

Case Report

Management of epulis fissuratum for maxillary complete denture fabrication - a case report

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Abstract

Mucosa lesions related to denture frequently occur. Epulis fissuratum is a tumor-like fibrous hyperplasia that arises due to irritation of poorly adapted denture. It can appear as a single or multiple folds located over the vestibular sulcus around the overextended border of denture. It is important to eliminate the irritation as it can also lead to malignant lesion such as carcinoma if ignored for a long time. The treatments include surgical removal of the lesion and provision of appropriate prosthetic reconstruction. This article presents a case that applied conventional surgical excision to remove epulis fissuratum followed by a new denture fabrication to achieve acceptable function and esthetics for patient.

Key words: Complete denture, Edentulous maxilla, Pre-prosthetic surgery

Introduction

Removable denture is used to restore the space previously occupied by teeth and their supporting structures that have been lost, and to rehabilitate function and esthetics. A well-fitted denture with maximum retention, stability and support is important to have a successful outcome. Wearing poorly fitted denture frequently results in mucosa lesions. Epulis fissuratum is one type of hyperplasia that develops in association with ill-fitted denture¹. It is a benign tumor-like reactive lesion caused by chronic trauma of low intensity from overextension of denture border^{2, 3}. The lesion appears with single or multiple folds of hyperplastic tissue and often with normal color and soft or firm consistency around the denture flange². It is reported in 5-10% of denture wearers, and it occurred more commonly on the facial side of alveolar ridge and anterior vestibule in female population aged group between fifty and sixty^{2, 4}. It also may cause carcinoma if ignored for a long time^{2, 3}. Although elimination of irritation can decrease the size of lesion, surgical excision of the lesion and proper prosthetic restoration is the definitive treatment⁵. A case of epulis fissuratum with surgical excision before new denture fabrication is presented in this article.



Figure 1. Intra-oral view with old dentures.
(a) upper ill-fitted complete denture.
(b) lower removable partial denture.

Figure 2. Intra-oral view of upper edentulous ridge with extensive epulis fissuratum.

