Minimally displacive impression technique: A clinical report.

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Abstract

Management of edentulous ridges with localized hyperplastic tissue is challenging. This clinical report describes the treatment of a completely edentulous patient with localized hyperplastic alveolar ridges. A modified impression technique was used to optimize the treatment of edentulous patient with 'flabby' alveolar ridges in which surgical preparation of the mouth was contraindicated to meet the functional and psychological needs of the patient. Thereby the treatment described has simplified the management of a historically complex problem.

KEYWORDS: Localized, Hyperplastic tissue, Flabby alveolar ridges, minimal pressure technique.

Introduction

'FIBROUS' or 'FLABBY' ridge is a superficial area of mobile soft tissue affecting the maxillary or mandibular alveolar ridges. It is a result of hyperplastic soft tissue replacing the alveolar bone and is a common finding, particularly in the maxillary anterior region of long term denture wearers.

In 1972, Kelly and his colleagues first described this condition as 'combination syndrome' as caused by the presence of opposing natural teeth to an edentulous area[1]. His observations included alveolar bone resorption in the anterior maxilla, enlargement of the tuberosities and bone resorption underneath the mandibular denture bases. A comprehensive review of studies investigating 'combination syndrome' carried out by Palmvist *et al.*,[2] in 2003, reported that there was no evidence to support the belief that bone resorption in the anterior maxilla is related to the presence of anterior mandibular teeth. The reported prevalence has varied, but has been demonstrated in up to 24% of edentulous maxillae, and in 5% of edentulous mandibles. In the edentulous patient, it is found in the anterior region more commonly in both arches.[3] It is mainly caused by excessive loading of the residual ridge and unstable occlusal conditions.

These 'flabby ridges' are composed of mucosal hyperplasia and loosely arranged fibrous connective tissue as well as more dense collagenised connective tissue. In the soft tissue, varying amounts of metaplastic cartilage and/or bone have been reported.[4]The three main approaches to the management of the flabby ridge are:

1. Surgical removal of fibrous tissue prior to conventional prosthodontics

2. Implant retained prosthesis

- Fixed
- Removable

Fig 1- Fibrous tissue boundaries.

Fig 2- First stage impression.

Fig3- Final impression.

Fig4 - Definitive prosthesis.

3. Conventional prosthodontics without surgical intervention.

The purpose of this clinical report is to illustrate the use of modified impression technique, nevertheless adhering to the principles of impression techniques.

CLINICAL REPORT

A healthy 55-year-old completely edentulous male patient presented with a dental history which included removal of teeth due to caries and placement of a maxillary and mandibular complete dentures. The patient reported discomfort in social settings and an inability to partake in a normal diet with his previous denture. The patient expressed a desire to have a stinting and functional denture fabricated for his maxillary and mandibular arches.

A through clinical examination was performed and a panoramic radiograph recorded and evaluated. Preliminary examination revealed edentulous maxillary and mandibular residual ridges with extremely hyperplastic ridge in the maxillary anterior and mandibular posterior regions(Fig. 1). In addition the patient presented complaint such as instability during mastication or lack of retention during rest, speech, etc. Since there was intraoral evidence of flabby ridges extending from canine to canine region in the maxilla and retromolar pad areas in the mandible, a treatment

plan was chosen which was in compliance with the patient's desire.

After initial examination, preliminary impressions were made using stock trays with irreversible hydrocolloid impression material and plaster casts were made. The displaceable tissue was marked and transferred to the primary cast. A cold-cured acrylic tray was constructed with a window in the flabby tissue areas as described by Hobkirk, McCord and Grant.[5] Appropriate border correction was then carried out before an impression of the firm, supported mucosa was recorded in zinc oxide-eugenol impression paste (Fig.2).An impression of the displaceable mucosa was then recorded by applying or syringing a thin mix of light-bodied silicone (Fig. 3). The latter having preferential use in cases involving undercut. Pressure on the unsupported, displaceable soft tissue was minimized by the use of modified trays and light body impression material. The excess material was extruded and theoretically the fibrous ridge assumed a resting position having been subjected to minimal pressures. The design of these modified special trays can vary from a completely uncovered section of the arch to a window overlying the unsupported mucosa. In the fibrous anterior maxilla, modification of the handle position was also required. The advantage of a window design means that the appropriate border correction can be undertaken and checked around the entire sulcus before the second stage of the impression is completed.

The master cast was prepared followed by fabrication of a conventional complete denture construction. The definitive prosthesis were placed in the patient's mouth (Fig.4).Patient was given post treatment instructions and reviewed regularly. The patient responded favorably to the treatment. The complete denture was stable and retentive during various functions and rest.

SUMMARY

The treatment of the esthetic, social, and functional needs of a completely edentulous patient is described following the lines of the minimally displacive technique. Fibrous ridges pose a prosthodontic challenge for the achievement of stable and retentive dental prostheses. Emphasis has moved away from surgical removal of the fibrous tissue. Implant retained prostheses may not be most suitable treatment option for many patients. When considering conventional prosthodontics, there are a variety of impression techniques available to address the problems caused by the unsupported tissue during denture construction, however currently there is a lack of scientific evidence for support of any technique over another. Considerations for selection should include the location and extent of unsupported tissue, as well as the patient's presenting complaint. The treatment described maximizes the benefit of selective pressure technique by simplified alteration of the original concept.

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