

Oral lichenoid reaction associate with amalgam restorations: A Case report

Simran Kaur Pawar*, Harsimranjeet Singh Pawar

DAV Dental College, Yamunanagar, India

ABSTRACT

Oral lichenoid reactions are considered variants of oral lichen planus and may be regarded as a disease by itself or as an exacerbation of an existing oral lichen planus by the presence of medication or dental materials. They represent a type IV hypersensitivity reaction and most commonly affect the oral mucosa in direct contact with an amalgam restoration. Oral lichenoid reactions can cause significant discomfort for the patient and hence dentists should be aware of their occurrence, diagnosis and management. Authors report a case of oral lichenoid reaction of the left buccal mucosa associated with an amalgam restoration on tooth #36, 37 and 38. Complete healing of the lesion was noted following replacement of the amalgam with an intermediate restoration, followed later by a glass-ionomer restoration.

Keywords: Amalgam, lichenoid reaction, oral lichen planus

Introduction

The human oral mucosa is often subjected to many noxious stimuli, either hot or cold, acidic or alkaline substances, spicy foods, among others. In the dental environment, substances identified as allergenic include local anaesthetics, antibiotics, restorative materials, and latex[1]. Silver amalgam has been used as a dental restorative material for over one hundred and eighty years and still remains the most commonly placed filling material in the world[2]. Its superior compressive strength and minimal technique sensitivity makes it an ideal material for posterior restorations and core build-ups[3]. Pinkus (1973) first coined the term "lichenoid tissue reaction" 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[2,4]. The oral lichenoid reaction is a lesion indistinguishable clinically and histologically of the oral lichen planus. However, most oral lichenoid reactions disappear when the causative

substance (drug / restorative material) is eliminated. [1]. Oral Lichenoid Reactions (OLR) involve mucosae in direct contact with amalgam restorations. They generally represent a type IV hypersensitivity reaction. Most often the allergen is mercury, but occasionally, the response may be to one of the other components of the amalgam alloy such as copper, tin or zinc[5]. Mercury salts that accumulate in healthy and damaged oral mucosa will cause this hypersensitivity reaction in only a susceptible minority of the population with resulting reticular white patches, papules, plaques, erosions, or ulceration, similar to that found in Oral Lichen Planus (OLP) - hence the terminology "lichenoid"[2]. This case report describes a case of oral lichenoid reaction associated with an amalgam restoration in the left maxillary second molar.

Case Report

A 42 year-old female patient presented with a chief complaint of food lodgment and burning sensation in relation to the lower left posterior tooth and left buccal mucosa for the past one month.(fig1) Clinical examination revealed faulty restoration with secondary caries in mandibular left first, second and third molar 36,37 and 38. After a detailed clinical and radiographic examination, Silver amalgam was placed as a restoration. Intraoral examination revealed a mixed greyish white patch extending from canine to retromolar region w.r.t 33,34,35,36,37,38. It was ill defined of size 4x3cm seen on left buccal mucosa

*Correspondence

Dr. Simran Kaur Pawar

DAV Dental college, Yamunanagar, India

E Mail: simranpawar1992@gmail.com

opposite to 36,37, 38, few striations seen on the periphery of whitish area. On palpation, irregular in shape, non-tender, margins-ill defined with no local rise of the temperature (Fig 2). The lesion showed a reticular pattern. It was non-scrapable and tested Candida negative. The patient did not have any other dental restorations in the mouth. The patient's oral hygiene was fairly good. A cutaneous patch test was done to detect contact hypersensitivity. Alloy powder and mix were tested separately on the skin on the back of the patient. The patient reported back after 48 hours with a complaint of itching on the mix patch [Alloy +Hg]. The patches were removed and examined. A slight erythematous reaction was noted on the mix patch area. Allergy testing with respect to dental restorative materials revealed that the patient was allergic to silver and tin which are the major constituents of amalgam. A provisional diagnosis of an amalgam associated oral lichenoid reaction was thus made. A biopsy was done to histologically confirm the nature of the lesion. Histopathologic study of the lesion showed orthokeratinized epithelium with indistinct basement membrane at one place. The juxtaepithelial stromal tissue shows a loose band of lymphocytes along with few plasma cells. Numerous blood vessels with mild melanin incontinence is also observed in this area.(fig 3) It was decided to replace the amalgam restoration with a non-metallic interim restoration and follow-up the case. A final diagnosis of amalgam associated oral lichenoid reaction was thus made. The patient was informed of the condition and a decision to replace amalgam restorations with a non-metallic interim restoration was taken. The amalgam restoration was replaced with a Type II Glass-ionomer restoration. The patient was asked to report after one week for a follow-up. Following a week, the patient reported with relief of symptoms. On examination, there was a reduction in the size and severity of the lesion.

Discussion

Oral lichenoid reactions(OLr) are considered variants of oral lichen planus. They may be regarded as a disease by itself or as an exacerbation of an existing oral lichen planus, by the presence of medication or dental materials. Drugs such as beta-blockers, dapson, oral hypoglycemics, nonsteroidal anti-inflammatory drugs (NSAID's), penicillamine, phenothazines and sulfonyleureas have been associated with lichenoid reactions. Besides drugs, lichenoid reactions have also been associated with dental materials like amalgam, composite and dental acrylics[6]. OLRs are usually seen in middle-aged individuals, with a slight female predominance[3,7]. According to van der Waal (2009),

