

Case report

Irrational use of Eucalyptus oil in dentistry: a case report

RS Shishir¹, C Renita², AR Kumuda³, BG Subhas⁴

Abstract

Use of herbal medicaments for dental pain is a practice still followed in some parts of rural India. Most often these herbal medicines are readily available to the rural without the prescription from an authorized practitioner. Eucalyptus oil is one such herbal drug which is widely used for a number of ailments. An unusual and a rare case of chemical injury secondary to the use of eucalyptus oil has been presented here. We have also described the management of the injury with herbal medication. This case report tends to highlights the dangers of self medication and also stresses on the role of herbal medications in dentistry.

Keywords: Eucalyptus oil, chemical ulcers, acacia catechu, dentistry.

Introduction

Many herbal remedies have been used for oral health for hundreds years.^[1] The herbal medicines are used in the form of powders, lambatives, decoctions, medicated oils (thaila), medicated ghees (ghritas), confections and wines.^[2] Increased recent use of herbal remedies seems to come from the public's view that natural products are harmless or at least have fewer side effects than regular drugs. The assumption that these herbal remedies have only beneficial effects has proven to be in correct.^[1] Irrational use of herbal medication without an ayurvedic specialist's consultation can cause systemic and local effects. Oral chemical burn is one such local effect.

Chemical injuries of the oral soft-tissues may readily occur due to the large number of chemical substances, such as drugs and various agents, which come in contact with the oral cavity.^[3] The maxillofacial region is rarely subjected to self-inflicted chemical injuries.^[4] In the oral cavity, chemical substances cause diffuse erosive lesions ranging from simple desquamation to complete obliteration of the oral mucosa with extension past the basement membrane into the submucosa.^[5] Due to the clinical state of acute pain associated with lack

of or inadequate care to relieve the symptoms, some patients use self-medication.^[4] The severity and extent of the lesions caused by chemical agents depend upon the concentration, type and quantity of the substance, as well as on the time of contact with the oral soft-tissues.^[6] A rare case of self-inflicted chemical injury secondary to topical application of eucalyptus oil has been presented here.

Case report

A forty two - year – old female patient reported to the department of Oral Medicine and Radiology, with the complaint of pain and decayed tooth in the right back region of the upper jaw since two weeks. The patient had applied eucalyptus oil over the gums (1 finger tip unit 3-4 times/day) associated with the decayed tooth, two days prior without any dental or medical prescription. After topical application of eucalyptus oil, the patient experienced severe burning sensation and ulceration in the same area. The patient also complained of difficulty in speech and mastication. The patient immediately stopped the medication and reported to us. No other systemic symptoms were reported by the patient.

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1. *Dr. Shishir Ram Shetty, Assistant professor,
 2. Dr Renita Castelino, Post graduate student,
 3. Dr. Kumuda Arvind Rao, Post graduate student,
 4. Dr. Subhas Babu G., Professor and Head,

Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences, Mangalore.

*Corresponds to: Dr. Shishir Ram Shetty, Department of Oral Medicine and Radiology, A.B Shetty Memorial Institute of Dental Sciences, Mangalore, Karnataka, India. **Email:** drshishirshettyomr@yahoo.com.



Figure 1



Figure 2



Figure 3

On clinical examination, deep cavitation was observed in distal aspect of the crown of 17 (Figure 1). The palatal mucosa in relation to 17 (maxillary second molar of the right side) showed the presence of a solitary ulcer

measuring approximately 1 cm in diameter, roughly circular in shape. The floor of the ulcer was covered with necrotic slough and the surrounding area appeared to be oedematous (Figure 2). The ulcer was tender on palpation. A provisional diagnosis of chemical burn secondary to topical application of eucalyptus oil was made. An intra oral periapical radiograph revealed coronal radiolucency approximating the pulp. Periapical area showed loss of lamina dura and diffuse radiolucency, suggestive of a periapical infection (Figure 3).



Figure 4



Figure 5

A saline irrigation of the affected area was done to remove debris. After topical application of local anaesthetic agent (2%

lignocaine hydrochloride gel) a thorough mechanical debridement was carried out (Figure 4). The root canal procedure of 17 was initiated. The patient was prescribed a topical application of herbal gel (acacia catechu 134 mg & acacia farnesiana 134 mg in flavoured gel) thrice daily and tablet diclofenac sodium (twice daily) for three days. The patient was reviewed after a period of seven days and satisfactory healing of the ulcer was noticed (Figure 5).

Discussion

Clinical reports have singled out certain chemical substances as cause of oral mucosal burn.^[3] The case presented here describes the occurrence of oral mucosal injury secondary to topical application of eucalyptus oil. The major active ingredient of eucalyptus oil is cineole (eucalyptol) that has soothing, stimulant and antidepressant effect.^[7] The evidence of use of eucalyptus oil in dentistry was demonstrated in a recent study where chlorhexidine mouthwash in combination with eucalyptus oil proved enhanced, synergistic antimicrobial activity against a wide range of microorganisms like *Staphylococcus aureus*, methicillin-resistant *S. aureus* (MRSA), *Escherichia coli* and *Candida albicans*, and biofilm cultures of MRSA and *Pseudomonas aeruginosa*.^[8]

Longer exposure or higher concentration of solution causes epithelial necrosis and shedding.^[9] The contact of the chemical with the oral cavity can readily cause inflammation, ulcerations and depending on its location can cause difficulty in phonation; swallowing and mastication.^[11] Similar symptoms were reported in our case.

Chemical injuries can take place in dental offices or at home.⁷ In our case, the patient was residing in a rural set up with inadequate dental facilities and therefore had to resort to unscientific self medication. Symptoms such as diarrhoea and vomiting have been reported in cases of ingestion of topical eucalyptus oil.^[10] No such symptoms were reported in our case.

Permanent removal of the agent has been suggested as a preliminary measure in iatrogenic or accidental injury case.^[3] Irrigation is the emergency treatment choice to minimize the product effect and favourable results have been attained by currently used steroid therapy resulting in good prognosis.^[11] Our patient was treated with topical application of acacia catechu oral gel which has been used for aphthous ulcerations and as an astringent in some parts of the world.^[13]

The acacia catechu usually found in the drier regions of North India is used for numerous biological and pharmacological properties like anti-inflammatory, anti-bacterial, analgesic is used for swollen gums and stomatitis.^[13, 14, 15] *Acacia farnesiana* bark extract from a plant found mainly in India and West Indies has been used for treating bleeding gums, stomatitis and dental caries.^[14]

In conclusion, the present report illustrates eucalyptus oil can readily cause caustic damage to the oral mucosa. The early detection by the patient and immediate therapeutic measures ensured rapid cure and prevented further mucosal damage. Proper guidance and education is required in this regard to prevent such chemical injuries in the oral cavity. Oral mucous membrane is sensitive to various agents, so judicious use of chemicals should be done to prevent damage.

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