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Lichenoid Reaction to Amalgam Restoration- A Case Report

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ABSTRACT

Oral mucosa is often a lone warrior subjected to face many diverse noxious opponents in the form of either hot or cold, acidic or alkaline substances, spiced or not so spicy foods. They may be also in constant contact with tobacco, alcohol, or other substances taken through the mouth or placed in the mouth like amalgam restorations. This paper reports a case of oral lichenoid reaction to amalgam and focuses on the local toxic effects of amalgam as dental restorations with particular reference to oral lichenoid reactions (lesions).

Keywords: Oral Lichen planus (OLP), Oral lichenoid reaction (OLR), Discoid lupus erythematosus (DLE)

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Introduction

Oral Lichen Planus is a relatively common immune-mediated disease and next to cutaneous lichen planus, the oral lesions are the most common presentation.[1] Mucosal lesions are usually multiple and almost always have abilateral, symmetrical distribution. They commonly take the form of minute white papules that gradually enlarge and coalesce to form either a reticular, annular, or plaque-like pattern. A characteristic feature is the presence of slender white lines (Wickham's striae) radiating from the papules. In the reticular form there is a lacelike network of slightly raised gray-white lines, often interspersed with papules or rings. [2]

"Lichenoid" lesions are various lesions that resemble lichen planus both clinically and histopathologically. The term "lichenoid tissue reaction" was termed by Pinkus in 1973 to describe the histological pattern featuring damage to keratinocytes, now referred to as apoptosis, infiltrate of inflammatory cells in the connective tissue which may extend into the epithelium and keratosis or hyperkeratosis. [3]

Oral lichenoid lesions may represent several clinical types including: [2]

(a) Oral lichenoid contact lesions which happen as a result of allergic contact stomatitis (delayed immune mediated hypersensitivity). They are seen in direct topographic relationship to dental restorative materials, most commonly amalgam, or other contacted agents, e.g., cinnamon.

(b) Oral lichenoid drug reactions (OLDR), where in oral and/or cutaneous lesions arise in temporal association with the taking of certain medications, e.g., oral hypoglycemic agents, angiotensin-converting enzyme inhibitors, and non-steroidal anti-inflammatory agents; previously, such lesions were seen in conjunction with the widespread use of gold salts and penicill amine for the management of rheumatoid arthritis.

(c) Oral lichenoid lesions of graft-versus-host disease (OLL-GVHD) in patients with acute, or more commonly, chronic graftversus- host disease (cGVHD). [2]

Dental amalgam is an alloy composed of a mixture of approximately equal parts of liquid mercury and a powder consisting of silver (22–32%), tin (14%), copper (8%), and other trace metals, including zinc.[3] Amalgam has been extensively used in the treatment of caries lesions for many years, owing to its superior mechanical properties. The safety of dental amalgam has been controversial from the beginning and it has been discussed many a times for its adverse health effects. Dental amalgam fillings release elemental mercury vapour in the mouth, resulting in elevated concentrations of mercury in blood, plasma and urine, and in the brain leading to systemic complications, and in contact with mucosa can cause local lichenoid reactions.[4]

Case Report

A 24 year old female lactating mother reported with black and white discolouration and burning sensation particularly with spicy and hot foods on both buccal mucosa for past 6 months. On examination white plaque like areas intermingled with black areas and non scrapable on both buccal mucosa , on the left side it was localized presentation with respect to buccal aspect of 36 of one cm diameter.(Fig 1) whereas on right side it was a larger lesion spotted on buccal aspect of 47 and 48 but extended into the lower vestibule posterior to retromolar pad of size around 3.5 x 2.2 cm.(Fig 2). Amalgam restorations were found on the occlusal and buccal aspects of 36 and 47 and occlusal aspect of 48. Oral lichenoid reactions were considered as primary provisional diagnosis

owing to clinical findings. The patient was informed about the provisional diagnosis and advised to change the restoration rather than a invasive surgical biopsy. Amalgam restorations were replaced with glass ionomer fillings on the same day. On the fourth day patient was reviewed and the lesions had almost subsided with some pigmented areas present (Fig 3 & Fig 4), the burning sensation had intensely reduced.