OLrs can be classified into four types as follows: (i) amalgam restoration, topographically associated lesions, (ii) drug-related lichenoid lesions, (iii) lichenoid lesions in chronic graft versus host disease, and (iv) lesions that have a lichen planuslike aspect, but that lack one or more characteristic clinical aspects[8]. The typical clinical presentation of both OLp and OLR can be reticular white patches, papules, or plaques with or without erosions or ulcerated areas. OLp is a more widespread condition involving many anatomical sites within the oral cavity (or elsewhere including skin and genitalia) and distinct from OLR. The clinical diagnosis is further complicated because similar oral lesions can occur as a result of drug-related lichenoid reactions or as graft-versus-host disease, discoid lupus erythematosus, and systemic lupus erythematosus. Diagnosis in such cases is facilitated by a detailed history, clinical findings, and immunohistological findings [2]. OLRs caused by hypersensitivity to amalgam or its constituents typically have a clear anatomical relationship to the dental amalgam restoration, so they are usually unilateral and not symmetrical can be reticular white patches, papules, or plaques with or without erosions or ulcerated areas. OLp is a more widespread condition involving many anatomical sites within the oral cavity (or elsewhere including skin and genitalia) and distinct from OLR. The clinical diagnosis is further complicated because similar oral lesions can occur as a result of drug-related lichenoid reactions or as graft-versus-host disease, discoid lupus erytheatosus, and systemic lupus erythematosus. Diagnosis in such cases is facilitated by a detailed history, clinical findings, and immunohistological findings [2] OLRs caused by hypersensitivity to amalgam or its constituents typically have a clear anatomical relationship to the dental amalgam restoration, so they are usually unilateral and not symmetrical[2,5]. They are most commonly seen on the buccal mucosae and tongue where the covering lining mucosa comes in contact with restorations. The gingivae, palate, or floor of mouth, being sites further away from restorations, are rarely affected, and patients almost never have associated cutaneous symptoms. These clinical features help to distinguish OLR from OLp and other conditions[2]. The lesions can be asymptomatic or patients may occasionally complain of soreness or itching especially with hot or spicy food[7]. Certain oral complications such as metallic taste or dry mouth can be observed[9]. Histopathologically, the presence of a mixed subepithelial infiltrate, in contrast to the strict lympho-histocytic infiltrate that defines OLp, and a deeper more diffuse distribution within the lamina propria and superficial submucosa is thought to serve

as a marker of a lichenoid oral lesion[8].The diagnosis of OLR relies on important aspects, such as the clinical appearance of the lesions, the lack of migration, and the association with adjacent amalgam restorations. Although there is no specific test for diagnosing OLRs, skin-patch testing can be used to identify the allergen responsible for the hypersensitivity[2].Management of lichenoid lesions for which a distinct cause can be found (amalgam, drug related, chronic graft versus host disease) depends, indeed, on the etiology. Replacement of amalgam restorations, anatomically related to the lichenoid changes, will usually result in regression within several months[4,8]. When the amalgam restoration is removed, it should be done using rubber dam, abundant irrigation and high aspiration volume to diminish exposition to the material[1].The malignant potential of lichenoid reactions is controversial and

generally assumed to be quite rare. However, patients should be monitored on a regular basis until complete resolution of the lesion occurs.

Conclusion

The clinical case underwent a healing process of the mucosa lesions after amalgam replacement by glass ionomer restoration in the teeth in contact with the lesions. Besides, the symptoms of the patients disappeared immediately after the replacement of those restorations. Although OLR-related conditions present low prevalence in the oral mucosa, they can cause significant discomfort for the patient. Therefore, dentists should be aware of their occurrence, diagnosis and treatment.



Fig 1: patient profile



Fig 2: Intraoral examination

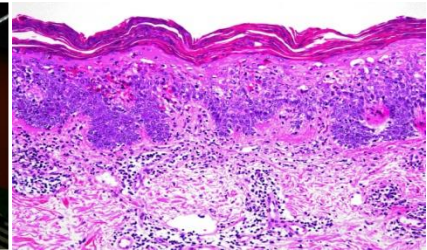


Fig 3: The given H and E stained section shows Lichenoid reaction associated with amalgam

References

1. Segura-Egea JJ, Bullon-Fernandez P. Lichenoid Reaction Associated To Amalgam Restoration. *Med Oral Patol Oral Cir Bucal*.2004; 9:421-424
2. McParland H, Warnakulasuriya S (2012) Oral Lichenoid Contact Lesions to Mercury and Dental Amalgam - A Review. *J Biomed Biotechnol*, 589569.
3. Ataide IN, Singh TK, Fernandes M.Management Of Amalgam-Associated Lichenoid Reaction – A Case Report. *Int J Dent Case Reports*.2011; 1:7-14
4. Grossman S, Garcia BG, Soares I, Monteiro L, Mesquita R.Amalgam-associated oral lichenoid reaction: Case report and management. *Gen Dent*.2008; 56, e9-e11
5. Samuel R, Gulve MN, Golvankar K . A possible link between amalgam restorations and lichenoid reactions: A case report. *J Int Oral Health*.2012; 4:53-56.
6. Ismail SB, Kumar KK, Zain RB. Oral Lichen Planus and Lichenoid Reactions: etiopathogenesis, diagnosis, management and malignant transformation. *J Oral Sci*.2007; 49: 89-106.
7. Cekova M, Kisselova A, Yanev N.Lichenoid Reactions Due To Dental Restorative Materials. *Biotechnology & Biotechnological Equipment*.2010; 24, 1874-1877
8. van der Waal I. Oral lichen planus and oral lichenoid lesions: a critical appraisal with emphasis on the diagnostic aspects. *Med Oral Patol Oral Cir Bucal*.2009; 14:e310-e314
9. Sarode SC, Sarode GS, Kalele K. Oral Lichenoid Reaction: A Review. *International Journal of Oral & Maxillofacial Pathology*.2012; 3: 17-26.

Source of Support: Nil

Conflict of Interest: None