

ORAL PATHOLOGY IN THE CONTEXT OF MENOPAUSE IN WOMEN

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Abstract

Menopause is a non-pathological change which involve the permanent cessation of menstruation for at least 12 months and occurs in women with an average age of 51 years in the context of non-pathological estrogen deficiency.

The effects of menopause are closely related to the lack of ovarian hormones, a fact that induces a physical and emotional instability of the woman with a direct impact on the health of the oral cavity.

This paper reviews the changes in the oral mucosa in the peri- and post-menopause phases. The most frequently reported changes are: dryness of the oral cavity, sensation of decreased amount of saliva, burning sensation, dysgeusia, altered tolerance to pain and the possibility of neurological manifestations. The dentist and general practitioner must recognize the variety of signs and symptoms that occur in the context of this physiological stage and, at the same time, must focus on the symptomatic management of oral health changes.

Keywords: menopause, xerostomia, estrogen hormones, burning mouth syndrome.

INTRODUCTION

Menopause is a normal physiological process that is part of every woman's life. At this stage, ovarian follicles decrease in number, which results in a decrease in estradiol levels [1,14]. These changes lead to an increase in the production of follicle-stimulating hormone (FSH) and luteinizing hormone (LH), with the level of FSH usually being increased compared to that of LH, because the latter is cleared from the blood faster. In this context, the decrease in estrogen hormone levels disrupts the hypothalamic-pituitary-ovarian axis. As a result, there is a reduction in endometrial activity with the appearance of irregular menstrual cycles that eventually stop altogether [2]. The initial stage of

transition to menopause is known as perimenopause. During this period, the menstrual cycle undergoes a variation in its duration, so that from one cycle to another, the time interval between periods differs by seven or more days. As this stage progresses, amenorrhea sets in, usually for a period of 60 or more days. With the appearance of this process, we can say that women are in the stage of late perimenopause. Its evolution takes place over a period of time from 1 to 3 years. The permanent absence of menstruation for at least 12 months marks the actual onset of menopause [3]. This stage is followed by postmenopause, a term that defines the period that follows at least 5 years after the onset of menopause.

The World Health Organization defines menopause as the last menstrual bleeding in women, usually around the age of 45-55 [14].

Other non-physiological causes of this process can also be given by surgical procedures such as hysterectomy with bilateral total adnexectomy, the treatment with antiestrogens of certain conditions such as endometriosis or breast cancer. Another cause is determined by chemotherapy medication administered in the treatment of various types of neoplasia.

In the evolution of the above-mentioned stages, the damage to the oral mucosa often has a huge impact on the emotional state of patients, chronic emotional anxiety being a stimulating factor in the activation of the autonomic nervous system. About 45% of women experience psychogenic symptoms. These symptoms include anger/irritability, anxiety/tension, depression, sleep disturbances, loss of concentration, and loss of self-esteem/confidence. According to literature data, approximately 43% of postmenopausal women experience oral discomfort. The symptoms that appear are well known, the most frequently reported being: the sensation of dryness of the oral mucosa, sensation of decreased salivary secretion, sensation of oral burning, dysgeusia, and decreased pain threshold. At menopause, the atrophy of the oral epithelium increases the susceptibility to local mechanical injuries causing the change in pain tolerance and, implicitly, the appearance of problems in the use of removable prosthetic restorations [8,15,16,17,18].

However, unfortunately, awareness of the fact that oral discomfort in

menopausal women may be mainly the result of hormonal changes is still low.

MATERIAL AND METHOD

This review used a systematic search of electronic databases, including PubMed, for studies related to the pathological changes in the oral mucosa in the context of menopause in women. The keywords used in the search strategy are: "menopause", "estrogen hormone", "burning mouth syndrome" and "xerostomia", combined with "etiology", "physiopathology" and "diagnosis". The studies were selected based on the pathogenesis, the relevance to the clinical aspects regarding the changes of the oral mucosa, the management, the approach and the results obtained. The inclusion criteria were a review of articles, clinical trials, and reviews of articles in English. Exclusion criteria eliminated non-English articles, animal studies and articles with inconsistent data on oral mucosal changes and their clinical management in women in the context of estrogen hormone deficiency. The data extraction was done with priority based on information regarding clinical manifestations, diagnostic methods, and approach strategies. A secondary emphasis was placed on information regarding epidemiological data and inapplicable statistical analyses given the nature of this review.

