Oral Manifestations of Menopause

Introduction

Menopause is the permanent and complete cessation of menstrual flow in women, which occurs in a mean age of 51. This means that women spend one third of their lives as postmenopausal, something which should be considered a blessing as well as a period of life full with a diversity of health problems. For women have the right to retain their quality of life even during these years, it is very important that they are totally informed about what they are about to face and which are their options in dealing with the symptoms.

The phenomenon of the menopause was widely known to the ancient Greeks as it was Aristotle who described it as the reason for madness and afterwards for psychiatric illnesses. An interesting approach is that the word “menopause” is derived from men and pause.

Problems and symptoms associated with menopause vary, and as oral health is an integral part of general health, oral manifestations should be mentioned. In this report, the most common of the above will be addressed:

- Burning sensation (generally included in the Burning Mouth Syndrome - BMS);
- Bone loss and periodontitis (as a result of osteoporosis on the whole);
- Oral dryness;
- Oral discomfort, including bad taste and altered taste sensations (salty, peppery, or sour);
- Oral mucosal changes (gingival atrophy, menopausal gingivostomatitis).

Continually, the role of psychological factor will be analyzed together with few things about treatment related to the hormone replacement therapy (HRT).

Of course, menopause has a range of common symptoms, which have found to be 35. The most frequent of them are the below:

- Hot flashes and night sweats;
- Mood swings and sudden tears;
- Depression, dysphoria and difficulty in concentrating;
- Urinary tract infections;
- Aching, sore joints, muscle and tendons;
- Tinnitus: ringing in ears, bells, buzzing, etc;
- Osteoporosis.

A number of studies and surveys have examined various characteristics associated with menopause, based on women and their experiences. Being valuable, they will be abstractly mentioned in order to give examples and facts for each object studied.

Oral Symptoms

Before analyzing each symptom separately, it would be useful to give a short explanation about the mechanism with which menopause causes a series of manifestations in the oral cavity. The sequence is an initial decrease in oestrogen, which directly leads to a vasomotor disturbance; this in turn causes an increase in neurosis and it is the change in psychological status which results in the greater number of oral symptoms. More specifically, as
regards to periodontitis and bone loss, it should be added that the decrease in female hormones suppresses the intestinal absorption of calcium, which in turn increases the serum parathyroid hormone and, as a result, the bone resorption is being enhanced.

**Burning Sensation**

It is referred as the main symptom in the burning mouth syndrome (BMS), which is described as the condition in which burning in any area of the mouth and lips occurs in the absence of clinical and laboratory findings of the affected sites.3

As showed below, menopause belongs to the systemic causes of the BMS:

![image]

Since hormonal changes take place in menopause, they are considered as important factors, although there is little convincing evidence of the efficacy of hormone replacement therapy in postmenopausal women with the disorder.5 The symptom escalates typically in intensity during the day and decreases with eating; concerning epidemiology of the BMS, it is reported to be 10-40% among women presenting for treatment of menopause.6 Researchers in Yale University5 believe that damage to the taste system results in the BMS and other oral pain phantoms, suggesting that the burning sensations are created in the nervous system and that they are sensory phenomena (that is why the oral mucosa remains normal). They also explain why burning sensations are more likely to postmenopausal women through their findings about tasters, non-tasters and super-tasters, as hormones affect taste (especially bitter) in women. Similarly, investigations have found that the ability to detect bitter taste decreases at the time of menopause.7

It should be mentioned that there is a constellation of factors which play a complementary role in the extension in which burning sensation occurs. Mainly, the unfortunate life experiences influence the psychological condition, which results in a more serious expression of the symptoms.8 Below there is a reference to the psychological factor more extensively.

**Bone Loss and Periodontitis**

Osteoporosis is a skeletal disease at which there is an increase in fragility and bone fractures due to low bone mass and micro-architectural deterioration of the bone. As a result, bone loss and periodontitis are the oral manifestations of osteoporosis which are noted in menopausal and postmenopausal women.9

First of all, there are 2 types and 4 categories of osteoporosis:

- **type 1**: occurs 15-20 years after menopause;
- **type 2**: is age-related, and its causes are endocrine and renal diseases, affecting both men and women over age 65.

