This course is the first in a series of oral pathology presentations emphasizing common diseases prevalent among women, men, and children. For this course, the focus will be on three oral diseases—Sjögren’s syndrome, systemic lupus erythematosus (SLE), and burning mouth syndrome (BMS)—that are more common in women and associated with unpleasant taste and pain in the tongue. The etiologies, clinical manifestations, symptoms and treatment options for these diseases will be emphasized.

**Course Objectives**

Upon completion of this course, the dental professional will be able to:

- Describe the etiology of autoimmune diseases.
- Describe the etiology, clinical manifestations, symptoms and treatment options for patients with Sjögren’s syndrome.
- Describe the etiology, clinical manifestations, symptoms and treatment options for patients with systemic lupus erythematosus.
- Describe the etiology, clinical manifestations, symptoms and treatment options for patients with burning mouth syndrome.
- Describe the common characteristics shared by these three diseases.
Do you know what Sjögren’s syndrome, systemic lupus erythematosus (SLE), and burning mouth syndrome (BMS) have in common? Although they are very different oral diseases, they share two general characteristics.

The first feature is that they are much more prevalent in women than men.

The second commonality is that these three conditions are associated with dysgeusia, which is when normal tastes become unpleasant, and glossodynia, which is pain in the tongue.

The body can normally distinguish between itself and foreign substances. In autoimmune diseases, such as Sjögren’s Syndrome, the recognition mechanism breaks down, and the patient’s own immune system can no longer distinguish between its own healthy cells and antigens, foreign invaders. It begins to attack the body’s own tissues in a process known as autoimmunity. This can involve a single cell type, a tissue, an organ or multiple organs, causing chronic inflammation. Complexes of antibodies travel throughout the body causing tissue death and inflammation. This is the reason why patients often present with more than one autoimmune disease.

Sjögren’s syndrome

Sjögren’s syndrome affects salivary and lacrimal glands, exocrine glands with ducts. Lymphocytes infiltrate the duct system and cause chronic inflammation, which closes it down. Women are affected in 80 percent of cases, representing a 9:1 female to male ratio. The average age at diagnosis is 35–50 years. Patients with primary Sjögren’s syndrome do not have any other autoimmune diseases, while those with secondary Sjögren’s syndrome have another autoimmune disease, such as SLE or rheumatoid arthritis. Those patients with Sjögren’s syndrome are at increased risk for lymphoma.

The most adverse symptom is xerostomia. The severity of xerostomia varies from patient to patient. However, caries will be of primary concern. The filiform and fungiform papillae atrophy, causing the tongue to depapillate. This results in glossodynia.

Some patients have burning, difficulty with taste, and may need to use liquids to help swallow food. It is said that the mouth gets drier and drier, while salivary glands get bigger and bigger, due to lymphocytic assault. Half of these patients have bilateral parotid gland enlargement which may elevate the earlobes. Dry mouth can make wearing dentures difficult. Patients may have candidiasis as a secondary complication, including angular cheilitis. As long as the dryness persists, the oral cavity remains susceptible to recurrent candidiasis infection. The eyes have xerophthalmia. They are dry, intolerant of light, and may burn and itch. Patients may complain of a gritty sensation. This is best managed by the use of artificial tears.

There is no cure for Sjögren’s syndrome. Nonsteroidal anti-inflammatory drugs (NSAIDS) are used for mild symptoms. Corticosteroids and immunosuppressive drugs are used for severe complications. Treatment options to address these symptoms include prescription medications to stimulate salivary flow, artificial salivary substitutes in over-the-counter and prescription forms, as well as sustained-release patches or discs. Recommended fluoride use should include a daily dentifrice, rinse or prescription gel.
Fluoride varnish application can be provided at dental hygiene and dental appointments. Remineralizing agents containing calcium and phosphate, and products containing xylitol, are also suggested.

