



## Prevalence of Orofacial Diseases in Perimenopausal and Postmenopausal Females: An Oral Medicine Specialist Oblique

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### Abstract

**Background:** Midlife transition is like sailing a boat through younger seashore to an older end of the sea. Menopause in a female is accompanied by a number of characteristic physical changes; some of which commonly occur in the oral cavity like burning sensation, dryness, altered taste perception; and alveolar bone loss as a result of osteoporosis. Our study tries to focus on important orofacial disorders usually diagnosed by an oral medicine specialist in peri and postmenopausal women along with recent trends in their management.

**Methodology:** This study was conducted on 204 female patients between the age of 20 years-60 years having oral signs and symptoms frequently seen during peri and postmenopausal stage.

**Results:** Out of 204 patients, most peri and postmenopausal females reported with the chief complaint of dry mouth, oral burning sensation, halitosis and loss of taste sensation. The most common orofacial diseases observed in our study were atrophy of tongue papillae, erosive lichen planus with or without desquamative gingivitis, burning mouth syndrome, idiopathic orofacial pain, oral stomatitis and pemphigus vulgaris.

**Conclusion:** Most of the oral diseases are overlooked due to the lack of education, awareness for women's health, definite

guidelines and approaches to the medical fraternity. Menopause requires a comprehensive approach by various medical and dental specialties to treat several enigmatic orofacial diseases. Together we can help our patients to live their senescence period in a healthy and better way.

**Keywords:** Orofacial diseases; Females; Perimenopausal; Postmenopausal; Oral medicine specialist

### Introduction

It is a common belief amongst general practitioners that dentistry is just confined to the teeth and its supporting structures. However, very few are aware of numerous oral diseases which occur in the oral cavity either as primary oral lesions or as manifestation of any systemic disease which are often difficult to diagnose and treat. An oral medicine specialist is the one who is rigorously trained to diagnose and treat these oral lesions. The most common known etiology of oral lesions is tobacco associated deleterious oral habits. Most of the white and red oral lesions occur due to either smoking or tobacco chewing. These lesions are mostly potentially malignant and in due course of time can easily transform into oral malignancy.

However, with increasing stress, anxiety and depression in our day to day life, several stress induced lesions are manifesting in the oral cavity in the form of ulcers, white and red lesions, unexplained oral burning sensations and several viral infections due to compromised immunity. Similarly, the prevalence of anxiety related symptoms in midlife women is substantial which estimates as high as 51% of women who are in the age group of 40 years-55 years reporting tension/nervousness or irritability. Compared with premenopausal women, peri menopausal women have a greater risk for each symptom of anxiety. All problems that a woman faces during her perimenopausal and post-menopausal stage is attributed to hormonal changes. Therefore, several orofacial diseases are commonly seen in these females during their midlife age. These orofacial diseases appear in the form of xerostomia, burning sensations erosive oral lesions and atypical facial pains. [1-4]. The most difficult part of these diseases is that they are "fast to come but last to go". Treating these orofacial diseases pose a challenge for oral medicine specialists and in-depth knowledge of these oral diseases is must to understand in order to provide their management. This study is an effort to show the prevalence of such orofacial diseases in perimenopausal or postmenopausal females and discuss their recent treatment protocols.

### Methodology

The present study was conducted on 204 female patients who reported to us between January 2019 to May 2021 with the chief complaint of oral burning sensation, xerostomia or orofacial pain and who were clinically diagnosed with orofacial diseases commonly seen in females. All the 204 female patients were between the ages of 20 years to 60 years. A detailed proforma was framed and all the relevant information of each patient was recorded in the same. Patients with only odontogenic complaints, local inflammation, known bacterial infections, deleterious habits or any known systemic disease were excluded from the study. All the data was collected and statistically analyzed.

## Results

Out of 204 patients, most females reported with the chief complaint of dry mouth, oral burning sensation, halitosis and loss of taste sensation. Only 59 patients in the age group of 20 to 40 years had one of these oral symptoms whereas 145 patients in the age group of 41 years to 60 years had one or more of the above symptoms. In the age group of 41 years to 60 years, oral burning was the most common complaint (64.8%) followed by xerostomia (50.3%). Halitosis was seen in 25.5% of patients in this age group while loss of taste sensation was seen in 16.6%. On the other hand, out of 59 patients in the age group of 20 years to 40 years, only 38 patients had burning sensation, 22 patients had halitosis and only 4 patients had xerostomia. Loss of taste sensation was not found in any patient in this age group.

