Burning Mouth Syndrome: A rare manifestation of Lyme disease.
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Introduction

Burning mouth syndrome (BMS) is a poorly understood pain syndrome that is
classically an idiopathic condition that presents as a pain or burning of the oral and/or oropharyngeal
mucosa without any identifiable lesions or systemic causes for the disease. Associated symptoms include
xerostomia and dysgeusia, although mono-and oligo-symptomatic forms lacking these features exist and
are more common than the classic triad above. Symptoms typically present in middle age with a significant
female predominance. The definitive pathophysiology behind this disease is largely unknown. Theoretical
causes include peripheral nerve injury, nutritional deficiencies (notably vitamin B12 as well as other B-
complex vitamins), and psychosomatic factors.

Neurological symptoms can be found in up to fifteen percent of patients with Lyme disease.
Chordal neuropathies are a common presentation of infection with the bacteria Borrelia burgdorferi,
but neurological deficits are thought to occur secondary to direct neural invasion by the organism.

Cases

Case 1

A 58-year-old woman presented to the Otolaryngology clinic with a primary complaint of a burning sensation at the tip of her tongue. Symptoms presented simultaneously with her diagnosis of Lyme disease (six months prior to presentation). Since her initial diagnosis, she has been treated with two courses of doxycycline with no visible or palpable lesions of the oral cavity or oropharynx. The remainder of the head and neck exam was within normal limits. The patient was started on vitamin D supplementation and treatment with an additional three-week course of doxycycline, although this failed to demonstrate symptomatic improvement.

Case 2

A 69-year-old female presented to the Otolaryngology clinic with a chief complaint of her "mouth is on fire." The patient reports symptoms for the past 10 years that began coincident with her diagnosis of Lyme disease. The severe burning sensation is focused in her oropharynx. She reports waxes and wanes over this period with temporary relief following ... an inability to appreciate sweet foods. Her medical history is significant for gastroesophageal reflux but has no extra-oral symptoms, but an incomplete response is not uncommon. These neurological deficits are thought to occur secondary to direct neural invasion by the organism.

Discussion

Burning mouth syndrome (BMS) is a poorly understood pain syndrome that is
classically an idiopathic condition that presents as a pain or burning of the oral and/or oropharyngeal mucosa
without any identifiable lesions or systemic causes for the disease. Associated symptoms include xerostomia and dysgeusia, although mono-
and oligo-symptomatic forms lacking these features exist and are more
common than the classic triad above. Symptoms typically present in middle age with a significant female predominance. The definitive pathophysiology behind this disease is largely unknown. Theoretical causes include peripheral nerve injury, nutritional deficiencies (notably vitamin B12 as well as other B-
complex vitamins), and psychosomatic factors.

Lyme disease is a tick born disorder that is caused by the bacteria Borrelia burgdorferi, a gram-negative spirochete.
It is characterized by the classic skin rash, erythema migrans, but can also cause a variety of symptoms such as
neurological, cardiac, and joint disorders. A variety of head and neck manifestations have been reported and include (but are not limited to): lymphadenopathy, facial palsy, facial pain, vocal cord palsy, TIA disorders, facial spasms, facial paresthesias, dysphagia, hearing loss, and changes in vision.

Neurological symptoms can be found in up to fifteen percent of patients with Lyme disease. Chordal neuropathies are a common presentation of infection with the bacteria Borrelia burgdorferi, but neurological deficits are thought to occur secondary to direct neural invasion by the organism.

Conclusions

BMS is a poorly understood pain syndrome that is characterized as oral mucosal pain, dysgeusia, and
xerostomia with a lack of physical findings. Oligo-symptomatic forms of the disease exist in which dysgeusia and xerostomia contribute to varying degrees. The pathophysiology of this disorder is largely unknown although peripheral nerve injury and vitamin neuronal deficiency are postulated to be potential etiologies.

Lyme disease has many potential head and neck manifestations although a review of the literature reveals that this is the first report of BMS as a potential manifestation.