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IP Annals of Prosthodontics and Restorative Dentistry

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Case Report

Innovative impression strategy in maxillary defect rehabilitation: A prosthodontic perspective

Sonali Sharma[1], Tarun Kalra[1], Manjit Kumar[1]*, Ajay Bansal[1], Arpit Sikri[1]

[1]Dept. of Prosthodontics, Bhojia Dental College and Hospital Budh Baddi, Solan, Himachal Pradesh, India

Abstract

Flabby ridge is a common clinical finding that affects the alveolar ridge in both the mandibular and maxillary arches. The anterior region of the maxilla is the most commonly affected area in edentulous patients. Dentures fabricated over flabby ridges often exhibit compromised stability, poor support, and inadequate retention. Management includes surgical intervention, specialized impression techniques, redistribution of occlusal loads, and implant therapy. Among these, the window impression technique is employed to record flabby tissues in a static, undistorted state. However, these techniques present several clinical challenges. This case report presents a modified window technique for accurately recording anterior maxillary flabby tissue, allowing controlled application of light-body polyvinyl siloxane (PVS) impression material and improved clinical outcomes. This technique was adapted using a previously reported method (Zafarullah Khan's technique), with precise cutting of the window after the zinc oxide eugenol impression set, ensuring no damage to the primary impression.

Keywords: Anterior maxillary residual alveolar ridge defect, Flabby ridge, Hypermobile tissue, Hyperplastic tissue, Impression techniques, Polyvinyl siloxane

Received: 03-05-2025; **Accepted** 07-06-2025; **Available Online**: 20-06-2025

1. Introduction

A flabby or fibrous ridge refers to mobile soft tissue in the anterior maxilla or mandible, often seen in edentulous patients. These ridges are commonly encountered in patients presenting with combination syndrome—a condition described by Kelly in 1972 and characterized by displaceable anterior maxillary tissue, resorption of the anterior ridge, enlargement of tuberosities, and posterior mandibular bone resorption. Flabby ridges contain loose fibrous connective tissue with thick collagenous components, which displace under masticatory load, compromising retention and stability.

Combination syndrome leads to significant prosthodontic challenges. Management strategies include surgical removal of flabby tissue, implant-supported prostheses, and specialized impression techniques. Among impression techniques, selective pressure techniques like the modified window method allow the flabby tissue to be recorded accurately without distortion.

Various etiological factors can lead to abnormalities in the maxilla, including surgical treatment of benign or malignant neoplasms, cysts, congenital malformations, and trauma.[1] These abnormalities are often associated with the partial removal of the maxilla. Acquired maxillary defects differ from congenital malformations due to the abrupt changes following surgical resection.[2] Such deformities disrupt oronasal and oroantral communication, leading to impaired mastication, hypernasal speech, fluid leakage, and multiple aesthetic concerns.[2] These post-surgical consequences significantly affect the structure and function of the stomatognathic system, ultimately diminishing the patient's quality of life.[4] Hence, early prosthodontic intervention is critical to restore function and improve the patient's self-esteem.[5]

A flabby or fibrous ridge refers to mobile soft tissue found in the anterior maxilla or mandible, often seen in edentulous patients.[6] In combination syndrome, displaceable, hypertrophic, or fibrous tissues are commonly present in the

*Corresponding author: Manjit Kumar
Email: manjitkiran@yahoo.co.in

https://doi.org/10.18231/j.aprd.2025.036

anterior maxilla along with posterior mandibular bone resorption. Hyperplastic flabby ridges consist of loose fibrous connective tissue with thick collagenous components, which tend to displace under masticatory load, leading to a compromised peripheral seal.[7]

2. Case Report

A 60-year-old male patient reported to the Department of Prosthodontics and Crown and Bridge with the chief complaint of loose and ill-fitting upper and lower dentures, requesting their replacement.

2.1. Clinical examination

Extraoral examination revealed a convex facial profile and gross facial symmetry. Temporomandibular joint and lymph node examinations were normal. Intraorally, a maxillary defect was observed in the anterior region, with no other abnormalities noted (**Figure 1**).

2.2. Treatment plan

The patient was informed about the modified window technique for flabby ridge management. Informed consent was obtained. The treatment plan included complete denture fabrication using the modified window technique and selective pressure impression principles.