Anecdotal advice includes drinking water, sucking on small chips of ice or sugarless candies and gums and using a humidifier at night, when xerostomia tends to worsen. To avoid dehydration, caffeine and alcohol intake should be discouraged. Evaluation of the oral cavity for complications of this disease at regular maintenance appointments is imperative.\textsuperscript{2–4}

**Systemic Lupus Erythematosus**

SLE is another autoimmune disease. Antibodies are focused on cell nuclei. B and T lymphocytes attack connective tissues. It is a multifaceted disease with multiple organ involvement, primarily affecting the joints, skin, kidneys, lungs, heart, blood vessels, and brain. Due to the chronic inflammation, it is described as the “ultimate autoimmune disease” with periods of exacerbations—termed “flares”—and remissions. This disorder is approximately eight to 10 times more common in women than men. The average age at diagnosis is 31 years. African American and Hispanic women are affected three times more than Caucasians.\textsuperscript{3–5}

Arthritis is the most common manifestation, typically troubling the small joints. Fever, weight loss, severe fatigue, myalgia and malaise are other common symptoms. The temporomandibular joint (TMJ) may be affected by arthralgia. An estimated 85 percent of patients have skin lesions manifesting as a rash on an upper trunk area or exposed skin, such as the fingers. The pathognomonic butterfly rash appears on the nose and malar area, and is found in 40–50 percent of patients. This rash will worsen when exposed to sunlight.\textsuperscript{3–5}

Approximately 95 percent of patients with SLE have oral lesions. Five percent to 40 percent of patients have oral manifestations that can resemble lichen planus. These oral lesions appear as irregular, white keratotic plaques or erythematous centers with white striae located on the palate, lips, buccal mucosa and gingiva. In some patients, these lesions are painless, while others experience painful ulcerations.

Twenty-five percent to 45 percent of patients present with aphthous ulcers. Other oral symptoms include angular cheilitis, xerostomia, dysgeusia and glossodynia.\textsuperscript{3–5}

SLE was once considered to be fatal. Currently, the five-year survival rate is 90 percent. The 10-year survival rate is 80 percent. The patient may have physical disabilities linked to arthritis. As oral lesions are common, the mouth needs to be evaluated regularly at maintenance appointments. Non-steroidal anti-inflammatory drugs and aspirin are recommended for mild symptoms. Close collaboration with a physician is required when systemic steroids, antimalarial and immunosuppressive drugs are used to treat severe symptoms. Consultation with a physician is recommended for those patients with major organ involvement.\textsuperscript{3–5}

**Burning mouth syndrome**

BMS is a rare disorder associated with chronic or recurrent burning in the anterior or posterior mouth without an obvious cause or clinical signs. This painful discomfort may affect the anterior two-thirds of the tongue, gingiva, labial and buccal mucosa, or anterior palate, or be generalized to the entire mouth. It begins acutely and manifests as a scalding or tingling sensation at one or several oral sites. A feeling of numbness may occur. The pain may be accompanied by taste
phantoms, taste sensations that occur in the absence of stimuli. The patient may report a bitter taste when there is nothing present to elicit that response. Physical changes to the tongue and mouth are not visible.\textsuperscript{6}

BMS is more common in women than in men by a ratio of approximately 7:1, and 90 percent of affected women are postmenopausal. It is uncommon before age 30, and it generally appears three years pre-menopause and up to 12 years after menopause. The fact that many patients are postmenopausal has led to the belief that BMS is associated with an estrogen or progesterone deficiency. This theory has not been confirmed by research.\textsuperscript{6}

Symptoms of BMS may include: a burning sensation affecting the anterior two-thirds of tongue, gingiva, labial and buccal mucosa, anterior palate or the entire mouth; xerostomia with increased thirst; a bitter or metallic taste; and complete loss of taste, ageusia, or dysgeusia.\textsuperscript{6}

The discomfort from BMS can assume several different patterns. It may occur daily, with little discomfort upon waking, but become worse as the day progresses, peaking in late afternoon. Or it may begin upon arising and last all day. Generally, this disorder does not impede sleep. For many patients, the pain is reduced during eating or drinking. The discomfort may come and go. It may last for months to years. Sometimes, symptoms may suddenly disappear on their own or become less frequent. Spontaneous remission occurs in approximately half of cases. Other patients experience symptoms for the rest of their lives.\textsuperscript{6}

