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Patient Complaint of "Sore Mouth" after Placement of a Mandibular Advancement Device: What Do You Do?

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The patient is a 58-year-old college professor who had a medical history positive for hypertension, dyslipidemia, vertigo, and chronic prostatitis. He is allergic to penicillin. His medications consisted of atenolol and simvastatin, and he had recently been switched to a third antibiotic (Cipro XR) because of chronic prostatitis. His dental history was negative for orthodontic therapy and his 28-tooth dentition was well restored. He has a long history of bruxism and, prior to placement of his mandibular advancement device, was compliant with use of a Michigan splint maxillary full arch night guard.

The patient was originally diagnosed with moderate obstructive sleep apnea (OSA). His apnea hypopnea index (AHI) was 25, with an apnea index (AI) of 5.4. Snoring was soft to moderate, and his oxygen nadir was 87% (mean 96%). The patient was intolerant of positive airway pressure (PAP) because of severe upper airway dryness; he was referred for evaluation by an otolaryngologist. He then underwent laser assisted uvuloplasty (LAUP) twice; follow-up polysomnography revealed severe obstructive sleep apnea with an AHI of 63.2, an AI 58.8, and an oxygen nadir of 72% (mean 93%). The otolaryngologist referred the patient for oral appliance therapy (OAT).

Evaluation of the Michigan splint revealed significant lateral wear facets, and the device of choice was believed to be a TAP 1 since this device allows easy lateral mandibular movement with the device in place.

The patient received his oral device and, at his one week follow-up evaluation reported excellent results with significant decrease in snoring, no witnessed apneic events, and significant improvement in Epworth Sleepiness Scale (ESS) score. His only complaint was sensitivity on his lips that had started on the upper lip, at the wet-dry line, and was now present on his lower lip. He was advised to use a lip emollient and return in one week.

The patient returned in one week with the complaint that "my lips are so sore I can't drink wine." He stated that "I love my new device but my lips are killing me." He also complained of xerostomia and the feeling of having a "cotton mouth." Clinical evaluation of the oral cavity showed obvious erythema and mild edema at the wet-dry line of both the upper and lower lip. The most likely diagnosis appeared to be irritation from the extra-oral knob on the TAP 1; the knob was removed and the patient was prescribed Kenalog in Orabase ointment to soothe the irritated labial tissue. The patient was appointed to return in one week.

When the patient returned, his complaints had escalated. Clinical evaluation showed significant erythema of the inner lining of the lips and erythema on the anterior one-third of the tongue with enlargement of the fungiform papillae; the visual picture was similar to an oral burn (see Figures 1 & 2). The patient was extremely uncomfortable and complained of problems with eating and speaking.

QUESTION: What is the differential diagnosis?

Figure 1

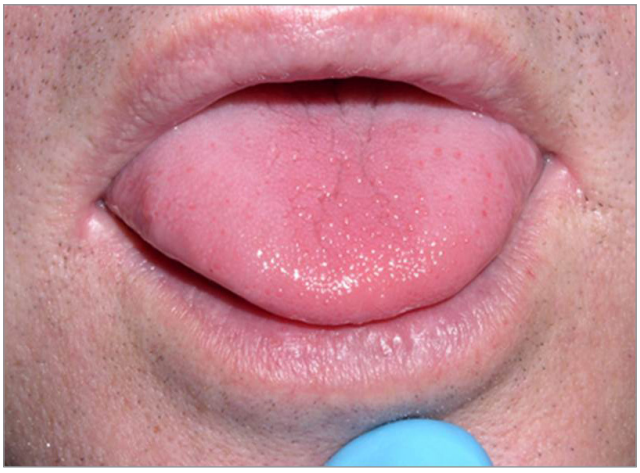
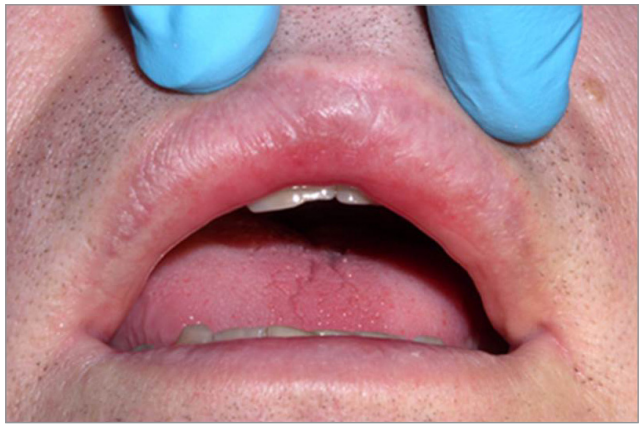


