARGINAL PERIODONTITIS BY IMAGING INVESTIGATIONS RELATING TO FOOD SAFETY

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Abstract

The aim of our study is the correlation of clinical periodontal manifestations with systemic or local disorders in order to point out the role of radiological investigations in early diagnosis of periodontal diseases relating to food safety.

Implications that an inadequate consumption of food with cancer potential could have on irreversible lesions occurrence on tooth structures should be taken into consideration as part of food safety.

Chronic marginal periodontitis is considered to be one of the most common dental diseases. The triggered destructive processes affect the marginal periodontal, the osseous alveolar tissue, but also the periodontal – anatomic structures for the fixation of the tooth in the socket (Dumitriu H.T., 2009).

Radiographs performed for the periodontal diagnosis are extremely useful, provided their execution within the technical rigors imposed by the radio-dental behavior (Condor D., et al., 2005).

Key words: imaging, food safety, chronic marginal periodontitis.

INTRODUCTION

Periodontal disease is a chronic degenerative process, of multifactorial etiology in which the immune system, stimulated by certain virulent bacteria turns, under certain circumstances, against the body itself, by intensifying the inflammatory response, having as consequence teeth supporting tissues (Condor D., 2009). Without a proper diagnosis and a treatment in due time, the condition evolves by mobilization, interspacing and loss of functional capacity of teeth, which, in the end, are expelled spontaneously or are extracted because of the painful complications of functional impairments.

Etiopathogeny of chronic marginal periodontopathies is given by a determining etiologic factor of periodontal condition (bacterial plaque) and by adjacent etiologic factors (calculus, teeth decays, occlusal trauma, edentation, teeth-alveolar abnormalities, iatrogenic factors, general factors) (Loghin S., 1998, Williams R.C., 1990).

Nowadays life style is quite different from the one in the past. Increased rhythm of modern life style has led to changes in the way people prepare and consume food. A positive result of these changes has been the fast advancement in food technology, of preparing and packing food, in

order to offer safety and good quality of food supply. In spite of these new discoveries, the risk of food contamination can occur with natural or accidentally introduced contaminants or by improper treatment of food stuff (Nițu T., 2008).

Food safety means aggregation of all factors and the application of all rules that support and insure manufacturing certain food products whose nutritive power and consume are the basis of healthy alimentation (Banu C., 2008).

The use of a radiological investigation is explained only by the need to obtain additional information which contributes, together with the clinical observations, to the complete diagnosis of each patient (Aldescu C., 1998). This, the first step in a complex dental treatment, is a comprehensive review of the clinical case. Clinical examination provides primary information and leads at the same time to the appropriate radiological examination of each patient's characteristics (Roman A. et al., 2006).

Radiological methods used in periodontal disease diagnosis and evolution have to be clear, accurate, relevant and thorough (Loghin S., 1998); a single radiograph cannot satisfy the need of periodontal disease, maybe only in the case of diseased periodontium adjacent to a single tooth.

Radiographs performed during periodontal diagnosis are extremely useful provided that they are performed by respecting the technical rigors imposed by dental imaging behavior (Condor D. et al., 2005).

In order to evaluate the supporting periodontium imaging investigations are needed to offer data regarding the alveolar lysis, its size, possible affliction of interradicular area, relationship of lyses to proximal decays or root canal obturations and inadequately fitted crowns.

Dental radiography is a valuable aid in diagnosing periodontitis, in determining the prognosis and assessment of treatment results (Newman M.G. et al., 2006; Morandi J. et al., 2010).

Orthopantomography is a radiological investigation that allows an overall assessment, consistent and clear of the hard structures of marginal periodontal (Aldescu C., 1998). On panoramic radiographs (Fig.1) there are visible three types of images: unique real images, doubled real images and ghost images (Comăneanu R.M. et al., 2011).



Fig. 1 Orthopantomography with chronic marginal periodontitis.

Chronic periodontitis is a real problem of contemporary dentistry due to not only high frequency (about 65%-95% of the population) but also due to complex etiology which, as a rule, is characterized by a combination of several general and local factors, chronic and progressive evolution as well as multiple complications which lead to occurrence and development of the stomatognathic system dysfunction syndrome affecting the entire body. (Schroeder H., 1986).