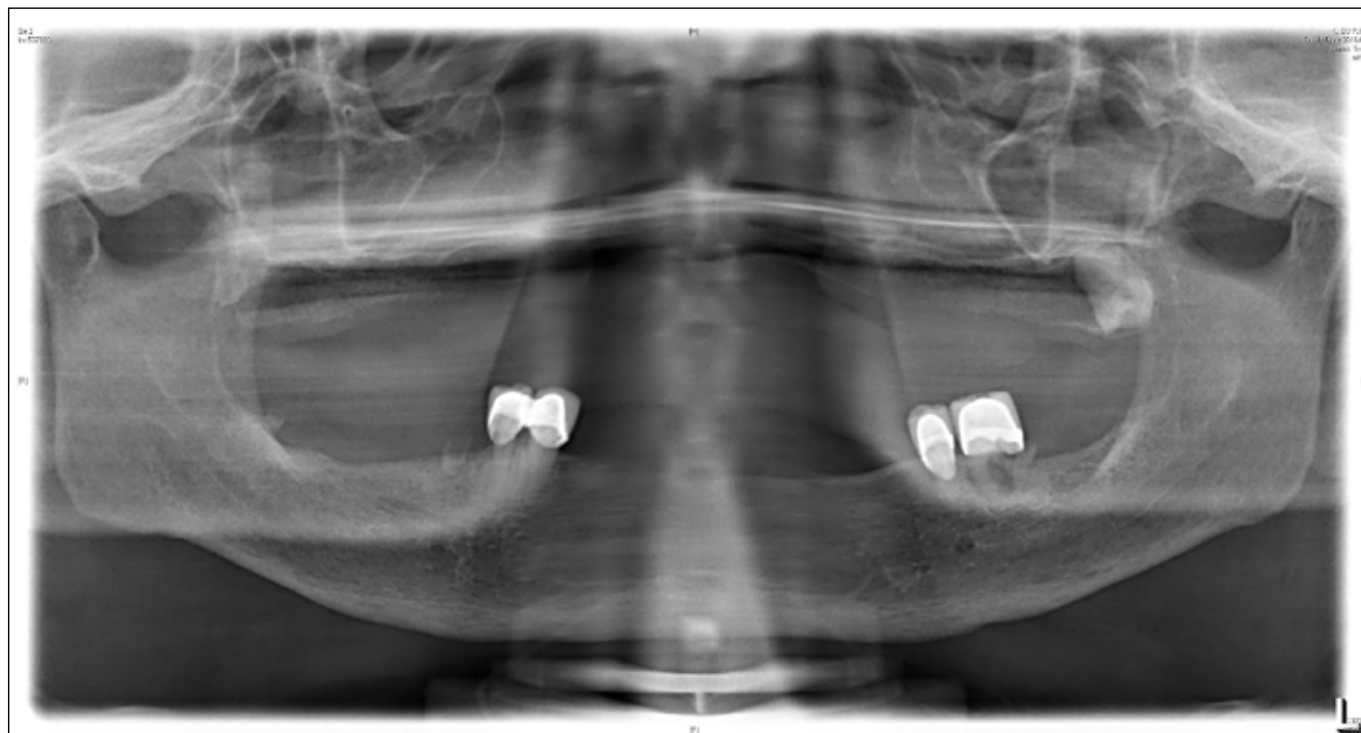


Figure 3. Panoramic film.

Case report

A 75-year-old female patient came to outpatient department with a complaint of broken maxillary denture and wanted to have a new maxillary denture made. She has worn the current maxillary complete denture and mandibular RPD for 10 years (Fig.1). Her medical history includes hypertension and diabetes mellitus that she reported to be under control. Intra-oral examination showed completely edentulous maxillary arch with severe flabby tissue over labial vestibule (Fig.2). Intra-oral examination in the mandibular arch showed with only four teeth remaining. Left mandibular second premolar and first molar were treated with single crowns. Right mandibular canine and first premolar were treated with splinted crowns. Panoramic film revealed an impacted

maxillary left wisdom tooth embedded in bone, mandibular left first molar and right first premolar with abutment secondary caries at crown margin and residual root under mucosa over mandibular right second premolar and right wisdom tooth (Fig.3). The diagnosis of maxillary hard tissue were edentulism with only one left wisdom tooth which is bony impaction. The diagnosis of maxillary soft tissue was epulis fissuratum that involved left buccal and labial vestibule and right buccal vestibule. The diagnosis for mandible were missing of 31, 32, 33, 34, 37, 38, 41, 42, 46, 47, residual roots of mandibular right second premolar and wisdom tooth, abutment secondary caries at crown margin of mandibular left first molar and right first premolar.



Figure 4. Follow up of first surgery.



Figure 5. Secondary surgery : deepen the facial vestibule and remove muscle attachment.



Figure 6. Follow up of secondary surgery.



Figure 7. Primary impression.

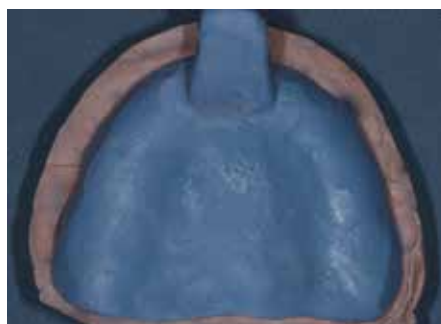


Figure 8. Custom tray fabrication.



Figure 9. Final impression.

The ideal treatment plan for maxilla was a new denture fabrication after surgical removal of the epulis fissuratum. Removal of ill-fitted crown and extraction of hopeless teeth and residual roots were needed before a new prosthesis fabrication for mandible. However, the patient chose to withhold mandibular treatment plan for financial consideration. The compromised treatment plan was to only treat the problems of maxilla: consult with the oral and maxillofacial (OMS) surgeon for epulis fissuratum excision, and new maxillary complete denture fabrication after surgery. The OMS surgeon advised of total excision of epulis fissuratum with peripheral mucosal repositioning and secondary epithelialization for preserving vestibule depth. The maxillary left wisdom was also in plan for extraction. The patient was instructed to stop denture wear. During wound healing, the flange of the old denture was shortened as an interim denture and advised to refrain from wearing unless necessary.

Surgical phase: The case was managed with conventional surgery excision targeting for a total excision of the extensive maxillary epulis fissuratum and the wound margins were sutured to the periosteum that has not been reflected for secondary epithelialization. The maxillary left wisdom tooth was extracted at the same time.

The excised tissue was sent for histopathologic examination which showed squamous hyperplasia, fibrosis, and chronic inflammation, consistent with epulis fissuratum. Unexpectedly a nodule of 1mmx1mm recurred over left labial mucosa and loss of facial vestibular depth was found during follow-up (Fig.4). The second surgery was arranged to remove the recurred premaxilla epulis fissuratum and to deepen the facial vestibule by vestibuloplasty grafting with palatal graft (Fig.5). During the surgery, the buccal flange of the old denture was adjusted to avoid irritation as an interim prosthesis. The surgical wound healed properly and was in stable condition after one month (Fig.6). As a result, the patient was referred back to the prosthodontic department for a new maxillary denture fabrication.

