

Post-Prosthetic Surgery: Using Complete Denture Prosthesis for Propriotous Outcome During Vestibuloplasty

¹Priyanka Pokharel, B.D.S, M.D.S.; ²Prabhat Shrestha, B.D.S, M.D.S

¹Post Graduate Student, ²Professor,

Department of Prosthodontics and Implantology,
Kist Medical College and Teaching Hospital,
Mahalaxmi Municipality, Ward no. 1, Lalitpur, Nepal

Abstract:- Prosthodontic rehabilitation of edentulous patient is quite challenging. The success of complete dentures depends on many factors among which the anatomical factors play a major role. For functioning of complete denture in harmony there should exist proper stability, support and retention. Any compromising factors among them which might probably result in failure of prosthesis. As soft tissue anatomy in which the denture borders are placed are movable. It's imperative that the prosthesis will not hamper the tissue mobility to maintain retention. Sometimes alteration of the soft tissue anatomy may greatly increase the retention of the fabricated prosthesis. In this article we are presenting a clinical tip to improvise the final outcome and prognosis of prosthetic surgery after delivering the final prosthesis.

Keywords:- Complete Denture, Edentulous, Frenectomy; Mouth Preparation; Prosthetic Surgery; Periodontal Dressing; Retention; Vestibuloplasty.

I. INTRODUCTION

The objective of prosthodontic rehabilitation is to restore masticatory function along with dental and facial aesthetics. Removable prosthesis should evince retention, support and stability for proper functioning. Any compromising factor among them will certainly result in prosthesis failure. Retention plays most important role in functioning of prosthesis properly.^{1,2}

Harmony should exist among the soft tissue anatomy and complete denture for proper retention and function. The borders of the removable prosthesis are placed along the compressible and non-resilient mucosa so it is imperative to understand function of soft tissue anatomy that modify the sulcus which determines extension limit of complete denture. The borders of the impression should be functionally contoured to prevent over or under extension of the complete denture to take benefits from the acquired retention from anatomical factors. If denture flange is overextended muscular action will cause displacement of the denture as well as undesirable, damage to the sulcular tissues. If the flange is under extended, there will be insufficient seal and loss of retention.

The tissues in specific areas that form a part of the peripheral seal of the denture may not be propitious to retention not only the extension of prosthesis but the types of movable tissues on which borders rest also determine the prognosis. Frenum that are broad with muscle fibre attachments will result in decreased vestibular height which often require surgical correction. Maxillary labial frenum sometimes might be so high and broad "V" shaped that results in pulling of free gingiva bilaterally to the frenum while the upper lips are in function causing the loss of peripheral seal and retention. Not only it affects retention but requires modification of complete denture with large housing (cleavage point) for frenum that might affects the denture's strength.^{3,4}

In such cases frenectomy as well as vestibuloplasty can be performed. Vestibuloplasty is a mucogingival procedure that aims at the surgical modification of the gingiva-mucous membrane relationships including deepening of the vestibular trough, altering the position of the frenulum or muscle attachments, and widening of the zone of attached gingiva.⁵ Mouth preparation can be performed before fabrication of prosthesis, during fabrication of prosthesis or after fabrication of prosthesis and each play different role.

This clinical tip will provide an insight about mouth preparation after fabrication of prosthesis, also can be referred as "POST PROSTHETIC SURGERY" as well as its benefit over conventional methods of preprosthetic surgery. In this article we will enlighten about the procedure of post prosthetic surgery.

II. METHODS

This procedure was performed on 63 years old Male patient who reported to Department of Prosthodontics, Maxillofacial prosthesis and Implantology at Kist Medical College and Teaching Hospital with complain of loose maxillary dentures on examination the denture met the basic criteria with proper vertical dimension, aesthetic, extensions and stability. On examination we noticed large "V" shape frenum with loose tissue on labial vestibule as shown in Figure 1. The patient was thoroughly informed about the cause of looseness of denture and was given different treatment options including a fixed implant supported

prosthesis; removable complete denture after pre-prosthetic surgery. The patient consented to surgical correction of the offending tissue. After complete evaluation and laboratory blood findings surgical treatment was planned.

