DOI: https://doi.org/10.4038/sljom.v3i2.41

Volume 3, Issue 2
September 2022

SLJOM The Sri Lanka Journal of Menopause

Leading Article

Dento-oral Problems in Menopause

Palipana PD[1]

[1]*Department of Restorative Dentistry, Faculty of Dental Sciences, University of Sri Jayewardenepura, Sri Lanka*

Corresponding author *– Dr. Palipana PD*
Email: priyakepalipana@sjp.ac.lk

Abstract

Peri-menopausal and post-menopausal individuals present with a lot of symptoms and complaints associated with the oral and peri-oral structures. These present a wide range of oral diseases commonly observed in this group of patients. Careful assessment, diagnosis and planning is mandatory in this special segment of patients as certain symptoms are more exaggerated than what is actually diagnosed via clinical assessment. Therefore, multidisciplinary management is always useful in alleviating these symptoms and sequel of oral diseases.

Key words - Menopause, Dento-oral manifestations, dental caries, periodontal disease, tooth wear

Dental manifestations and their prevalence

Menopause refers to the permanent cessation of menstruation owing to loss of the ovarian follicular activity.[1] A diagnosis of natural menopause is made retrospectively following 12 months of amenorrhea with no pathologic association.[2] A significant increase in the prevalence of oral discomfort is reported in peri-menopausal and post-menopausal women (43%), compared to pre-menopausal women (6%).[3,4,5] Symptoms of periodontal disease, dry mouth and burning mouth (glossodynia) are very common. The incidence of them respectively are 60% periodontitis, 25% dry mouth andapproximately 15% with burning mouth. Other than the main complaints/symptoms described above, there are many other minor complaints associated in menopause. They are the paucity of saliva, increased incidence of dental caries, oral dysesthesia, myofascial dysfunction syndrome, Sjorgen's syndrome, benign Pemphigoid, taste alteration and the problems associated with osteoporotic jaws.[6,7] As menopause occurs towards the later part of life, this stage is associated with other features of aging in the dentition and mouth such as tooth wear, gum recession and atrophic gingiva.

Though it is not very clear how these ailments are associated with the hormonal and lifestyle changes during menopause, different mechanisms for their genesis have been suggested. The relationship between hormones and oral symptoms and signs are yet uncertain. It is demonstrated that estrogen receptors have been found to be present in the oral mucosa and the salivary gland tissues.[8,9] Similarly oral changes are manifest during the puberty and pregnancy in females. Furthermore, the histology of the oral and vaginal mucosae is very much similar. Therefore, these symptoms might have a common cause. Hormonal deficiency in menopause affects the integrity of the oral mucosal epithelium and atrophy with thinning of the mucosae.[10]

Salivary glands being hormone-dependent, once affected leads to changes in salivary secretion and composition.[11]This may affect teeth and periodontal tissues, resulting in an increased risk of caries and periodontal disease in menopausal women. High prevalence of oral discomfort rate (45-60%) with altered composition of saliva is reported in menopausal women.[11] Many studies have proven that the salivary flow was lower in the menopausal group which gave rise to xerostomia [12,13,14,15.]

The my ofascial dysfunction syndrome is associated with symptoms like muscle pain, clicking of the temporomandibular joint and deviation of the mandible combined with neck pain. Oral dysesthesia is a less common female dominant syndrome which defines a painful/ burning sensation of the mouth and discomfort in the oral cavity. Some forms of oral dysesthesias are called as burning mouth syndrome having many other synonymous nomenclatures like orodynia and glosssodynia.

Tooth wear is a physiological phenomenon, but however the amount of wear in an intact dentition is minimal. It is highly significant that if some teeth are extracted, the remaining teeth simply become overstrained. This is a common manifestation described in the elderly Sri Lankan population. They get various types of tooth wear ranging from attrition, abrasion to erosion. Attrition is the type of tooth wear associated with teeth-to-teeth contact. Abrasion is the loss of tooth substance due to some abrasive agents like coarse tooth paste or tooth powder abrading on the teeth leading to loss of tooth substance. Erosion is the type of tooth wear due to acidic dissolution of the dental hard tissues. In most instances, more than one type is involved. All these types of tooth wear-cause exposure of the dentine. Different types of tooth wear are shown in Figure 1.

Sensitivity is a common accompaniment once the dentine is exposed.The sensitivityis precipitated by cold, sweet and sometimes warm stimuli. The response to these stimulants by the dentine is prominent in menopausal and post-menopausal women.