2.3. Procedure

1. Preliminary impressions were made using impression compound and primary casts poured with dental plaster.
2. A custom tray was fabricated with double spacers in the anterior maxillary region corresponding to the flabby tissue.
3. Border molding was done using green stick compound.
4. Zinc oxide eugenol was used for secondary impression; after setting, a window was carefully cut over the marked flabby area using a rotary acrylic trimmer and scalpel without damaging the surrounding impression.
5. The flabby ridge was recorded with light-body PVS through the window. The material stayed well due to its controlled viscosity and confinement within the windowed area; it was not displaced or dislodged during tray removal.
6. The master cast was poured using die stone.
7. Jaw relations were recorded, followed by try-in and processing.
8. The occlusal scheme used was bilateral balanced occlusion. Acrylic teeth were selected to reduce occlusal forces.
9. Post-insertion instructions were given, and follow-up visits were scheduled at 24 hours, 72 hours, 1 week, 3 months, and 6 months.

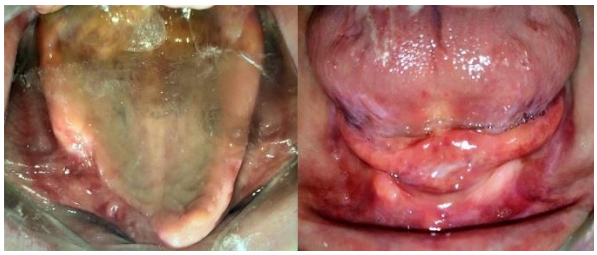

Figure 1: Intraoral view of the maxillary and mandibular arches.

Figure 2: Primary impression of the maxillary and mandibular arches.

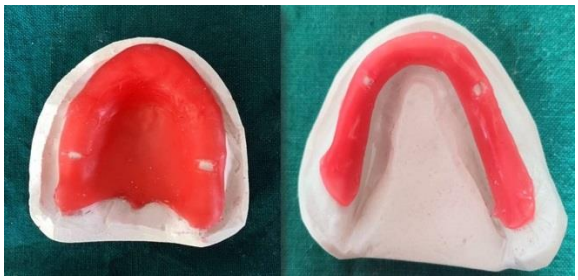

Figure 3: Primary cast with spacers.

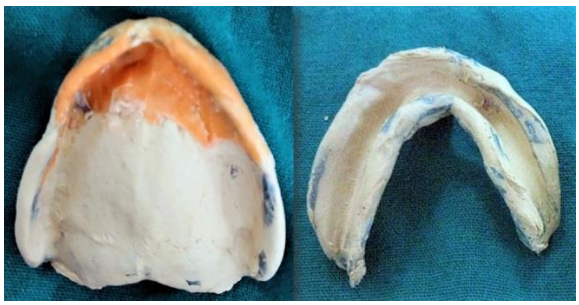

Figure 4: Final impression of the maxillary and mandibular arches.

Figure 5: Master cast.

Figure 6: Try-in.

Figure 7: Denture insertion.

3. Discussion

Prosthetic rehabilitation following maxillectomy typically begins with a surgical obturator. In such cases, bone loss may be extensive, and the remodeling process may be inconsistent—new bone is laid down internally while resorption occurs externally. This pattern of bone change is distinct from the typical residual ridge resorption described by Enlow.[8]

A flabby ridge, also termed a displaceable fibrous ridge, has a prevalence of approximately 5% in the mandible and 24% in the maxilla.[9] The concept of combination syndrome was introduced by Kelly in 1972, characterized by resorption of the anterior maxillary alveolar ridge, overgrowth of the tuberosities, and bone loss beneath the mandibular denture bases.[10]

Several techniques have been proposed for managing flabby tissues:

1. Watt and McGregor (1986) used impression compound in a modified custom tray followed by a zinc oxide eugenol wash.[11]
2. Liddlelow and Osborne (1964) employed two different materials—plaster of Paris for flabby areas and zinc oxide eugenol for the rest.[12]

In the present case, Zafarullah Khan's technique was utilized to manage the flabby anterior maxilla using a modified window impression technique.[13] This approach allows for selective pressure recording, minimizing tissue displacement under functional load and improving denture retention and stability.

Muco-compressive techniques often displace flabby tissue during mastication, resulting in poor denture retention.14 Selective pressure techniques, such as the one used here, address these limitations effectively while also reducing the number of clinical visits required.[15]

The flabby ridge poses a challenge in denture fabrication, particularly in cases of combination syndrome. Conventional muco-compressive techniques displace the tissue, leading to instability and discomfort. Selective pressure techniques help manage such cases by relieving pressure in flabby areas.[16]

The use of light-body PVS for mucostatic recording is suitable due to its excellent flow and minimal pressure application. Although impression plaster is considered ideal for true mucostatic impressions, PVS offers clinical advantages, including ease of manipulation, patient comfort, and dimensional stability.[17]

Although the window technique is well-documented, its effectiveness depends on precise execution. This case report adapted Zafarullah Khan's technique, modifying the method to achieve minimal distortion with a two-phase impression approach. This article also addresses the significance of treating combination syndrome through occlusal load distribution, using appropriate occlusal schemes, and regular follow-ups.