Figure 2



ANSWER:

- Burning mouth syndrome
- Allergic reaction to the components of the device or cleaning solution
- Allergic reaction to medication
- Candidiasis

Burning mouth syndrome normally presents as a moderate-to-severe burning sensation in the mouth, which may persist for many months. It often varies in intensity throughout the day and may subside at night. Anxiety and depression are common in patients with this syndrome, which may be result of the severe pain. There are multiple causes for this syndrome, the majority of which are never identified. This syndrome is classically identified with middle-aged women but can be found at any age or either gender. The oral mucosa often appears normal to visual examination.[1]

Allergic reaction to the components of the oral device can occur in any patient with any device. Polymethyl methacrylate (PMMA),[2] polycarbonate, nickel metal, dyes, and latex can all create an allergic reaction when in contact with oral mucosa. It is common for topical allergic reactions to occur after greater than three weeks of exposure to the allergen, but it is possible that the patient could have previously been exposed and sensitized to the allergen. An allergic reaction to a specific topical allergen should show coincident tissue reaction wherever that material contacts oral mucosa. Patients using a device with latex elastics will normally show reaction directly over the latex. Those who are allergic to nickel metal will respond with a reaction over the metal component. The oral cavity has very thin mucosa and is not as well protected from topical allergens as is highly keratinized tissue such as skin.

Allergic reaction to medications can occur at any time. Atenolol has been known to cause side effects of dizziness, lightheadedness, and nausea. It is more unusual for it to cause mood alterations, depression dizziness, and trouble breathing. Simvastatin has been known to cause muscle pain and tenderness, pain or burning during urination, headache, skin rash, or symptoms of upper respiratory infection.[3] Cephalosporins can create a range of hypersensitivity reactions from mild delay-onset cutaneous reactions to life-threatening anaphylaxis. It is also been tied to oral candidiasis, fever, and vomiting. All cephalosporin medications can cause the development of oral sores. These often occur along the gingival margin, on the buccal mucosa, or the tongue. Some patients respond with skin lesions on the lips or around the mouth.[4] The side effects are more likely to occur the longer the patient takes the cephalosporin.

Oral candidiasis is an opportunistic oral and genital infection caused by *Candida albicans*. While *C. albicans* is a normal component of gut flora, patients who are immunocompromised, under significant stress, or diabetic may be more open to attack by this this diploid fungus. The clinical appearance may be *pseudomembranous* with the "classic appearance" of oral candidiasis with an overgrowth of hyphae on the dorsum of the tongue and oral cavity often called "thrush," or *erythematous* in which the oral mucosa appears red and raw with atrophy of tissue structures and may precede the formation of the pseudo-membrane. *Hyperplastic candidiasis* appears as a persistent white plaque which does not rub off. Hyperplastic candidiasis is found most commonly at the commissures of the mouth.[5]

In this case, the patient was experiencing a reaction to long-term cephalosporin therapy for chronic prostatitis. The patient's oral lesions resolved within two weeks of discontinuing Cipro XR, and he has been successful with OAT for 10 years.

This case history is used to exemplify the need to have an accurate and in-depth medical history of the patient treated with OAT. While allergic reactions to device components can occur at any time, the treating dentist must be aware of other differential diagnoses that may be the cause of the patient's complaints.

CITATION

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REFERENCES

1. Zakizewska J. Multi-dimensionality of chronic pain of the oral cavity. *J Headache Pain* 2013;14:6.
2. Acrylic allergies information. Candulor.com http://www.candulor.com/uploads/tx_stdokdb/Acrylic_allergies_information_EN.pdf
3. Package Insert for Zocor/Merck Corp. http://www.merck.com/product/usa/pi_circulars/z/zocor/zocor_pi.pdf
4. Package Insert for Cipro XL. Bayer Corporation. http://www.univgraph.com/bayer/inserts/ciproxr.pdf
5. Neville B, Damm D, White D. *Color atlas of clinical oral pathology*. 2nd ed. BC Decker, 2003:128-33.

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DISCLOSURE STATEMENT

Dr. Demko has indicated no financial conflicts of interest.