Discussion

"Lichenoid" lesions or reactions are various lesions that resemble lichen planus both clinically and histopathologically.[3] The spectrum of clinical diseases which is related to the lichenoid tissue reaction is wide. The prototype of all the lichenoid eruptions is Lichen planus. Most of the components of the lichenoid spectrum exhibit basal cell damage and a band-like lymphocytic infiltrate that hugs the dermo-epidermal junction, except for subtle differences that define the particular variant.[5] Allergic reaction to a metal may be due to the presence of ions following ingestion, skin or mucosal contact, or from implant corrosion processes. These ions, although not sensitizers, form complexes with native proteins and act as allergens causing hypersensitivity reactions. [6]

Kanerva et al. had identified more than 130 possible allergens which can be derived from materials used in Dentistry. However, Hypersensitivity reactions to dental materials are not that common.

This may be attributed to the following facts:

a) The presence of saliva in the mouth, which creates drag, dilutes and eliminates allergens

b) The presence of keratinization in some areas of the mucosa, which impedes the binding of haptens.

c) The high tissue vascularization makes it capable of eliminating allergenic molecules from the area; the oral mucosa has a marked mechanical resistance

d) The low cellular density of Langerhans cells as compared to skin. This also explains the greater prevalence of hypersensitive reactions on the skin than the mucosa. [7]

Dental amalgam is a classic restorative material being used in dentistry for more than a century, in the treatment of caries lesions. The safety of dental amalgam is itself a very controversial topic being discussed for many decades. [4]

Allergic reactions to mercury are rare but they do occur in patients with dental amalgam restorations. There are case reports of allergic contact dermatitis, gingivitis, stomatitis, and remote cutaneous reaction to dental amalgam restorations. Allergic reactions to dental amalgam usually subside or disappear in few days after the removal of these restorations. [8]

Lichenoid reactions to dental materials should be considered especially if the lesions are places near to old amalgam restorations. In such cases rough amalgam restorations should be smoothed and oral hygiene has to be improved.[9] The differential diagnosis of intraoral lesions includes lichen planus which is clinically characterized by the presence of white keratotic plaques with white Wickham striae associated with an erythematous component.[10] Oral lichenoid lesions requires a broad experience of the varied clinical presentations to develop an accurate differential diagnoses.[11] OLR can present clinically with either reticular or erosive patterns but unlike OLP that is a multifocal or bilateral disease, OLR lesions often present as a single lesion.[11] There are many agents that can cause an oral lichenoid contact reaction including dental materials and flavoring agents. Most lesions can imitate OLP clinically although the lesions occur at the site of contact with the offending

material. Amalgam restorations can cause lichenoid lesions and are found on the buccal mucosa or the tongue in direct contact with the amalgam and when the offending agent is removed the lesions quickly resolves. [11] In about 90% of the cases, these lesions have been found to recover upon removal of amalgam, no matter whether an allergy patch test was positive or not. [12] Discoid lupus erythematosus (DLE) would also be a differential diagnosis for the oral lesion. The typical clinical presentation includes painless erythematous lesions with a white border with striae irradiating from it. The gingiva, the vermilion border of the lip and the buccal mucosa are the most commonly affected regions. **[10]**

In our case, there was bilateral white plaque like areas intermingled with black areas and non scrapable on both buccal mucosa next to amalgam restorations and the patient did not have any typical skin lesions. The lesions subsided upon removal of the amalgam restoration and when replaced with Glass ionomer restorations.

Conclusion

As oral physicians we may get to see such cases, thus diagnosing these conditions require good clinical knowledge which is always better rather than going for an invasive procedure, biopsy which is beneficial for both patient and dentist.

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Appendix: Photographs (Figures)

Fig: 1

Fig: 2

Fig: 3

Fig: 4