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Oral lesion caused by improper removable partial denture

Riani Setiadhi
Departemen Ilmu Penyakit Mulut Fakultas Kedokteran Gigi Universitas Padjadjaran

Kosterman Usri
Departemen Ilmu dan Teknologi Material Kedokteran Gigi Fakultas Kedokteran Gigi Universitas Padjadjaran

Abstrak

Lesi oral sering ditemukan di praktek klinik, dapat terjadi karena berbagai faktor seperti trauma, penyakit sistemik, gangguan autoimun, keganasan. Trauma lokal sebagai salah satu penyebab lesi oral, umumnya akibat protesa yang tidak baik, restorasi serta gigi yang fraktur dan tajam. Lesi biasanya ditemukan pada mukosa yang berkontak dengan sumber trauma seperti mukosa bukal, tepi lateral lidah atau bibir. Gigi tiruan sebagian lepasan adalah gigi tiruan yang dapat dilepaskan dan dipakai kembali tanpa bantuan tenaga profesional. Gigi tiruan sebagian yang kurang baik adalah *ill-fitting denture*, kasar/tajam/*overextended flanges*, atau retensi/stabilitas yang buruk dan dapat menyebabkan lesi oral. Laporan kasus ini tentang seorang pria berusia 76 tahun mengeluh sakit pada tepi lidah kanan sejak 6 bulan yang lalu. Ia menggunakan gigi tiruan lepasan rahang atas kanan yang tidak dapat dilepas selama lebih kurang 1 tahun. Gigi tiruannya kasar dan tajam serta terbuat dari *self curing acrylic*. Pada lateral kanan lidah terlihat eritem dan sakit tetapi tidak ada indurasi pada palpasi. Terapi yang diberikan untuk lateral kanan lidah adalah triamcinolone acetonide 0,1% *in orabase* dan merujuknya ke departemen prostodonti untuk mengganti protesa. Lesi oral sembuh setelah perawatan selama 1 minggu dan gigi tiruan dilepaskan. Sebagai simpulan gigi tiruan harus dibuat dengan benar oleh yang berkompeten untuk mencegah terjadinya lesi oral.

Kata kunci: Lesi oral, Gigi tiruan sebagian lepasan yang tidak benar, trauma

Korespondensi:

riani.setiadhi@fkg.unpad.ac.id
kosterman@unpad.ac.id

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Abstract

Oral lesions are relatively common findings in clinical practice, can occur due to various factors such as trauma, systemic diseases, autoimmune disorders, malignancies. Local trauma as one of the cause of oral lesions majority due to poor dentures, fractured restorations and sharp edges of teeth. The lesions are commonly found on the mucosa that is subjected to the source of trauma such as buccal mucosa, lateral border of the tongue or lips. Removable partial denture is a denture that can be removed and reinserted without professional help. Poor removable denture which is an ill-fitting denture, rough/sharp/overextended flanges, or lack of retention/stability could cause oral lesions. This case report describes a 76 old year man complained of pain on his right lateral tongue since 6 months ago. He was wearing a removable upper right denture which cannot be remove for about a year. It was a rough and sharp self-curing acrylic denture. There was erythematous and pain on his lateral right of the tongue but no induration on palpation. Triamcinolone acetonide 0,1% in orabase was the given treatment for the right lateral of the tongue and referred him to the prosthodontic department for replacing the denture. The oral lesion was healed after one week of treatment and the poor denture was removed. As a conclusion dentures should be made properly by the expert in order to prevent oral lesions.

Key words: Oral lesion, improper removable partial denture, trauma

Introduction

Oral mucosal lesions are relatively common occurrence in clinical practice due to various factors such as trauma, systemic diseases, autoimmune disorders, malignancies Among many causes trauma caused by poor denture, fractured restoration and sharp edges of teeth. is one of the leading for oral lesions. Oral traumatic lesions are diverse in which some present as acute lesions while the majority are chronic lesions. The lesions are commonly found on the mucosa that is subjected to the source of trauma such as buccal mucosa, lateral border of the tongue or lips. Injuries to soft tissues can occur due to many causes but chemical, thermal, and physical agents are the main causative factors.

