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Case Report Open Access

Surgical Induction of Burning Mouth Syndrome: Hemicolectomy and Hyperalimentation

Jasmine M Campbell[1*], **Chevelle Winchester**[2] **and Alan R Hirsch**[3]

[1]*Caribbean Medical University School of Medicine, Des Plaines, IL/Curacao Campus, USA*

[2]*American University of Barbados, Stamford, CT/Barbados Campus, USA*

[3]*Smell and Taste Treatment and Research Foundation, Chicago, IL, USA*

[*]**Corresponding author:** Jasmine M Campbell, Department of Otorhinolaryngology, Caribbean Medical University School of Medicine, Des Plaines, IL/Curacao Campus, USA, E-mail: jasminemcampbell@gmail.com

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Abstract

Background: Burning Mouth Syndrome (BMS) is a chronic, idiopathic condition characterized by changes in sensory perceptions in the tongue and other oral sites, despite the normal clinical appearance of the oral mucosa. Vitamin B1 (thiamine) amongst other vitamin B complex deficiencies have been associated with BMS. While vitamin deficiencies have been discussed as a secondary cause for BMS, surgically induced BMS associated thiamine deficiency has not up to this point been described.

Methods: A case study looked at an elderly female who presented with a two year history of BMS pain, two weeks following a hemicolectomy and hyperalimentation. Myriad abnormalities on the neurological examination as well as decreased serum thiamine level was found.

Conclusion: Onset of BMS symptoms after abdominal surgery or hyperalimentation warrants further exploration.

Keywords: Burning mouth syndrome; Hemicolectomy; Hyperalimentation

Introduction

Burning mouth syndrome (BMS) is characterized by a burning sensation in the tongue or other oral sites, usually in the absence of clinical and laboratory findings [1]. Vitamin B complex deficiencies have been associated with BMS, including B1 (thiamine) [2]. Replacement with thiamine and other B vitamin was noted to cause relief of BMS in 34 of 150 patients [2]. BMS secondary to vitamin deficiencies have been discussed; however, hemicolectomy and hyperalimentation associated thiamine deficiency inducing chronic BMS has not heretofore been described.

Methods

Case study

A 63 year old Caucasian female presents with a two year history of BMS pain, two weeks following a hemicolectomy from terminal ileum to transverse colon and five days of hyperalimentation. She describes it as a burning pain, 8/10 in severity, localized to both lips, anterior tongue, and middle tongue. It is aggravated with eating and drinking, increasing to 10/10 on the pain scale. Alleviation of pain is seen when ice, Blistex, or lidocaine-mouthwash is used, decreasing the pain to 4/10. Diurnal variation was noted, wherein the pain is exacerbated later in the evening. She admits to celery tasting bitter, but denies trouble with articulation, halitosis, bruxism, memory, emotions, and concentration.

Results

Abnormalities in neurological examination: Motor Examination: abductor pollicis brevis 4/5 bilaterally. Drift testing with bilateral cerebellar spooning and bilateral abductor digiti minimi signs. Cerebellar Examination: rapid alternating movements are decreased in the left upper extremity. Reflex Examination: Deep Tendon Reflexes: Brachioradialis: 3+ bilaterally. Biceps: 3+ bilaterally. Triceps: 3+ bilaterally. Ankle Jerk: 2+ bilaterally with delayed return. Hoffman reflex: positive bilaterally. Serum Thiamine level: 66 nmol/L (normal 70-180 nmol/L).

Discussion and Conclusion

Although, BMS can be seen with thiamine deficiency [2], it has yet to be described status-post hemicolectomy and hyperalimentation. Thiamine is absorbed systemically in the upper jejunum, as well as in duodenum and ileum in conjunction with folate [3]. Thiamine deficiency is associated with Wernicke-Korsakoff Syndrome and Wet/Dry Beri-Beri; however, these abnormalities are associated with a significant decrease of serum vitamin B1 [4]. Even with near normal levels of thiamine, her BMS pain may be a prodromal syndrome which may act as a biological marker of dietary vitamin deficiency. Even though BMS is highly prevalent in postmenopausal women, wherein trigeminal nerve sensitivity may amplify and worsen pain, given a decrease in estrogen and progesterone [5], indirectly influencing her BMS pain. Salivary output and composition can alter due to a drop in estrogen and progesterone as well, allowing baseline reduction of proprioceptive input on the tongue. Ergo, acting through Melzack and Wall's [6] Control Theory of Pain to disinhibit small C-fibers, it may be perceived as burning pain. Given this case, in those who undergo

abdominal surgery or hyperalimentation, query regarding BMS symptoms is warranted [7].

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