Aseptic area was created favourable for minor surgery. Area was made aseptic by using Providine- iodine swab and gargling. Anesthetized area was obtained with anterior superior alveolar nerve block and infiltration in required areas. Electrosurgery was preferred for the procedure to provide deep as well as superficial coagulation and prevent postsurgical complication.⁶

Incision was performed with straight small tip as shown in Figure 2 and all the muscle fibres were removed from bony attachment to ensure proper separation as shown in Figure 3.

➤ Preparation of Denture Beforehand:

As the denture was going to be in intimate contact with open wound the surface of denture was highly polished using dry muslin buffing wheel with pumice. After the denture was completely polished, it was scrubbed thoroughly with a high shine material which impart a glossy surface. After polishing the denture was stored in diluted Chlorhexidine Di-gluconate solution to disinfect it and was dried before insertion. Chlorhexidine has shown to remove biofilm from the denture with antimicrobial properties.⁷

After that upper denture was inserted in proper position and vertical height was reconfirmed, then periodontal dressing pack (Gc Coe Pack Periodontal Dressing) was mixed and was applied over the denture and tissue junction and moulded into shape and contour of tissue as desired as shown in Figure: 4.

The maxillary complete denture helped to stabilize the Perio-pack and acted as a barrier to prevent reattachment of the dissected soft tissue to one another. Post-operative instructions of maintaining oral hygiene, medication and not removing the dentures was given and patient was recalled after a week. The denture and perio pack had good retention. After thorough irrigation wound healing was seen satisfactory as showing desired aspect of vestibular depth. (Fig: 5)

On follow up days' patient was satisfied with the retention of complete denture which improved the overall prognosis.

III. DISCUSSION

Edentulous cases pose different scenario from dentulous patient in treatment planning, treatment procedure as well as post procedure. In dentulous patient periodontal dressing are usually stabilized by interdental undercut. In edentulous arches there arises a problem with stabilization of the periodontal dressings that requires a surgical splint to be fabricated which was excluded as prosthesis itself helped in stabilization of the dressing. The prosthesis moulded the healing tissue in desired shaped without the chances of relapse. The prosthesis also created a favourable environment for wound healing decreasing discomfort for patient.

IV. RESULTS

The post prosthetic surgery can improve the prognosis of the prosthesis. Benefits of using the patient's denture in the process are: prosthesis helps in stabilization of periodontal dressing; helps in contouring of required sulcus depth as desired, prevention of reattachment of tissue as it acted as barrier, prevents extra work for fabrication of surgical splint, Prosthesis act as scaffold for tissue regeneration, prosthesis create favourable healing environment as it prevents foreign irritation.

- **Conflict of Interest:** The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

REFERENCES

- [1]. Jacobson TE, Krol AJ. A contemporary review of the factors involved in complete denture retention, stability, and support. Part I: Retention. *J Prosthet Dent.* 1983 Jan49(1):5–15.
- [2]. Kaur S, Datta K, Gupta S, Suman N. Comparative analysis of the retention of maxillary denture base with and without border molding using zinc oxide eugenol impression paste. *Jun 18;7(1):1*
- [3]. Al Jabbari YS. Frenectomy for improvement of a problematic conventional maxillary complete denture in an elderly patient: a case report. *J Adv Prosthodont* Apr 20;3(4):236.
- [4]. Nejatidanesh F, Peimannia E, Savabi O. Effect of labial frenum notch size and palatal vault depth on stress concentration in maxillary complete dentures: A finite element study. *Journal of Contemporary Dental Practice [Internet].* 2009;10(3):1–9
- [5]. American Academy of Periodontology: Glossary of periodontal terms. 2001
- [6]. Samatha Yalamanchili P, Davanapelly P, Surapaneni H. Electrosurgical applications in Dentistry. *Sch J Appl Med Sci* 2013;1(5):530–4.
- [7]. Mylonas P, Milward P, McAndrew R. Denture cleanliness and hygiene: an overview. *Br Dent J.* 2022;233(1):20–6.



Fig 1: Demonstration of Wide Maxillary Frenum



Fig 4: Stabilization of Periodontal Dressing with Complete Denture



Fig 2: Making Incision Line With Fine Straight Tip



Fig 5: Follow up after 1 Week



Fig 3: Removal of Muscle Fibre Attachment of Frenum