Similarly, out of 204 patients, 145 female patients who had orofacial diseases were in the age group of 41 years to 60 years and only 59 patients were in the age group of 20 years to 40 years. The most common orofacial disease observed in our study was atrophy of tongue papillae (27.5%). 38 patients in the age group of 41 years to 60 years had atrophy of tongue papillae while only 18 patients out of 59 patients had this finding in the age group of 20 years to 40 years. The second most common oral lesion was erosive lichen planus with or without desquamative gingivitis which was seen in total 49 (24%) female patients. Out of these, 46 patients were in the age group of 41 years to 60 years while only 3 patients were in the age group of 20 years to 40 years. Burning mouth syndrome was seen in 34 (16.7%) female patients, out of which 31 patients were in the age group of 41 years to 60 years while 3 patients were between 20 years to 40 years of age.

Apart from the above oral manifestations, another common lesion which was evident in our study was idiopathic orofacial pain, seen in 28 female patients (13.7%). Out of these, 21 patients were in the age group of 41 years to 60 years while the remaining 7 patients were in the 20 years to 40 years age group.

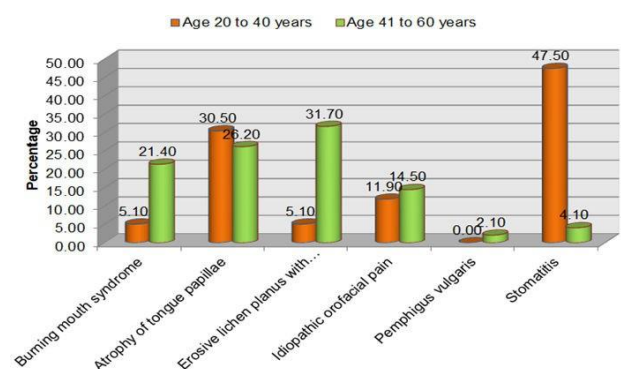
Stomatitis was seen in 34 (16.7%) patients, out of which only 6 females were in the age group of 41 years to 60 years and remaining 28 patients were in the 20 years to 40 years age group. The least common oral lesion observed in our study was pemphigus vulgaris which was present only in 3 female patients (1.5%) all of which were in the age group of 41 years to 60 years.

Thus except for stomatitis, all other orofacial diseases were mainly seen in the perimenopausal or postmenopausal females in the age group of 41 years-60 years ( $\chi^2=68.002$ ;  $df=5$ ;  $p<0.001$ ; Highly significant) (Table 1) (Figure 1).

Type of oral lesion	Age 20 years-40 years	Age 41 years-60 years	Total cases reported	
	(No. of reported cases)	(No. of reported cases)	N	%
Burning mouth syndrome	3	31	34	16.7
Atrophy of tongue papillae	18	38	56	27.5

Erosive lichen planus with or without desquamative gingivitis	3	46	49	24
Idiopathic orofacial pain	7	21	28	13.7
Pemphigus vulgaris	0	3	3	1.5
Stomatitis	28	6	34	16.7
Total	59	145	204	100

**Table 1:** Age wise distribution of different types of orofacial disorders.



**Figure 1:** Graph showing age wise distribution of different types of oral lesions.

## Discussion

In midlife of a woman, circulating sex hormone levels change resulting in several manifestations that have a potential effect on their psychological status and quality of life. Estrogen and progesterone are responsible for physiological changes in women at specific phases of their life: Puberty, menstrual cycle, pregnancy, menopause, and post-menopause. Menopause archetypically occurs in the fifth decade of life in women. Factors that affect the age at onset of menopause include the body mass index, family history, ethnic origin, parity, menarche, and previous oral contraceptive use [2,3].

The oral alterations noted at menopause are frequently related to hormonal changes although a physiological aging of the oral tissues also plays a contributing role. The most common oral manifestations seen during menopause as mentioned in existing literature are burning mouth syndrome, Xerostomia, taste disorders, neurological changes and osteoporosis. Similarly, several studies in dentistry journals focus on xerostomia and poor periodontal health after menopause. The present study is conducted to highlight several other important orofacial diseases which unfortunately have not been given importance in previous literature and are actually frequently diagnosed and treated by oral medicine specialists.

Estrogen receptors are also identified in the tongue and hence oral burning is one of the most common complaints in females during their midlife as seen in present study (64.8%). The onset of burning

sensation can be either gradual and spontaneous or sudden. Patients usually report that the burning sensation presents its lowest intensity upon waking up but reappears in noon reaching the maximum intensity by late evening. These patients often present with mood changes, including irritability, anxiety and depression. Another common symptom exhibited by menopausal women is xerostomia as in the present study (50.3%). Salivary glands contain sex hormone receptors and these hormones have been estimated in the saliva and thus salivary flow rate depends upon estrogen status. Postmenopausal women have low flow rates of saliva than menstruating women [5].

