

Vestibular Extension By Edlan-Mejchar Technique Followed By Permanent Fibre Splinting - A Case Report

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ABSTRACT : Background: A 23 year old female patient presented with the complaint of loose lower front teeth and a missing lower front incisor. An extremely shallow vestibule was observed with marginal gingival recession in 31 and 41.

Methods: The mandibular labial vestibule was extended using the lip switch procedure or the Edlan-Mejchar technique. After adequate healing, the mobile mandibular anterior teeth were splinted with a fibre splint material. The missing 42 was replaced by bonding a prosthetic acrylic tooth to the splint.

Results: The procedure yielded a considerable gain in the width of the attached gingiva, which maintained itself even one year after the surgical procedure. Complete resolution of mobility was seen, leading to improved function of the mandibular anterior teeth.

Conclusions: Edlan-Mejchar technique leads to a consistent and predictable increase in the width of the attached gingiva and may be successfully used in the treatment of a shallow vestibule.

INTRODUCTION

One of the main objectives of periodontal therapy is to achieve an area which permits an optimal level of oral hygiene. A shallow labial vestibule hampers the proper placement of a tooth brush. As a result, a decreased depth of the vestibule is often associated with plaque accumulation and consequently marginal gingival inflammation.

Such a situation is frequently encountered on the labial aspect of the mandibular anterior teeth. Many procedures have been advocated for the correction of this defect. The "denudation techniques" include the removal of all soft tissue within an area extending from the gingival margin to a level apical to the mucogingival junction, leaving the alveolar bone completely exposed^{1,5,11}. Exposure of the alveolar bone often leads to its resorption¹⁰ and in some cases, severe postoperative pain. Due to these complications, the use of denudation techniques can hardly be justified.

With the "split flap" procedure, only the superficial portion of the oral mucosa within the wound area is removed, leaving the bone covered by

periosteum^{6,7,8,12}. Although the preservation of the periosteum implies that less severe bone resorption will occur than following the "denudation techniques", loss of crestal bone height has been observed following this type of operation too unless a relatively thick layer of connective tissue is retained on the bone surface².

In 1963, Edlan and Mejchar³ described a method for deepening the vestibule, which appeared to be particularly applicable to cases with little or no attached gingiva remaining, thus making apical positioning of the gingival tissues impracticable.

This paper describes the case report of a patient in whom vestibular extension was carried out by the technique described by Edlan and Mejchar to correct a shallow vestibule.

METHODS

A 23 year-old female reported to the Department of Periodontology at Punjab Government Dental College and Hospital, Amritsar, complaining of two loose lower

front teeth and a missing lower incisor. The problem had developed gradually over a period of two years. Clinical examination revealed grade II mobility of 41 and grade I mobility of 31. Both of these teeth also had Miller's class III recession. In addition, 42 had been extracted around three months prior to presentation owing to severe mobility. The width of the attached gingiva was severely reduced, measuring just 2 mm (Figures 1a and 1b). After thoroughly reviewing the patient's clinical history and carrying out a detailed examination, a diagnosis of chronic generalised gingivitis with localised periodontitis in the region of the mandibular incisors was made. It was decided to carry out extension of the patient's mandibular labial vestibule to increase the width of attached gingiva. This would be followed by splinting of the lower anterior teeth and replacement of the missing 42.



Fig. 1a

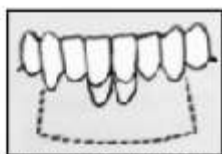


Fig. 1b

Preoperative view showing severely reduced width of attached gingiva

Initial therapy included patient education and motivation for adoption of stringent home plaque care measures, thorough scaling and root planing and occlusal correction. Routine blood investigations (blood glucose- fasting and post-prandial, haemoglobin, bleeding and clotting times, total and differential leukocyte counts, HIV and HBs antigen assays), and urine analyses were carried out.

VESTIBULAR EXTENSION PROCEDURE:

Prior to the surgical procedure, a calibrated periodontal probe was placed on the labial aspect of the mandibular central incisors to measure the distance between the gingival margin and mucogingival junction. This measurement was recorded and repeated at various intervals postoperatively. The surgical procedure is described below:

Incision: Mesial to one of the mandibular canines and starting at the junction of the attached and free gingiva,

an incision was made for a distance of 10 to 12 mm extending on to the lower lip. A similar incision was made corresponding to the other mandibular canine. These two incisions were joined by a horizontal incision across the midline (Figures 2a and 2b).