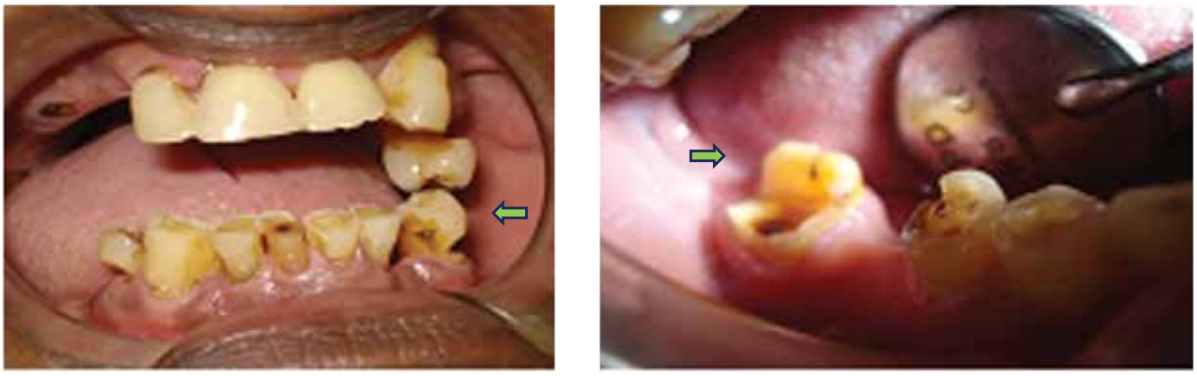

Fig 1. Photographs of patients with advanced tooth wear. Arrows indicates the areas of tooth wear

Research has clearly indicated that menopausal and post-menopausal women are relatively xerostomic. The quality and quantity of saliva are both affected. This makes them more vulnerable for common dental diseases like dental caries and periodontitis (advanced gum disease).

Caries initiation is associated with the reduction of the salivary flow. Both the quality and quantity of saliva are compromised in menopause. Saliva reduces the incidence of dental caries as it plays the role of diluting acids, buffering acids, and flushing effect on the tooth surfaces. Furthermore, saliva directs the chemical reactions on the surface of the tooth towards re-mineralization halting the de-mineralizing cariogenic process. The poor quality of saliva leads to rapid progression of the dental caries as the neutralizing effect is compromised. Nevertheless, symptoms associated with dental caries like sensitivity and pain are very prominent in menopausal or post-menopausal individuals. Figure 2 shows the dentition of a patient with extensive dental caries who suffers from severe xerostomia.

Patients with xerostomia are prone to periodontal disease because they do not have adequate saliva to wash off the dental plaque and salivary factors to act against the pathogens of the periodontium. Moreover, periodontitis advances fast

Fig 2. Photograph of a patient with extensive dental caries associated with xerostomia

leading to ultimate tooth loss. Post-menopausal women are more likely to be affected frequently by periodontal disease in a more severe form.[16,17] With the progression of the periodontitis these patients experience dentinal sensitivity once the root dentine is exposed. Photograph of a dentition in a patient affected with severe periodontitis is shown in Figure 3.

There are changes being described in the jaw bones of menopausal individuals. Studies have revealed that there is some correlation between systemic osteoporosis and alveolar bone loss as the result of menopause.[18] Their jaws are associated with loss of alveolar bone making them extremely difficult for the construction of dentures. Alveolar bone loss can also lead to attachment loss and tooth loss.[19] Similarly they are contraindicated for dental implants in rehabilitating missing teeth.[20] The residual ridge resorption after dental extraction in postmenopausal women is greater than in premenopausal women.[18] Neurological disorders influence impression making procedures, jaw relation records, and retention of dentures.[21] In a cross-sectional study conducted by Sultan and Rao in 80 postmenopausal women,

Fig 3. Photograph of a patient affected with advanced periodontitis. Exposed root area is marked in green arrows.

it was concluded that osteopenia in menopause is a risk indicator for periodontal disease.[22]

Xerostomia associated in menopause may cause candidiasis. This is common in patients who wear dentures. The denture associated candidiasis is termed denture induced stomatitis. This makes the mucosa more fragile, thinner with bleeding at times and thereby makes them intolerable to spicy food.

Mucosa itself becomes atrophic and friable, making them more sensitive even to minute trauma in the mouth. Mucosal epithelium during the menopausal period becomes more vulnerable to infections, burning mouth syndrome, and idiopathic neuropathy.[10] The mucosae over the jaws also become friable. Thus, they avoid coarse and spicy food and prefer a liquid/ semi-solid diet with a lot of sweet components.[23] This is not acceptable

as it would lead to non-communicable diseases in addition to high risk of dental caries.