MATERIAL AND METHOD

In order to achieve the aimed purpose, a batch of 76 patients was examined, aged 25-78, out of which 42 females and 34 males, who came to the dental office during January-December 2011, requesting dental procedures in order to diminish the periodontal condition, having different stages of evolution, from moderate to severe.

For each patient, who accepted the subsequent investigations within the study, we drew up a personal control sheet. The patients in the observed batch were examined and observations were recorded in the personal observations chart. This chart was taken over and adjusted according to the pattern proposed by Professor Dumitriu (Dumitriu H.T., 2009).

Assessment of periodontal status was performed by general clinical examination, local examination, with the aid of paraclinical investigations and dental-periodontal radiological examination.

Patients in the batch had periodontal changes associated or not with dental changes.

There was investigated the correlation of periodontal pathology with any possible systemic diseases, vices, stress, dental hygiene, food habits and type, respectively we emphasized the food safety leading to necessary nutrients insurance-a low vitamins and minerals diet, weakens the immune system or a diet with increased sugar level or carbohydrates (cereals, pasta, bread) aids in plaque built-up. In order to ascertain the diet characteristics there was drawn up a questionnaire which aimed at the frequency, quantity and type of consumed food.

An inadequate from the quantity and quality point of view food can generate, at any age, affliction of bone-bearing tissues, starting with gingivitis, superficial or deep marginal periodontitis. For example, hypovitaminosis (lack of vitamins) (Dumitriu S. et al., 1996).

Prolonged food intake, or food which has synthetically obtained additives, compiles the body to a real chemical bombing, affecting internal organs (Domejean S., 2007).

Hypovitaminosis A is accompanied by whitish aspect of the gums and delay in lesions healing within oral cavity even under antimicrobial

treatment (Fig. 2). Hypovitaminosis D leads to demineralization of alveolar bone and enlargement of the space between the tooth root and the bearing bone, thus leading to a certain degree of motility. Hypervitaminosis B1 is accompanied by oral lining erosions and increased sensitivity to ingested food. Hypovitaminosis B2 leads to depapillation of the tongue and angular cheilitis (perlèche) frequently infected by streptococci or fungi (most frequently with *Candida albicans*). Hypervitaminosis C is frequently accompanied by ulcerative and hemorrhaging. In infants, hypovitaminoses are accompanied by gum inflammation and bleeding to the slightest touch. In severe forms of hypovitaminosis C, in adults, in case of superinfection through bacterial plaque, teeth are avulsinated (get out of the alveoli) without pain (Schroeder H., 1986; Dumitriu H.T. 2009).



Fig. 2 Patient presenting whitish appearance of gums associated with chronic periodontitis.

In order to diagnose periodontal pathology, a special stress should be made on radiological examination, as investigation means allowing for assessment of periodontal condition evolution in time.

Useful details were obtained by orthopantomographic examinations or, in case certain details were necessary, by intra oral and retroalveolar radiographs (Vataman R.M., 2011).

Periapical radiographs were performed (Dieck or parallel), bite-wing radiographs, orthopantomographies with classical film or digital orthopantomographies (Fig. 3).

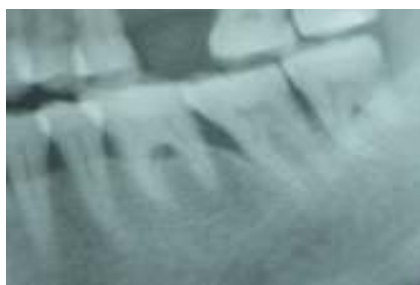


Fig. 3 Periapical radiograph which shows loss bone horizontal, vertical bone loss associated with the level of 37.

RESULTS AND DISCUSSIONS

After investigating the following aspects have been established:

-25% of the female patients had periodontal disease associated with systemic diseases.

Among these, there were pointed out diabetes, osteoporosis, obesity and nutritive disorders, conditions in which were observed imbalancements and deficits.

Diets low in calcium and vitamin D were observed in patients with osteoporosis, in which were also noticed demineralisation and bone recession at the maxilla and mandible level.

-50% showed periodontal disease associated with the existence of some vicious habits: smoking and nocturnal bruxing and carbohydraterich and additive rich foods (Coke, chips, wafers, pizza, processed cheese etc.) (Fig. 3).