When no clinical or lab abnormalities can be identified, the condition is termed primary or idiopathic burning mouth syndrome. Some experts believe that primary BMS is caused by damage to the chorda tympani nerve that controls taste to the anterior two-thirds of the tongue.\textsuperscript{6}

When BMS has an underlying medical etiology, it is referred to as secondary BMS. Other oral problems associated with secondary BMS include xerostomia, candidiasis, geographic tongue, dentures, tongue thrusting, biting the tip of the tongue, bruxism, and over-brushing the tongue. Medical conditions accompanying secondary BMS include gastroesophageal reflux disease or GERD, inflammatory bowel disease, hypertension treated with angiotensin-converting enzyme (ACE) inhibitors, type 2 diabetes, hypothyroidism, and nutritional deficiencies of iron, zinc, folate (B9), thiamin (B1), riboflavin (B2), pyridoxine (B6) or cobalamin (B12). This disorder is also linked to food allergies, and allergies to dental materials or metals.

Many patients have psychological difficulties such as depression, stress, anxiety, mood changes and personality disorders. It is considered by some authorities to be a psychosomatic disease, as patients complain of persistent physical symptoms that have no currently identifiable cause.\textsuperscript{3, 6}

BMS is a complex pain disorder. The treatment that works for one patient may not work for another. When caused by a specific medication, BMS will gradually subside when the medication is stopped. BMS may be the first symptom of vitamin B12 deficiency. When vitamin B12 deficiency is identified, it is important to treat it promptly.\textsuperscript{6}

BMS treatment may include anti-anxiety drugs and antidepressants, clonazepam (Klonopin), a muscle relaxant and anticonvulsant, which can be applied topically or systemically, or a fatty acid known as alpha-lipoic acid.

Morning appointments may be preferred, as the pain tends to worsen in the afternoon. To reduce the discomfort from BMS or prevent the distress from getting worse, the following strategies may be recommended: drink more fluids, but avoid carbonated beverages, acidic (citric) liquids, coffee and alcoholic beverages; shun tobacco products; use a humidifier at night; and avoid mouth rinses with alcohol and those products containing cinnamon or mint. For those BMS patients who suffer from xerostomia, the preventive treatment recommendations listed under Sjögren’s syndrome in this discussion may be considered.\textsuperscript{3, 6}

Summary

Sjögren’s syndrome, SLE and BMS are much more common in women than men. They are also associated with dysgeusia and glossodynia. They represent complex oral conditions with autoimmune or idiopathic etiologies. Familiarity with clinical manifestations and preventative-care treatment strategies will aid in improved patient management by the dentist and dental hygienist.\textsuperscript{7}
1. In autoimmune diseases, the patient’s immune system attacks its own healthy cells.
   A) True
   B) False

2. In Sjögren’s syndrome, the filiform and fungiform papillae atrophy, causing glossodynia or burning tongue.
   A) True
   B) False

3. Which of the following symptoms are not associated with Sjögren’s syndrome?
   A) Caries
   B) Dry eyes
   C) Candidiasis
   D) Aphthous ulcers

4. Of the three diseases, which has the most life-threatening consequences?
   A) Sjögren’s syndrome
   B) Systemic lupus erythematosus
   C) Burning mouth syndrome

5. Systemic lupus erythematosus is more common in African American and Hispanic men.
   A) True
   B) False

6. Aphthous ulcers and lesions resembling lichen planus are commonly noticed in patients with burning mouth syndrome.
   A) True
   B) False

7. Systemic lupus erythematosus is associated with burning and numbness in the tongue as well as taste phantoms.
   A) True
   B) False

8. The majority of women afflicted with burning mouth syndrome are postmenopausal.
   A) True
   B) False

9. What disease/disorder is not associated with secondary burning mouth syndrome?
   A) Hypertension controlled by (ACE) inhibitors
   B) GERD
   C) Type 1 diabetes
   D) Depression

10. The butterfly rash is pathognomonic for which disease?
    A) Sjögren’s syndrome
    B) Systemic lupus erythematosus
    C) Burning mouth syndrome

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Oral Diseases Associated with Women

By Deborah Levin-Goldstein, RDH

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