Prosthetic management: Six weeks after surgery, primary impression for maxillary denture was made with irreversible hydrocolloid material (Fig.7), and the impression was poured with dental stone (Silky rock, Whip Mix, USA). One uniform thickness of dental wax (Paraffin wax, Sivuch, Taiwan) was placed over residual ridge and mid-palatal suture area as a spacer followed by custom tray fabrication (Fig.8). Selective impression technique was applied to relief pressure over these mentioned area.



Figure 10. Master cast.



Figure 11. Bite registration.



Figure 12. Upper denture delivery.

Maxillary arch border molding was made with polyether (Impregum Penta Soft, 3M ESPE, Germany) and the final impression was taken with polysulfide (Permlastic, Kerr, USA) (Fig.9), lastly the master cast was poured (ResinRock, Whip Mix, USA) (Fig.10). A record base and wax-rim was fabricated with average width and height. The maxillary incisal plane was adjusted intraorally using inter-pupillary line as reference. The vertical dimension of occlusion was determined with the freeway space, phonetics and esthetics. Centric relation record was taken (Fig.11) and the cast was mounted in a semi-adjustable articulator. The denture teeth were arranged to aim to provide stable cross arch balance within a functional range of eccentric movement. The maxillary complete denture was completed after wax denture try in (Fig.12). Laboratory remount was performed to correct the packing error. The occlusion was adjusted to achieve posterior teeth with even contact in centric relation and direct the force to central fossa of lower teeth. The ultimate aim was to achieve bilateral balanced occlusion, but patient refused to accept mandibular arch rehabilitation, therefore, maxillary denture teeth were adjusted to achieve occlusal stability in centric and unilateral group function in eccentric movement. The patient was suggested to adopt a diet with softer food and smaller food chunks, and to use both sides of posterior teeth when chewing without biting with front teeth. Denture care instruction was given to the patient including wearing the denture during the day, cleaning the denture after meal, and removing the denture before going to bed. The function and adaptation of upper denture were checked during follow-up, and the patient had neither discomfort nor complaint.

Discussion

Epulis fissuratum is also called inflammatory fibrous hyperplasia or denture-induced fibrous hyperplasia that is caused by low-intensity chronic irritation by ill-fitted denture. This proliferation may be the sequela of resorption of alveolar ridge, resulting from overextension of the denture borders causing chronic irritation to the mucosa in the sulcus area⁶. The size of epulis fissuratum varies from a small mass to involving the entire vestibule⁶. Although the lesion is usually painless, the patient can experience pain and discomfort⁷. A large lesion of epulis fissuratum can compromise denture retention and stability⁷. Histopathologic features are excessive bulk of fibrous connective tissue covered with stratified squamous epithelium⁶. In the early stage of epulis fissuratum, non-surgical treatment with denture adjustment and relining with tissue conditioner may be possible in decreasing the size of lesion. In the late stage, excision of epulis fissuratum is the optimal treatment of choice⁸.

Various surgical techniques can be chosen for the removal of epulis fissuratum. Electrosurgery or laser technique is indicated for removing minimal enlarged lesion⁸. The excision with CO₂ laser provides a few advantages including minimal postoperative pain and edema, hemostasis, no need for suture, and lesser loss of vestibule depth⁹. For extensive epulis fissuratum, just as our case, a conventional excision is the indicated choice⁸.

To avoid loss of vestibule depth, three types of vestibuloplasty may be considered by surgeon: mucosa advancement vestibuloplasty, secondary epithelization vestibuloplasty and grafting vestibuloplasty. Secondary epithelization vestibuloplasty is an easy technique, therefore it was chosen for the first surgery. However,

it might have the disadvantage of rapid and unpredicted relapses that happened in our case. Grafting vestibuloplasty requires to sacrifice another donor site, however, the result of such vestibuloplasty is better by inhibiting the wound contraction and relapse¹⁰. Therefore, vestibuloplasty with grafting was chosen for the second surgery to correct the relapse in this case, better result was achieved.

The old denture relined with tissue conditioner can be used during wound healing, and denture impressions can be made after four weeks⁸. When fabricating the new denture, border molding and selective impression with custom tray were used to achieve maximum denture stress bearing within limiting area. Occlusion is adjusted to achieve optimum force distribution. Oral hygiene reinforcement was performed to facilitate long-term maintenance⁸. Regular follow-up was scheduled to check fitness and exact border extension for prevention of epulis fissuratum in the future.

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