Fig. 2a



Fig. 2b

Two vertical incisions from mucogingival junction at both mandibular canines extending 10 to 12 mm on to lip mucosa. Vertical incisions were joined by a horizontal incision

Loose labial mucosa separated from underlying muscle: The mucosa included within this incision was reflected from the underlying muscular tissue using sharp dissection. This resulted in a loose flap of labial mucosa with its base on the gingiva (Figures 3a and 3b).



Fig. 3a



Figs. 3b, 3c

Lip mucosa separated from underlying muscle; Periosteum incised and separated from bone

Incision and reflection of the periosteum: The loose flap of labial mucosa was folded upward and a horizontal incision was made on the periosteum, which had now become visible. This incision was made so that it extended between the two initial vertical incisions mesial to the canines. The incision of the periosteum was extended in a vertical direction at its ends. The periosteum was then separated from the bone, forming a second flap with its base on the apical portion of the mandible (Figures 3a and 3c).

Transposition of the two flaps: The loose flap of labial mucosa was folded back and placed on the bone from which the periosteum had been removed. It was fixed with interrupted sutures to the inner surface of the

periosteum, which had been removed from the bone. The upper edge of the periosteum was also sutured to the mucous membrane of the lip to cover the area denuded by the reflection of the first (labial mucosal) flap (Figures 4a and 4b).



Fig. 4a



Fig. 4b

Periosteum placed over denuded area of lip and sutured.
Lip mucosa placed over bone and sutured to base of new vestibule

Placement of periodontal dressing and postsurgical management: A periodontal dressing was placed to protect the operated area. An antibiotic and anti-inflammatory were prescribed to the patient in addition to chlorhexidine rinses. Other postsurgical instructions included intermittent cold fomentation on the first postoperative day, soft/liquid diet for one week, and maintenance of good oral hygiene. The patient was asked to return after one week for review.

Postoperative recall: The one week postoperative examination revealed excellent healing (by first intention) and a considerable gain in the width of the attached gingiva and depth of the vestibule (up to 7 mm) (Figure 5a). The patient was subsequently placed on a recall programme and her periodontal condition was periodically reviewed. No loss of width of the attached gingiva was observed throughout the recall programme (Figures 5b, 6a, and 6b).



Fig. 5a: ONE WEEK POST-SURGERY



Fig. 5b: TWO WEEKS POST-SURGERY



Fig. 6a and 6b: FOUR MONTHS POSTOPERATIVE

MANAGEMENT OF MOBILE MANDIBULAR INCISORS:

The mobile lower incisors were stabilized using a permanent fibre splint (Ribbond™). A 1 mm deep recess was prepared with a high speed bur on the lingual aspects of the lower anterior teeth extending from just distal to the midline of one canine to the other. After appropriate etching and application of a bonding agent, composite resin and fibre splinting material were placed in the recess and light curing was done. This completed the process of stabilization of the patient's mobile teeth (Figures 7a to c).



Fig. 7a, b, and c: After splinting of mandibular incisors- labial and lingual views

REPLACEMENT OF MISSING 42

In order to replace the missing 42 and at the same time achieve desirable aesthetics and function, it was decided to bond a prosthetic acrylic pontic of the appropriate shade and size to the fibre splint. For this purpose a recess was prepared on the lingual aspect of an acrylic tooth. The recess was also extended on to the proximal surfaces of the prosthetic tooth. Some light cured composite resin was placed in this recess. The tooth was then placed against the fibre splint so as to align it with the rest of the teeth in the arch. Excess composite resin was removed. The remaining resin was light-cured. Thus an aesthetically acceptable replacement of the missing mandibular incisor was accomplished (Figure 8).



Fig. 8: 42 replaced by bonding prosthetic tooth to splint with light cured resin

DISCUSSION

The technique of vestibular extension used for the present case may be described as a modification of that described by Kazanjian in 1924 for deepening the mandibular labial vestibule in preparation for a complete denture prosthesis. The advantage of this technique is that healing occurs by first intention and no bone is left exposed, thereby minimizing the chances of bone resorption and further recession. In the present case, an excellent clinical result was obtained which was maintained even one year after surgery. A peculiar feature observed during healing was the formation of two fibrous bands on the inner aspect of the lower lip. However, these bands did not lead to contraction of the lip or any functional impediment of the patient. This finding is consistent with the observations of Wade (1969)⁹. The author performed this technique in 25 patients and observed the events of healing clinically. In the present case, as also seen in the series of Wade, the fibrous bands began to resolve by the sixth postoperative month and were almost completely absent at the one year recall appointment.

Thus, based on the findings of the present case it can be concluded that in cases with a shallow vestibule and a reduced width of attached gingiva on the labial aspect of the mandibular anterior teeth, the technique advocated by Edlan and Mejchar provides a predictable way in which gingival health can be achieved and maintained.

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