Alterations in salivary function may lead to impairment of oral tissues and have a large impact on the patient's quality of life. It leads to oral malodor or halitosis because absence of salivary cleansing mechanism results in development of gingivitis and periodontitis. However, there are several other causes of halitosis as well in these middle aged females like altered digestive system, sinusitis and candida infection. Changes in the function of taste buds and neural networks have also been commonly noted to occur following menopause. Delilbasi C [6] found a significant reduction in sucrose perception and in palatal sensitivity in postmenopausal women and concluded that taste perception of the tongue does not change, but that there is a disorder in palatal perception in postmenopausal women. Furthermore, there is tendency to prefer sweeter foods during menopause.

Women have unique oral health needs during post menopause which change throughout their lives. Oral medicine specialists, general dental surgeons and gynecologists should be aware of these oral health changes. Atrophy of tongue papillae is not uncommon. Several commonly associated diseases with atrophy of tongue papillae are iron deficiency anemia, pernicious anemia, Vitamin deficiencies etc. However, this is very common during the midlife of a female as seen in present study (26.2%). It is important to prescribe multivitamins containing zinc in order to improve epithelization and regeneration of papillae in these patients in (Table 2).

Apart from above mentioned common signs and symptoms, our study highlights increased prevalence of autoimmune disorders like erosive lichen planus and pemphigus vulgaris as well as neuropathic orofacial pain disorders like idiopathic orofacial pain and burning mouth syndrome in perimenopausal and postmenopausal females. These disorders are often difficult to diagnose and treat. The role of estrogen and progesterone on autoimmune disorders such as Multiple Sclerosis (MS), Systemic Lupus Erythematosus (SLE), and Rheumatoid Arthritis (RA) have been documented in dermatology literature but only very few studies specifically reports incidence of Oral Lichen Planus (OLP) in these females. Mohan RPS et al. [7] reported that in one year incidence of OLP in postmenopausal women was 10.91%, which is higher than incidence of LP in general population, i.e., 0.5%-2.0%. In the present study, erosive lichen planus was one of the most common oral lesions reported 31.7% in the age group of 41 years-60 years. Incidence of OLP increased with the severity of depression in perimenopausal women. Erosive lichen planus typically presented in the oral cavity as white lace like lesions with striae having surrounding erythematous areas. Desquamative gingivitis was also associated with this disease in half of the patients presenting as white scrapable sloughing on gingiva with underneath erythematous and bleeding areas. The lesions keep on recurring even after treatment with topical and systemic steroids and thus further add burden of stress in these females. In such relapsing cases

immunomodulators like tacrolimus and cyclosporine should be prescribed in these patients (Table 2).

Pemphigus vulgaris presenting as painful, diffuse, large oral ulcers on tongue, floor of the mouth, palate and buccal mucosa was seen in 3 postmenopausal patients in the present study. It is usually treated with systemic corticosteroids or immunosuppressive drugs like cyclophosphamide. When skin lesions are also present, pulse therapy is the preferred treatment of choice. It is a known fact that prevalence of burning mouth syndrome is greater among post-menopausal females (12%-33%) [8,9]. In our study the prevalence was (16.5%). However, most dental surgeons or general physicians are unable to diagnose and treat this condition. Thus, patients are often referred from one health care professional to another without effective management. BMS actually refers to a burning sensation that occurs without any clinical signs and mucosa appears absolutely healthy. Most researchers believe that patients diagnosed with BMS have increased excitability of the trigeminal vascular system. Physiological levels of estrogens are neuroprotective in the nigrostriatal dopaminergic system so their decline with menopause explains the age and gender predilection of this disorder. Hence, anticonvulsants and antidepressants are main pharmacological agents used in BMS management (Table 2). Proper administration of conjugated estrogens and medroxyprogesterone acetate may relieve oral symptoms in peri and postmenopausal females.