-25% had minimal periodontal changes (from the clinical point of view), the absence of a general pathology (Fig. 5). At the gum mucosa level there was noticed a low degree of edema and hyperemia but there was no bleeding when probe testing.



Fig. 3 Patients who have problems associated with periodontal disease.

Local clinical signs did not point towards periodontal pathology occurrence. Radiological examination (Fig. 4) revealed superficial demineralisation at the alveolar crest level. In some cases, there was noticed demineralisation of interdental septum and halisteresis phenomena. These early trials did not have clinical correlation, but they can be a starting point for an unfavorable evolution, of worsening.



Fig. 4 Radiological examination of a patient presenting chronic periodontitis.

Analyzing orthopantomogram radiographs it is obvious that alveolar bone loss risk is increased and progression of bone loss is more severe in patients with food deficiencies, especially regarding the interproximal alveolar bone (Farman A.G., 2007).

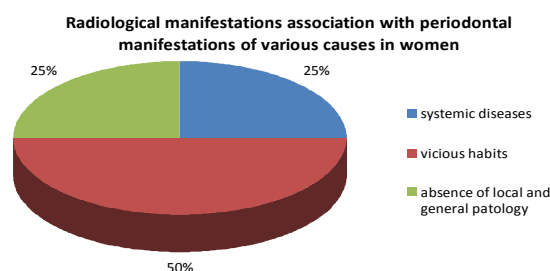


Fig.5 Radiological manifestations associated with periodontal manifestations of various causes in women.

Investigation of male patients 14.2% had no periodontal clinical and radiological changes, 64.2% showed clinical periodontal changes were correlated with the existence of systemic injuries or vicious habits and 21.6% showed no clinical manifestations of periodontal disease, but radiological examination revealed the existence of pockets increases with increased resorption and demineralization processes (Fig. 6). Radiological investigation was an early diagnosing tool of periodontal affliction. Routine radiological examination can emphasize changes at the bearing bone structures level, changes which have no clinical effect yet.

Early detection of early signs of suffering is an element of the periodontal prognosis and it depends on periodontal pathological events (Taubman M.A. et al., 2007; Condor D., 2009).

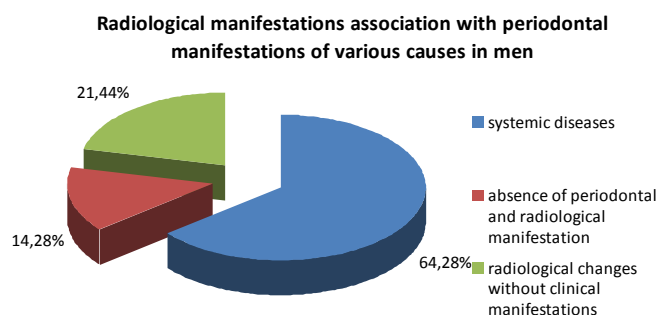


Fig. 6 Radiological manifestations associated with periodontal manifestations of various causes in men.

CONCLUSIONS

Marginal chronic periodontitis is a condition which has to be immediately noticed, from the very clinical signs, and it can be considered as a medical emergency. Towards such diseases, the dentist must have a firm and competent approach (Brown L.J. et al., 1993; Vataman R.M., 2011).

Standard of living, education, social and economic status of the patients has a large importance in occurrence and evolution of periodontal disease.

Radiographs performed in periodontal diagnosis are extremely useful provided their performance in the technical rigors imposed by radio-dental behavior (Condor D, et al., 2005).

Pathological elements can be early detected radiographically in chronic marginal periodontitis (Armitage G.C. et al., 2003).

In the development of chronic periodontitis radiological examination is required periodically to monitor progress of the disease, the bone tissue.

Although the number of women with systemic factors is increased compared to the number of men, the latter are subject to greater influence of smoking and stress.

Not all systemic factors have direct influence on periodontal disease, and even in their presence, whenever hygiene is good, the periodontium can be kept in as close to normal.

Reactivating biotherapy can be achieved by animal and vegetal products, medication, vitamin therapy, immunological substances, balneotherapeutic and surgical procedures. All these can be associated depending on the patient's local and general reactivation.

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