Management

The management of these patients must be very carefully done with proper history taking and assessment. Listening to the patient is important before diagnosing and dealing with the patient. Certain complaints cannot be attributed to the clinical picture, but still paying attention to their symptoms and providing reassurance are of utmost importance and similar to remedial treatment. The complaints sometimes are an exaggeration of the symptoms many fold by menopausal patients. Thus, nothing should be ignored. But however, if the symptoms are milder, the patient should be treated to help alleviate these symptoms. Evidence also supports that the burning mouth syndrome can be treated by low dosage clonazepam, chlordiazepoxide, and tricyclic antidepressants.[24] These patients may also be having other associated psychological problems due to their appearance and symptoms in the oral, facial and perioral structures.[25]

Xerostomia associated with postmenopausal women can be treated by frequent sipping of water, artificial salivary substitutes, sugar-free gums and lozenges, xylitol tablets and sialogogues. Chlorhexidine rinses have been found to be beneficial in reducing the incidence of dental caries.[26]

Modes of prophylactic measures like usage of fluoride varnish, calcium mousse are useful in minimizing the progression and initiation of dental caries. Calcium mousse will also facilitate precipitation of the demineralized tissues with minerals, which helps to minimize associated sensitivity. Correct prevention, with good control of bacterial plaque, contributes to reduce the risk of many infections within the oral cavity.[27]

Besides maintaining regular oral hygiene, studies have revealed that estrogen therapy can help in increasing mandibular bone mass and decreasing the severity of periodontal disease. Bisphosphonates, specifically Risedronate and Alendronate, have been beneficial in preventing and improving periodontal status in postmenopausal women.[28] Clinical trials have demonstrated the efficacy of sub-antimicrobial doxycycline dose (20mg BD) for periodontal maintenance in postmenopausal women over a period of 2 years, and they have found it to be beneficial in lowering progressive of attachment loss.[29]

Hormone Replacement Therapy (HRT) has been identified as an effective treatment for the prevention of menopausal disease, with some studies demonstrating that HRT therapy reduces gingival bleeding, periodontal disease, tooth loss and caries.[26] Several authors (up to 45%) have shown that women who start using HRT report improvement in their quality of life including less oral discomfort.[17] Avoidance and management of osteoporosis after menopause could also prevent future oral health consequences.[30,31]

Changing of the brushing technique, shifting to a soft brush and using toothpastes with an adequate amount of foaming agent may help to minimize minute trauma.

Worn teeth are not esthetic, they look disproportional and discolored making them a displeasure. Advanced gum disease leads to recession of the gingival tissues and thus the patients show black colored spaces in-between roots of natural teeth. These are called black triangles and are very unaesthetic. Whenever possible, one will have to remedy this aesthetic problem to ensure that patient maintains good social and psychological wellbeing.

Conclusion

Considering all these factors, the management must be performed carefully with adequate attention to alleviating pain, improving aesthetic appearance and supporting the patient's psychological wellbeing.Thus, long term maintenance of the dentition with especial attention to preventive strategies is indispensable.

Acknowledgements

I extend my thanks to Mr. Mahes Salgado the Coordinator of the English Language Teaching Unit, Faculty of Medicine, University of Peradeniya and former Head of the English Language Teaching Unit, University of Peradeniya for editorial assistance.

References

1. Bruce D, Rymer J. Symptoms of the menopause. Best Pract Res ObstetGynaecol. 2009; 23:25–32.

2. Nelson HD. Menopause. Lancet. 2008; 371:760–70.

3. Wardrop RW, Hailes J, Burger H, Reade PC. Oral discomfort at menopause. Oral Surg Oral Med Oral Pathol. 1989; 67:535–40.

4. Portillo GM. Oral manifestations and dental treatment in menopause. Med Oral. 2002; 7:31–5.

5. Scardina GA, Messina P. Oral microcirculation in post-menopause: A possible correlation with periodontitis. Gerodontology. 2012; 29:e1045–51.

6. RosalíaFrutos, Sonia Rodríguez, Lucía Miralles-Jorda, Guillermo Machuca. Oral manifestations and dental treatment in menopause. Med Oral. Jan-Feb 2002; 7(1):26-30, 31-5.

7. R D Zachariasen. Oral manifestations of menopause. Compendium. 1993 Dec;14(12):1584

8. Leimola-Virtanen R, Salo T, Toikkanen S, Pulkkinen J, Syrjänen S. Expression of estrogen receptor (ER) in oral mucosa and salivary glands. Maturitas. 2000; 36:131–7.