Clinically, soft tissue injuries presentation differs but mainly present as erythema, edema, desquamation, burn, ulceration depends on the nature, type, concentration, quantity, duration of contact of the causative agent with tissues, and extent of penetration of the causative agent to the tissue. Such injuries in different clinical forms may mimic other oral well-known diseases.[1]

Removable partial denture is a denture that can be removed and reinserted without professional help. Poor removable denture which is an ill-fitting denture, rough/sharp/overextended flanges, or lack of retention/stability could cause oral lesions. Denture wearing especially ill-fitting denture can lead to a number of acute or chronic oral mucosal problems including keratotic,

hyperplastic, inflammatory and ulcerative lesions or as reactions to constituents of the denture base material. Traumatic ulcers generally occur soon after the insertion of new dentures. They often appear over the sharp bony ridges where the mucosa is sandwiched between the denture and bone, under spicules or high spots of dentures. Such trauma produces erythema, oedema and subsequently ulceration which generally produce soreness or pain preventing patients a comfortable mastication.[1,2,3]

The acrylic resin bases are used for removable partial or complete dentures and also for implant supported removable dentures. Acrylic resin, also known as acrylic, is derived from the Latin acrolain which means a sharp odor. Acrylic is a compound derived from acrolain acid or glycerin aldehyde, chemically known as polymethyl methacrylate. Polymethyl methacrylate are compounds that can be synthesized from the following materials including petroleum, natural gas or charcoal. The acrylic resin composition which are used in dentistry consists of liquid (monomer) monomethyl methacrylate and powder (polymer) polymethyl methacrylate.[4,5]

There are undesirable effects caused by denture base resins, the most common and frequently problem is allergic reaction to denture base acrylic resin manifested as mouth soreness and burning sensation. Areas presenting with burning sensation including the palate, tongue, oral mucosa, and the oropharynx.[6-13]

The cytotoxic effects caused by denture base acrylic resins are mainly caused by the substances leaching out from these resins. The main substance which is leached out by the process of diffusion from these materials is the unreacted residual monomer.[6,14-6] Constant contact of saliva with the material cause's expansion of the openings present between the polymer chains causing the unreacted monomer to diffuse out. The substances which are leached out from the denture bases into the saliva are transferred to the oral structures causing adverse allergic reactions.[6,17-9]

Based on the hardening mechanism there are two kinds of acrylic, i.e heat-cured acrylic that require curing/cooking with heat to obtain a perfect polymerization and self-cured acrylic which do not require heat in it's curing. Self-cured acrylic resin is also called autopolymerizing or chemical-activated materials, does not require heat for the processing. The composition is the same as heat-cured acrylic, the difference is the liquid of self-cured acrylic contains activator. Generally this activator substances is the organic amine, in this case dimethyl paratoluidine or tertier amine can be used. Self-cured acrylic used for restoration, as active filler material, denture repair, relining and rebasing on a removable orthodontic and post-dam of the upper dentures.[4-5]

Self-cured/auto-polymerized acrylic resins leach out higher quantities of residual monomer than heat-cured denture base resins.[6, 20-3] Baker *et al*. found out that greater quantities of methyl methacrylate (MMA) in saliva of the individuals who were wearing dentures made up of self-cured/ auto-polymerized denture base resins.[6,24] Kedjarune *et al*. stated that the quantity of the residual monomer was actually dependent upon the method of polymerization and the powder liquid (P/L) ratio used during mixing of the material.[6,25]

Self-polymerizing acrylic is also a causative factor for oral mucosal injuries. Cold cure acrylic when applied directly on oral mucosa, it will cause the chemical burn as it contains methyl methacrylate as a residual monomer which has potential to elicit irritation, inflammation, allergic response, and leads to oral mucosal injuries.[26]