Disease	Treatment considerations
Xerostomia	Preventive therapy (topical fluorides, maintaining oral hygiene), salivary substitutes (increased intake of water, oral rinses and gels, use of artificial saliva), salivary stimulants (chewing sugarless gums or mints, electrical stimulation, use of drugs like pilocarpine hydrochloride (5 mg tid) and cevimeline (30 mg tid).
Oral stomatitis	Pain control measures: 2% viscous lidocaine (swish and spit out 5 ml, 4-5 times a day), liquid diphenhydramine (swish and spit out 5 ml, 4-5 times a day), combination of viscous lidocaine, diphenhydramine, and a covering agent (such as kapectate or Maalox) in 1:1:1 ratio, 0.1% dyclonine hydrochloride benzydamine, systemic analgesia).
	Supportive care (hydration, ice chips or popsicles, soft bland diet, antipyretics such as ibuprofen, as needed), systemic medications (prednisolone 5 mg dose or maintenance dose)
Periodontal diseases	Daily tooth brushing and flossing after every meal, electric toothbrushes, floss holders, pulsed jet water irrigators, 0.12% chlorhexidine antimicrobial rinses, systemic antimicrobial therapy (metronidazole, tetracycline, clindamycin), surgical periodontal therapy.
Burning mouth syndrome	Antidepressants (amitriptyline, trazodone, paroxetine), anticonvulsants (clonazepam, gabapentin), C-fiber nociceptor desensitizer (capsaicin), antioxidant (alpha-lipoic acid), alternative

	therapies (electroconvulsive therapy, cognitive behavioral therapy, mind– body interactions, dietary and lifestyle changes).
Erosive lichen planus with desquamative gingivitis	Start with topical steroids (0.1% triamcinolone acetate), prednisolone 10 mg (swish and spit or swish and swallow), systemic prednisolone (depending upon severity, medical history, single morning dose with tapering to the lowest possible dose), immunomodulators (tacrolimus and cyclosporine), topical retinoids, anti-malarials (hydroxychloroquine sulphate), dapsone, levamisole, PUVA therapy, Laser therapy.
Pemphigus vulgaris	Systemic prednisolone (depending upon severity, medical history, single morning dose with tapering to the lowest possible dose), immunosuppressive drugs (cyclophosphamide, azathioprine, mycophenolate mofetil), rituximab, dapsone, intravenous immunoglobulins, plasma exchange and pulse therapy.
Atypical facial pain	Tricyclic antidepressants (amitriptyline, nortriptyline, doxepin in low to moderate doses), gabapentin, pregabalin, clonazepam, topical capsaicin and topical anaesthetics.
Atrophy of tongue papillae	Treatment of associated systemic disease (if present) and administration of nutritional supplements like vitamin E, serum iron, serum cobalamin and folic acid.

**Table 2:** Summary of most common orofacial disorders in perimenopausal and post-menopausal females with suggested treatment.

Idiopathic orofacial pain which includes atypical facial pain, stomatodynia, atypical odontalgia and some forms of masticatory muscle and temporomandibular joint disorder is again an enigmatic pathology like BMS [10]. It is important that in both BMS and idiopathic orofacial pain, symptoms are taken seriously and not dismissed as imaginary. The etiology of this illness is unknown. Hormonal influences and degenerative tissue phenomena usually explain their pathophysiology. It is interesting to note that female sex hormones predispose women to musculo-articular facial pain (during their fertility period) while their absence favors idiopathic orofacial pain (after menopause). Estrogens appear to cause variations in the surface area of peripheral receptive field of trigeminal neurons according to the stage of menstrual cycle. In the present study, idiopathic orofacial pain was reported in 21 patients in the age group of 41 years-60 years and was of dull and continuous type had no paroxysmal character and was difficult to treat even with anticonvulsants and antidepressants. Although few studies have also documented presence of trigeminal neuralgia in postmenopausal females, we did not include this disease in our study group as it has a specific etiology of nerve compression and is common in older age groups.

Stomatitis (viral, allergic or aphthae) is more common in younger age groups as seen in present study as they have specific etiology and

are often treated symptomatically (Table 2). Thus, our study reliably shows that post-menopausal women suffer from several orofacial diseases which are poorly understood by general or oral health professionals. These diseases often require a proper diagnosis and standardized treatment approach. One limitation of our study was due to COVID-19 pandemic and prolonged lockdown, our sample size was small. In future, well-designed clinical studies with a larger sample size should be conducted.

## Conclusion

As the menstrual cycle is an important biological stage for every woman in her fertile age, so are the perimenopausal and postmenopausal stages. Most of the signs and symptoms are overlooked due to the lack of education, awareness for women's health, definite guidelines and approaches to the medical fraternity. Menopause being a physiological process leading to various chemical (hormonal) changes in the body of a female as a whole requires a comprehensive approach by various medical and dental specialties. Together we can help our patients to live their senescence period in a healthy and better way. Midlife transition is like sailing a boat through younger seashore to an older end of the sea. Our study tried to focus and include most of the orofacial lesions women in their midlife are suffering with and provide them with appropriate treatment.

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