1. XEROSTOMIA

Xerostomia is a subjective sensation of dryness of the oral cavity that can manifest itself through two mechanisms: most often it is caused by a decrease in salivary secretion, or it occurs when it is

quantitatively normal but qualitatively deficient. This process is characterized by the spoliation of salivary components and the increase of its viscosity [1,14,15]. Dry mouth or xerostomia is one of the most common symptoms reported in women during menopause, it is known that there are specific receptors for estrogen hormones in the oral mucosa [6-10]. This was confirmed by a study conducted by Agha Hosseini et al. These researchers determined the values of the stimulated salivary index on a group of 42 women aged between 52 and 73 years. The studied group was divided into two subgroups so that, in the first, the patients who presented a sensation of dry mouth were included, and in the second, those who represented the control group [19].

Following this study, it was found that xerostomia most often affects patients over 50 years of age and is particularly common in postmenopausal women. This report was also confirmed by the studies of Asplund and Aberg, where the evaluation was done by age groups, at an interval between 40 and 64 years. The results showed that premenopausal xerostomia was observed in 17.8% of the evaluated women. A higher percentage of 23.3% was observed in women during and 5 years after the onset of menopause. The results after an interval of 5-9 years and over 10 years show that with the extension of the time interval since the onset of menopause, the stimulated and unstimulated secretion of the sublingual and submandibular salivary glands decreases, a fact that is also reflected by the appearance of a degree of progressive increase in the dryness of the oral mucosa [14,20].

Other studies by Minicucci et al. confirmed that xerostomia is not present in

all menopausal women, however, saliva flow is significantly reduced and consistency is also altered [14,21]. This quantitative/qualitative depression can also be due to the aging process induced by hormonal changes. Thus a glandular atrophy is produced both at the level of the parenchyma and at the level of the excretory canals, or the effective blocking of the glandular function may occur. Therefore, in menopausal women, we are dealing with a reduced hydration of the mucosa and a deprivation of the natural protection offered by saliva under normal conditions. The result is a susceptibility of the oral cavity to the occurrence and development of autoimmune lesions such as pemphigus vulgaris, benign mucosal pemphigoid, oral lichen planus (OLP) and also the occurrence of other disorders such as idiopathic neuropathy and increased tendency to candidal infections due to colonization with microorganisms stimulated by changes in the quantity and composition of saliva [18,21,22].

Another problem that occurs in menopausal women is the predisposition to gastric and eating disorders. It is known that the xerostomia characteristic of menopause causes a change in the sense of taste. This stress-related change may represent a window of vulnerability for eating disorders, psychological changes, and depressive states. Self-induced vomiting and regurgitation of gastric contents can cause erosions of tooth enamel, enlargement of the parotid glands, angular cheilitis, trauma to the oral and pharyngeal mucosa (resulting from the use of fingers and various objects to induce vomiting), dehydration and erythema [1,13].

2. ORAL MUCOSA

Oral health awareness during menopause is essential to minimize the inevitable changes that can occur at this level. Due to the presence of specific mucosal receptors, the decrease in the concentration of estrogen hormones affects the oral mucosa through a mechanism similar to that of the vaginal mucosa [8,9,10,17]. Estrogen deficiency affects the maturation process of the oral epithelium, which leads to an increase in its vulnerability to bacterial or fungal infections [1]. The possibility of burning mouth syndrome or idiopathic neuropathy represents another process. Moreover, the activity of the salivary glands, anatomical structures dependent on the hormonal level, is affected by the quantitative and qualitative change in salivary secretion. Consequently, salivary deficiency can affect the health of the teeth and gingival periodontium, resulting in an increased risk of carious lesions and periodontal disease [14,23].

Deprived of moisture, the oral mucosa becomes thin, atrophic, sometimes with a wrinkled appearance, less elastic and more easily susceptible to the occurrence of mechanical injuries represented, mainly, by ulcerations [17,18]. Local factors such as vicious habits (biting or sucking the jugal mucosa), malocclusions, vicious eruption of the 3rd molar or removable dental prostheses also contribute to the appearance of oral ulcerations. Consequently, the atrophic, thin mucosa requires the creation of dental prostheses with the smoothest possible surface to avoid further traumatizing it [14].