Chronic irritation from dentures particularly exposure to ill-fitting, sharp self-polymerizing acrylic denture produces erythema, oedema and subsequently ulceration which generally produce soreness or pain preventing patients a comfortable mastication.[1] The primary goals of therapy are careful elimination of the trauma, reducing inflammation, relief of pain, reduction of ulcer duration. Symptomatic therapy including anti-inflammatory agents such as topical

corticosteroid applied 2 – 3 times daily on the lesion. Another symptomatic therapy that can be used to treat oral lesions including anesthetic agents, antiseptic mouthrinse.[27]

Case report

A 76 old year man complained of pain on his right lateral tongue since 6 months ago. The dentist in RSP Hospital treated him with Aloclair mouthrinse and the 15 tooth was grinded for 3 times, but the tongue was still pain and became more severe since the last 3 days especially in the night. He was wearing a removable upper right denture which cannot be removed for about a year. It was a rough and sharp self-curing acrylic denture.

Clinically, there was erythematous and pain on the right lateral of the tongue (Fig 1) but no induration on palpation, coated on dorsum of the tongue, Radix of teeth 15, 16, 17, 36, 47 teeth, profunda caries 26 tooth. (Fig 2 – 3) A sharp and rough 13 acrylic denture.(Fig 14)

Diagnosis denture induced stomatitis, coated tongue, chronic apicalis periodontitis e.c gangren radix 15, 16, 17, 36, 47 and necrosis pulpae 26 was made. The pharmacological treatment was Triamcinolone acetonide 0,1% in orabase for the right lateral of the tongue as well as OHI -CIE about the condition and referred the patient to the prosthodontic department for replacing the denture as the non-pharmacological treatment. The oral lesion was healed after one week of treatment and the poor denture was removed.

Discussion

Acute and chronic irritation from defection or ill-fitting denture may injure the oral mucosa. If the tolerance level is exceeded, injury and inflammation will result commonly found on the mucosa that is subjected to the irritation such as buccal mucosa, lateral border of the tongue or lips. Denture induced stomatitis is the inflammation of the oral mucosa caused by the denture, in this patient the condition was associated with the sharp and rough self-curing acrylic denture.

Figure 1. Erythematous on right lateral of the tongue .

Figure 2. Radix of teeth 15,16,17 and caries of 26 .

Figure 3. Radix of teeth 36 and 47.

Figure 4. A sharp and rough 13 acrylic denture.

The right lateral tongue of the patient was erythematous and pain because the tongue always irritated by the denture which was not smoothed and polished that's why the denture was sharp and rough. It was a self-cured acrylic denture. Self-cured acrylic when applied directly on oral mucosa, it will cause the chemical burn as it contains methyl methacrylate as a residual monomer which has potential to elicit irritation, inflammation, allergic response, and leads to oral mucosal injuries.[26]

Besides that, since it was a self-curing acrylic denture which could leach out higher quantities of residual monomer than heat-cured denture base resins.[6,20-3] The main substance which is leached out by the process of diffusion from these materials is the unreacted residual monomer.[6,14-6] Constant contact of saliva with the denture causes the unreacted monomer which are leached out from the denture bases are transferred to the oral structures and lead to problems such as mouth soreness and burning sensation.

The main treatment for this patient was to eliminate the source of the irritation i.e removing the partial denture. The denture could not be removed by the patient himself, because it was an improper design, materials, the way of making and finishing the removable partial denture. Therefore the patient was referred to the prosthodontic department for replacing the denture and for the pain right lateral of the tongue, he was treated with triamcinolone acetonide 0,1% in orabase which was applied twice a day on the lesion.[27] The oral lesion was healed after one week of treatment and the poor denture was removed.

Conclusion

Denture wearing especially improper denture can lead to a number of acute or chronic oral lesions including inflammatory, erythematous lesions or as reactions to constituents of the denture base material. Careful elimination of the trauma leads to complete resolution of the problem. Dentures should be made properly by the expert in order to prevent oral lesions.

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