9. Välimaa H, Savolainen S, Soukka T, Silvoniemi P, Mäkelä S, Kujari H, et al. Estrogen receptor-beta is the predominant estrogen receptor subtype in human oral epithelium and salivary glands. J Endocrinol. 2004; 180:55–62.

10. Aleksandra Ciesielska 1, Aida Kusiak 1, Agata Ossowska 1, Magdalena Emilia Grzybowska. Changes in the Oral Cavity in Menopausal Women-A Narrative Review. Int J Environ Res Public Health. 2021 Dec 27; 19(1):253.

11. Ben Aryeh H, Gottlieb I, Ish-Shalom S, David A, Szargel H, Laufer D. Oral complaints related to menopause. Maturitas. 1996; 24:185–9.

12. Minicucci EM, Pires RB, Vieira RA, Miot HA, Sposto MR. Assessing the impact of menopause on salivary flow and xerostomia. Aust Dent J. 2013; 58:230–4.

13. Yalçin F, Gurgan S, Gurgan T. The effect of menopause, hormone replacement therapy (HRT), alendronate (ALN), and calcium supplements on saliva. J Contemp Dent Pract. 2005; 6:10–7.

14. Sewón L, Laine M, Karjalainen S, Leimola-Virtanen R, Hiidenkari T, Helenius H. The effect of hormone replacement therapy on salivary calcium concentrations in menopausal women. Arch Oral Biol. 2000; 45:201–6.

15. Agha-Hosseini F, Mirzaii-Dizgah I, Moghaddam PP, Akrad ZT. Stimulated whole salivary flow rate and composition in menopausal women with oral dryness feeling. Oral Dis. 2007; 13:320–3.

16. Agha-Hosseini F, Mirzaii-Dizgah I, Moosavi MS. Relationship of lumbar spine bone mineral density and oral dryness feeling in menopause. Menopause. 2011; 18:625–8.

17. Yalcin F, Gurgan S, Gul G. Oral health in postmenopausal Turkish women. Oral Health Prev Dent. 2006; 4:227–33.

18. Friedlander AH. The physiology, medical management and oral implications of menopause. J Am Dent Assoc. 2002; 133:73–81.

19. Kribbs PJ. Comparison of mandibular bone in normal and osteoporotic women. J Prosthet Dent. 1990; 63:218–22.

20. Glowacki J. Impact of postmenopausal osteoporosis on the oral and maxillofacial surgery patient. Oral MaxillofacSurg Clin North Am. 2007; 19:187–98.

21. Chiramana S, Ashok K. Examination, diagnosis and treatment planning for complete denture therapy: A review. J Orofac Sci. 2010; 2:29–35.

22. Sultan N, Rao J. Association between periodontal disease and bone mineral density in postmenopausal women: A cross sectional study. Med Oral Patol Oral Cir Bucal. 2011; 16:e440–7.

23. Delilbasi C, Cehiz T, Akal UK, Yilmaz T. Evaluation of gustatory function in postmenopausal women. Br Dent J. 2003; 194:447–9.

24. Grushka M, Bartoshuk LM. Burning mouth syndrome and oral dysesthesias. Can J Diagnos. 2000: 99-109.

25. Abetz LM, Savage NW. Burning mouth syndrome and psychological disorders. Aust Dent J. 2009; 54:84–93.

26. Bhavsar N, Patel N, Trivedi S, Brahmbhatt N, Dulani K (2016) Postmenopausal Women: Oral Problems & Management, a Review. Med J ObstetGynecol 4(4): 1088.

27. Frutos R, Rodríguez S, Miralles-Jorda L, Machuca G. Oral manifestations and dental treatment in menopause. Med Oral. 2002; 7:26.

28. Buencamino MC, Palomo L, Thacker HL. How menopause affects oral health, andwhat we can do about it. Cleve Clin J Med. 2009; 76: 467- 475

29. Reinhardt RA, Stoner JA, Golub LM, Wolff MS, Lee HM, Meinberg TA, et al. Efficacyof sub-antimicrobial dose doxycycline in post-menopausal women: clinical outcomes.J Clin Periodontol. 2007; 34: 768-775.

30. Krall EA, Dawson-Hughes B, Papas A, Garcia RI. Tooth loss and skeletal bone density in healthy postmenopausal women. Osteoporos Int. 1994; 4:104–9.

31. Taguchi A, Sanada M, Suei Y, Ohtsuka M, Nakamoto T, Lee K, et al. Effect of estrogen use on tooth retention, oral bone height, and oral bone porosity in Japanese postmenopausal women. Menopause. 2004; 11:556–62.