The classification in categories is based on the average bone mineral density (BMD), and can be seen below:

- **osteoporosis**: >2.5 standard deviations below the mean of the reference group;
- **osteopenia**: 1.0-2.5 standard deviations below the mean of the reference group;
- **normal-low**: higher than the cut-off for osteopenia, but lower than the mean BMD score of the reference group;
- **normal-high**: more than the mean BMD of the reference group.

Despite the fact that osteoporosis is described as a normal after-effect of the aging process, there are various factors that aggravate the appearance and intensity of osteoporosis, i.e. bone loss and periodontitis.10,11

- gender;
- age;
- a thin, small-framed body;
- heredity;
- Ca deficiency;
- lack of exercise;
- smoking;
- early menopause;
- certain medications (e.g. steroids);
- a sedentary lifestyle;
- high caffeine consumption;
- smoking.

As regards the signs and symptoms of bone loss inside the oral cavity, they include oral bone resorption, attachment loss and tooth loss. Early signs also may be described in dental radiographs, particularly some changes in the mandibular condyle. Additionally, the dentures become loose and their ill-fitting can lead to mouth sores and consequently to difficulty in speaking or eating.11 Moreover, periodontitis and gingival recession is thought to be a side effect of osteoporosis in postmenopausal women.

Dentally, the alveolar bone is mainly trabecular bone, the type of bone more susceptible to osteoporosis. A number of medications are used to prevent and treat it, such as oestrogen, alendronate sodium, risedronate sodium, raloxifene and calcitonin. Their way of affection
of bone, as well as their efficacy, is explained later; but in general, these drugs reduce bone loss, increase bone density and reduce the risk of fracture.12

A study has been carried out to investigate the assessment between the age and edentulousness upon the BMD in women. What it showed was that the decline in serum oestrogen levels in menopause has the effect on bone loss irrelatively of whether the female group was dentate or edentulous.12 The above means that the BMD is not additionally influenced by the presence or absence of teeth, but age and menopause has a major role.

What’s more interesting, efforts have been made to identify postmenopausal women with low BMD using panoramic radiographs. Methods such as dental screening and mandibular cortical width measurement are not that practical so as to be widely used, especially in studies. A respective study that was held showed that simple visual estimation of the mandibular inferior cortex on panoramic radiographs may be useful for identifying postmenopausal women with low BMD. Continually, the specificity and positive predictive value in identifying the above women were relatively high although the mean sensitivity was low.13

From the above mentioned, it is taken for granted that bone loss happens irreversibly and in different levels from the moment that a woman enters the menopause. That is the reason why they should be well-informed although osteoporosis is not curable, on the other hand is preventable and treatable. The below strategies could help some women to lead a normal menopausal life:

- activeness and plenty of exercise;
- foods high in Ca, and supplemental dietary Ca and vitamin D;
- a healthy lifestyle;
- treatment of any underlying conditions that could affect bone density.

**Oral Dryness (Xerostomia)**

Oral dryness is a subjective sensation that is clinically obvious only in up to one-third cases and is usually described as an unpleasant feeling in the mouth and throat.14 The explanation for oral dryness might be some qualitative changes in the salivary composition, the non-existence of balance among the various salivary glands, or some changes in the mucosal sensory receptors. Nevertheless, during menopause oral dryness is more likely due to hormonal alterations which take place, as already mentioned.15

Oral dryness, as well as the rest of the symptoms in menopause, is faced with therapies which mostly include the hormone replacement therapy (HRT). To define the HRT, it is the systematic administration of certain hormones (especially estrogens and progestin), which aim is to increase their levels in order to eliminate the menopausal symptoms.16 Although HRT is the treatment of choice, its efficacy on oral dryness is yet to be questioned and further clinical trials are needed. Contrary to this, there are studies which mention that the oral dryness was relieved after HRT with alendronate (ALN) and calcium supplements on saliva. What’s more, poor general health, smoking and drugs such as antidepressants, respiratory and endocrinologic drugs, are thought to be high risk factors for dry mouth.17

As a consequence, the question is raised of whether the salivary flow rate and the saliva PH values are influenced by menopause and whether they are related with the oral dryness. Studies have shown that the salivary flow rate decreases during the menopausal period, but increases after hormone replacement therapy, so that the beneficial effect on this variable is obvious. On the other hand, the saliva PH values are not affected by this treatment. Finally, to put it briefly about the calcium concentration, it has been found that there is a possible relationship between its level and oral dryness in menopausal women, but no correlation has been proved between Ca levels and salivary flow rate.15 For the composition of saliva in menopausal women is dependent on oestrogen, it is suggested that Ca levels are lower after the HRT due to higher oestrogen level, as it also happens during ovulation and pregnancy (high oestrogen level).