3. BURNING MOUTH SYNDROME (BMS)

Burning sensation is one of the most common symptoms of the oral mucosa reported by women during menopause, in the absence of any form of clinically manifested infection. Burning mouth syndrome is also known as glossodynia, stomatodynia, stomatopyrosis, glossopyrosis or glossalgia, and affects women in their fourth or fifth decade of life [1].

The disorder has a clear female predominance (7/1 over males) and is associated with age.

BMS occurs mainly in peri- or postmenopausal women, and its etiology is multifactorial. Physical and psychological conditions have been incriminated as potential predisposing factors, such as: vicious habits, parafunctions, local trauma, salivary gland dysfunctions, postmenopausal hormonal changes, depression and anxiety [28,29].

What is characteristic of this syndrome consists in the fact that there are no clinical lesions at the level of the oral mucosa, nor changes in the values of laboratory constants or a causative systemic disease [16,21,24]. Patients complain of pain as a continuous burning sensation in the mouth. The most common location of pain is the tongue, but other topographical areas may also be involved, such as: lips, palate, gums or denture support areas [25,26,27]. The pain begins 3 to 12 years after the onset of menopause, and may be accompanied by xerostomia, hypersensitivity to some food compounds, changes in taste (dysgeusia), breathing disorders, swallowing difficulties, and facial or dental pain [1,4,5].

The etiology of BMS is multifactorial (Table 1). The cause is represented by the hormonal deficiency

and, implicitly, the secondary pathological situations that derive from it.

BURNING MOUTH SYNDROME ASSOCIATED WITH MENOPAUSE	
DECREASE IN THE LEVEL OF ESTROGEN HORMONE	Somatoform pain
	Predisposition to infections – oral candidiasis, staphylococci, streptococci
	Psychic and psychological disorders: stress, anxiety, depression, personality change
	Dietary and systemic metabolic disorders: diabetes mellitus, B vitamin deficiency (vitamins B1, B2, B6 and B12), folic acid and iron deficiency
	Mechanical irritation, parafunctions and dysfunctions of the stomatognathic system
	Contact allergy to dental materials and electrogalvanic phenomena

Table 1: The etiology of BMS

Recent studies have indicated that central and/or peripheral neuropathic changes are considered as the most significant etiopathogenic mechanisms in the development of BMS [30,31]. Repetitive local irritations, parafunctions, reduction of saliva production and changes in its composition trigger peripheral neuropathic changes in the tissues of the oral mucosa [32]. Decreased mucosal integrity resulting from repetitive local stimuli and decreased xerostomia lubrication capacity of the oral cavity could also underlie BMS.

4. NEUROLOGICAL DISORDERS

Neurological disorders are represented in the OMF territory mainly by trigeminal neuralgia. This condition is characterized by severe, throbbing, "electric shock" sensation, located unilaterally, usually in

the middle and lower third of the affected hemiface. In postmenopausal women, the cause appears to be primarily compression of the superior cerebellar artery on the ophthalmic, maxillary, and mandibular branches of the trigeminal nerve [11]. Specialized studies show that Alzheimer's disease and atypical facial pain/neuralgia are conditions more frequently associated with the postmenopausal stage in women [1,12].

5. CONCLUSIONS

Menopause is an inevitable period in the life of any woman that, by decreasing the level of estrogen hormones, brings adaptive changes at the systemic and oral level. Quantitative and qualitative changes in saliva, non-specific oral lesions that occur at any stage of menopause, create long-term persistent discomfort accompanied by various functional disorders. The correct clinical evaluation is

often an indispensable element for the establishment of a correct diagnosis because, the menopause problem, although a physiological, natural process, can often cause serious pathological changes. Therefore, due to the wide variety of signs and symptoms that appear in the oral cavity, menopausal women present a sometimes particular pathology that requires correct prophylactic and curative treatment. The doctor must make a detailed history of the systemic conditions and the medication the patient is taking, and must perform a complete intraoral clinical examination with the correct evaluation of the changes

occurring in the oral mucosa. Equally important is the examination of periodontal and dental health, and the correct assessment of saliva flow and quality. Oral health is an integral part of overall health and has a direct effect on a woman's overall physical and mental condition. As we have seen, the early detection of oral pathology is essential to be correlated with the psychosomatic changes occurring in women during this period. On the other hand, menopause can give a woman the opportunity to reevaluate her health, lifestyle, and future personal goals.

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