Alternative treatment modalities include implant-supported prostheses, surgical excision of flabby tissue, or use of metal-based bases to enhance denture support and reduce pressure.[18,19]

This report reinforces the importance of tailored impression techniques for edentulous patients with flabby ridges.

4. Conclusion

This case highlights the use of a modified window technique to record anterior maxillary flabby ridges accurately. Proper technique execution, material selection, and occlusal considerations are essential to ensure denture stability. The technique is a cost-effective, minimally invasive, and clinically reliable option for patients with flabby ridge and combination syndrome. Post-insertion instructions and regular follow-ups are crucial for long-term success.

5. Conflict of Interest

None

6. Source of Funding

None.

References

1. Brown KE. Clinical considerations improving obturator treatment. *J Prosthet Dent*. 1970;24(6):461–6.
2. Beumer J, Curtis TA, Marunick MT. Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations. 3rd ed. Quintessence Publishing; 2011.
3. Desjardins RP. Obturator prosthesis design for acquired maxillary defect. *J Prosthet Dent*. 1978;39(4):424-35.
4. Keyf F. Obturator prostheses for hemimaxillectomy patients. *J Oral Rehabil*. 2001;28(9):821–9.

5. Parr GR, Tharp GE, Rahn AO. Prosthodontic principles in the framework design of maxillary obturator prostheses. *J Prosthet Dent*. 1989;62(2):205–12.
6. Basker RM, Davenport JC, Thomason JM. Prosthetic Treatment of the Edentulous Patient. 5th ed. Wiley-Blackwell; 2011.
7. Zarb GA, Bolender CL, Eckert SE, Rhonda J. Prosthodontic Treatment for Edentulous Patients: Complete Dentures and Implant-Supported Prostheses. 13th ed. Mosby; 2012.
8. Enlow DH. The principles of bone remodeling. Springfield (IL): Charles C Thomas; 1963.
9. Sikri A, Sikri J, Prosthetic management of flabby ridge using customized prefabricated metal mesh custom tray impression technique: A case report. *IP Ann Prosthodont Restor Dent*. 2022;8(1):50-60
10. Kelly E. Changes caused by a mandibular removable partial denture opposing a maxillary complete denture. *J Prosthet Dent*. 1972;27(2):140–50.
11. Watt D, Roy M, Macgregor A. Designing complete dentures. IOP Publishing. P, Bristol; 1986. p. 21–34.
12. Osborne J. Two impression methods for mobile fibrous ridges. *Br Dent J*. 1964;117:392–4.
13. Khan Z, Jaggers JH, Shay JS. Impression of unsupported movable tissues. *J Am Dent Assoc*. 1981;103(4):590–2.
14. Sikri A, Kalra V, Sikri J, Jassal P, Yamika. Precision Prosthodontic Rehabilitation of Flabby Ridge with a Modified Window Technique: Case Report. *Dent J Indira Gandhi Int Med Sci*. 2024;3(1):51–64.
15. Rathee M, Jain P, Dixit P, Singh P, Mittal S, Tomar SS. Prosthetic Rehabilitation of Edentulous Flabby Ridge using Modified Hobkirk Window Impression Technique: A Case Report. *Ann Dent UM*. 2024;31:26–30.
16. Maskey B, Kandel K, Regmi M. Prosthodontic Management of Flabby Ridge with Modified Impression Technique: A Case Report. *J Nepalese Prosthodont Soc*. 2024;7(1):57–60.
17. Yee A, Meei TI, Ling GC. Managing Fibrous Maxillary Ridge: A Case Series of Impression Techniques. *Prim Dent J*. 2023;12(1):51–6.
18. Showkat R, Sharma A, Kumar S, Kaura SM. Management of Flabby Ridge Using Hobkirk's Technique: A Case Report. *Eur J Dent Oral Health*. 2021;2(1):1–4.
19. Kabade AK, Mahale KM, Dange SP, Khalikar SA. A modified impression technique for flabby and severely atrophic mandibular ridge: A case report. *Int J Appl Dent Sci*. 2021;7(4):99–102.

Cite this article: Sharma S, Kalra T, Kumar M, Bansal A, Sikri A. Innovative impression strategy in maxillary defect rehabilitation: A prosthodontic perspective. *IP Ann Prosthodont Restor Dent*. 2025;11(2):185-188.