Finally, oral dryness is one of the major symptoms in Sjogren’s syndrome, an inflammatory disease that affects the salivary and lacrimal glands and is considered to be affected by hormonal changes. The high incidence of Sjogren’s syndrome among menopausal women may be explained by the decline in androgen and oestrogen level that takes place and this combination of menopause and dry mouth should be taken into consideration.

**Oral Discomfort - Psychological Factor**

Oral discomfort primarily includes pain and burning sensations, as well as altered taste perception and bad taste. It is more the total feeling of all the symptoms mentioned and the most significant side of it is the correlation and association with the psychological nature of women’s character.18

Several studies have been conducted in order to distinguish the exact relationship between the hormonal changes and oral mucosa. As expected, the results were controversial, especially due to the fact that oral discomfort reported in some menopausal women may be the result of psychological disturbances occurring at that time. This shows the close relationship between those 2 variables. More specifically, Wardrop et al.18 found that 46% of the women appeared to notice oral discomfort. Further regrouping of those with oral discomfort revealed the significant higher prevalence of depression, inability to cope, nervousness and apprehension, and headaches than those without the symptom. At the same time, no obvious clinical changes were reported, something which again proves the expression of oral discomfort without
any clinical observations, but with an increased level of psychological disturbances.\textsuperscript{18}

**Oral Mucosal Changes**

In some cases, changes in the oral mucosa can be reported that vary from an atrophic pale appearance to a condition known as menopausal gingivo-stomatitis\textsuperscript{17,19}, marked by dry and shiny gingiva that bleed easily and range in colour from abnormally pale to quite erythematous. It appears that HRT is of benefit in reducing oral discomfort in those who have both abnormal and normal mucosal appearance. Women on HRT may experience gingival problems similar to those of oral contraceptive users.

**Hormone replacement therapy**

As already mentioned, hormones are used in order to relieve women of menopausal symptoms. The findings of their efficacy vary, but in general, there are some benefits, such as prevention of bone loss and relief from oral discomfort. Those benefits are not yet fully understood and more research is needed to clarify these effects. In contrast, there is a range of risks and side effects of HRT and its mode of action of hormones used in the HRT, related to oral discomfort, is not clear. An improvement in subjective complaints has been reported, as well as a return to a more normal appearing oral mucosa. But it has been finally demonstrated that the therapy may be of value in those menopausal patients in whom the cause of the oral discomfort was not clinically evident. Thus the psychological influences were those responded to HRT.\textsuperscript{22}

As regards oral benefits, the results of a study showed an inverse association between current use of postmenopausal hormones and the loss of one or more teeth (the risk of tooth loss was lower among postmenopausal hormone users, with the most substantial decrease occurring among current users). Many studies, also, link oestrogen-replacement therapy to the increasing bone density.

**Conclusion**

Menopause is a phase of women’s life during which big changes occur, not only in their body but also in their close environment. The first have an impact on their health in general, while the others influence their psychological sphere. Thus, every doctor should be well-informed about the symptoms of menopause and treat those women with patience and understanding. As a result, a dentist should be aware of those mentioned above in order to distinguish certain oral diseases and set diagnose through a more confident way. Moreover, a dentist would have the duty to guide such women who are not undergoing gynaecologist’s attendance so that they receive one.

As the symptoms of menopause are really uncomfortable, a dentist should behave in an understanding way because in some cases the HRT might be of no use. Its effects vary and it should be continued as long as the benefits are judged to outweigh the risks. Finally, the oral symptoms are to be recognized through a well-developed medical history, which every dentist is obliged to take exceptionally.

**References**


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