

# A possible link between amalgam restorations and lichenoid reactions : A case report

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## Abstract:

Hypersensitivity to amalgam restorations have been reported; commonly, presenting as oral lichenoid reaction, affecting mucosa in direct contact with an amalgam restoration representing cell mediated immune response. Removal of such restorations been recommended. This article presents 1 year clinical results following replacement of old amalgam restorations with composite resin restorations.

**Keywords:** Amalgam, Oral mucosal lesions, Clinical decision making, Oral medicine.

## Introduction:

Hypersensitivity reactions to amalgam restorations have been reported to occur. Most commonly, it presents as an oral lichenoid reaction, affecting oral mucosa in direct contact with an amalgam restoration, representing a delayed, Type IV, cell mediated immune response to mercury or one of the other constituents of the dental amalgam.<sup>[1]</sup> Removal of such restorations for treatment of the lesion has been recommended.<sup>[2]</sup> This article presents 1 year clinical results following removal of old amalgam restorations and replacement by composite resin restorations.

Replacement restorations by replacing amalgam with composite resin restorations offers a viable restorative option for amalgam associated lichenoid reactions. It offers a simple, esthetic and conservative approach for treatment of such lesions.

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### Case presentation:

A 26 year old male patient presented with complaint of pain in upper left posterior region of the jaw. His medical and dental history was normal. He was not having any drug hypersensitivity. Clinical examination revealed carious decay of tooth no. 15. After intraoral and radiographic examinations, the decayed tooth was treated with root canal treatment. During root canal treatment intra-oral examination revealed atrophic lesion, lightly erythematous, affecting the left and right buccal mucosa. On palpation the lesion was slightly elevated and mildly tender. The lesion contacted directly with the amalgam restorations in the lower molar region with tooth nos. 17, 18, 31. (Figure 1, 2). His medical history was unremarkable. Patient had not detected the lesion. However on asking specifically, patient revealed occasional burning sensation in that area on eating spicy meals. He was having no medications and had no known allergies. Meticulous exploration of the injured zone showed its projection on the amalgam restoration, making direct contact during movements. Thus a clear, cause and effect relation could be seen, and treatment planned for removal of amalgam restorations and replacement with composite resin restoration.<sup>[3-5]</sup> Once the nature of the injury was explained to the patient, the patient decided to change the restoration.



**Figure 1: Right buccal mucosa showing erythematous lesion of lichenoid reaction adjacent to teeth no.31.**



**Figure 2: Left buccal mucosa showing erythematous lesion of lichenoid reaction adjacent to teeth no.17, 18.**



**Figure 3: Right buccal mucosa showing complete absence of the erythematous lesion after replacement restoration with composite resin (1 year recall)**



**Figure 4: Left buccal mucosa showing complete absence of the erythematous lesion after replacement restorations with composite resin (1 year recall)**

#### **Treatment:**

The old amalgam restorations were replaced with composite resin restorations. (Filtek P90, 3M ESPE) This same restoration was evaluated at 3 months, 6 months, 8 months and 1 year recalls. (Figure 3, Figure 4)

#### **Discussion:**

Amalgam restorations are being made frequently though the popularity of composite resin restorations; and cases of hypersensitivity to dental amalgam have been reported. No doubt, Oral Lichenoid Reaction (OLR) is the type of hypersensitivity more frequently described associated to dental amalgam.<sup>[6,7]</sup> Essentially this involves a cell mediated, type IV hypersensitivity response to a constituent of the amalgam restoration and as such is the oral equivalent of skin allergic contact dermatitis. Most often the allergen is mercury but occasionally the response is to one of the other components of amalgam alloy such as copper, tin or zinc.<sup>[1]</sup> The lesions of OLR are similar to those of Lichen Planus (LP). However, they can be distinguished from the lesions of LP by their close relationship with amalgam restorations, and their tendency to be localized and

asymmetrically distributed.<sup>[1]</sup> In contrast, the lesions of classical LP tend to be more widespread, bilateral and symmetrical in distribution.<sup>[8]</sup> As with LP, OLRs may have reticular, plaque-like, atrophic and erosive components.

Diagnosis of OLR associated to amalgam restoration can be made by establishing cause and effect relationship and if needed pathologic confirmation. In this case, a clear cause and effect relation could be seen. Also a positive patch test to mercury or another component of amalgam may help to confirm the diagnosis. Final confirmation, however, may have to await resolution of the lesion following removal of the offending amalgam restoration.<sup>[8]</sup> The time needed to evaluate the effects of amalgam restoration removal is 2-3 months.<sup>[10]</sup> When the amalgam restoration must be removed, it always will have to be done using rubber dam, abundant irrigation, and high aspiration volume, to diminish the exposition to the material.<sup>[1]</sup>

#### **Conclusion:**

Overall, the results of the treatment of the case proved that the replacement of dental amalgams fillings with composite resin restorations did contribute to improvement in signs and symptoms of OLR lesion. Presence of any such lesions, especially in direct contact with amalgam restorations should be considered for replacement resin restorations.

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