

Technique for Soft Tissue Modification for Pontic Reception: A Case Report

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Abstract:-

➤ *Background*

The article discusses a technique for modifying the pontic site when replacing missing maxillary incisors in the anterior esthetic zone. In such cases, patient concern often centres around esthetics, especially considering factors like smile lines and the display of incisors. The esthetic zone may extend to the entire clinical crown and involve the surrounding soft tissue, particularly if the patient has a high smile line.

➤ *Case Summary*

The emergence profile is highlighted as a crucial aspect when dealing with pontics in the esthetic zone. The emergence profile refers to the way the pontic emerges from the gingival tissue, and it significantly influences the overall esthetics of the restoration.

➤ *Conclusion*

The technique described in this case report involves converting a flat gingival contour into a concave receptor site for the desired pontic without soft tissue grafting. This modification aims to enhance the emergence profile, contributing to a more natural and esthetically pleasing outcome when replacing missing maxillary incisors in the anterior esthetic zone.

I. INTRODUCTION

The term "emergence profile" was first used by Stein and Kuwata in 1977 to describe the contours of a tooth or crown as it traverses through soft tissue, rising interproximally toward the contact area, and reaching the height of contour facially and lingually.⁽¹⁾

An ideal emergence profile is crucial for maintaining gingival health and achieving optimal esthetics in dental restorations. If improperly created, the emergence profile can create a protected area that encourages plaque accumulation and is challenging to clean, leading to marginal inflammation. Contralateral teeth that have not been restored may remain healthy in comparison. Attentive development of the proper emergence profile in the final restoration helps reduce plaque retentive areas, thus minimizing iatrogenic inflammation and preventing unsightly dark spaces and triangles near the gums and between the teeth.⁽²⁾

The importance of a proper emergence profile becomes even more pronounced in anterior maxillary restorations or

when the patient has a high smile line. The ovate pontic has been suggested as a more accurate duplication of the emergence profile for natural teeth, aiming to create the illusion that the tooth is emerging from the gingiva with a cuff of tissue surrounding it on the facial aspect.⁽³⁾

For a successful ovate pontic restoration, certain prerequisites include an alveolar ridge of sufficient height and width, considering interproximal height, free gingival margin, and facial prominence. Any deficiencies in these aspects may require augmentation to accommodate the pontic and achieve the desired esthetic outcome. The technique described in this case report is a way to modify the pontic site mainly in the anterior region without soft tissue grafting.⁽⁴⁾

II. CASE REPORT

A 24 year old female patient reported to the Dept. of Prosthodontics at CSMSS Dental College And Research Centre, Chh. Sambhajnagar, Maharashtra with the chief complaint of missing teeth in the upper front region of jaw. After clinical examination of the intraoral site:

- Missing lateral incisors were seen bilaterally.
- Midline diastema was seen with the upper central incisors.
- Flat gingival contour seen with missing 21 and 22.

➤ *After the Clinical Examination Various Treatment Options were Thought Upon Like:*

- Implant placement with 12 and 22, but due to restraining economic background of the patient this option was cancelled.
- Resin bonded bilateral Maryland bridge was also one of the treatment options, but the issue of midline diastema would have not been solved with a Maryland bridge, also the patient wanted something permanent and definitive.
- Fixed dental prosthesis with 11,12,13 and 21,22,23 was thus planned for the patient.

➤ *Steps in Creating a Gingival Pontic Receptor Site:*

- OPG was examined of the patient and the bone level over the missing teeth and the light shadow of the soft tissue was determined on the opg.(fig 1 and 2)



Fig 1: Pre-Operative Picture



Fig 3: Creation of Pontic Receptor Site

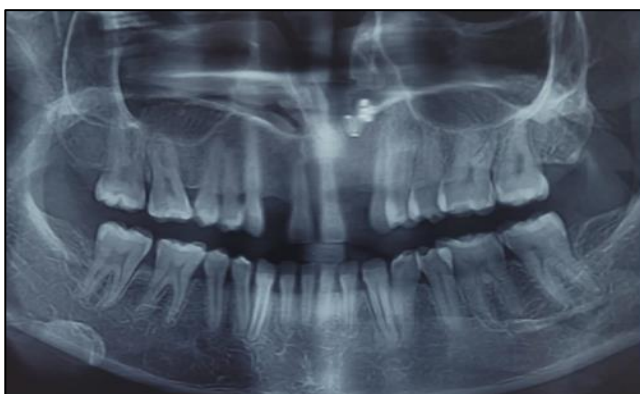


Fig 2: Orthopantogram



Fig 4: Creation of Pontic Receptor Site with 22

Using a William’s graduated probe , the distance between the bone level and the gingival level was calculated.

- Tooth preparation was done as usual with 11 and 13, 21 and 23 for a PFM prosthesis.
- Now to create a gingival pontic receptor site, first thing that needs to be done is to sound the soft tissue over the pontic site using the william’s graduated probe.
- We got around 3mm of thickness of soft tissue to work with and then using a coarse football shaped or flame shaped diamond bur on a high speed airtor handpiece a concavity was made on the pontic site. care was taken to leave some of the tissue between the pontic site and the adjacent tooth so as to mimic the interdental papilla in the definitive prosthesis. (fig 3, fig 4 , fig 5)
- Gingival zenith should be maintained with the adjacent tooth and after the pontic site modification is over, haemostatic agent was applied on the site to control the bleeding. (fig 6)
- Impression was made and then the temporary bridge was fabricated over the stone model with intimate contact of the pontic to the modified pontic site (fig 7)
- The provisional bridge was cemented and after 3 weeks the site was checked and a good contour and an adequate modified pontic site was formed.(fig 8)
- Gingival retraction was done , the Final impression was made and the final prosthesis was delivered .(fig 9 , fig 10, fig 11)



Fig 5: Completion of Gingival Pontic Receptor Sites



Fig 6: Haemostatic Gel Applied Over Receptor Site

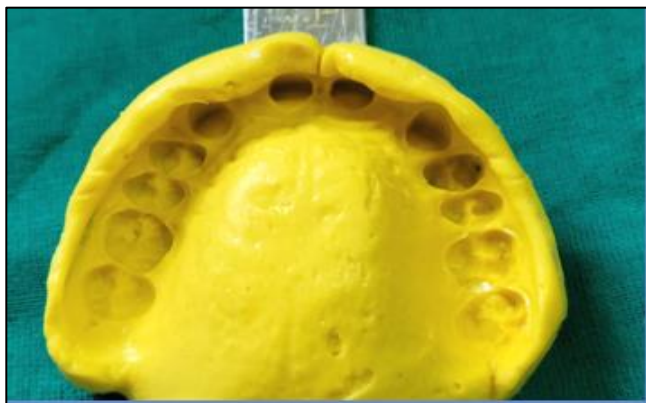


Fig 7: Alginate Impression Made for Provisional Prosthesis



Fig 8: Provisional Prosthesis Cemented for 3 Weeks



Fig 9: Gingival Retraction



Fig 10: Final Impression Made with Putty Material



Fig 11: Final PFM Prosthesis Luted

III. DISCUSSION

Preserving interproximal soft tissues and preventing alveolar bone collapse after tooth extraction continues to pose a challenge in dentistry. It is essential to maintain the socket dimensions, shape, and gingival tissue height to support optimal healing and future prosthetic restoration.

➤ *Various Techniques have been Employed to Achieve Socket Preservation, Including:*

- **Connective tissue grafts:** These grafts can be used to augment the soft tissue volume and maintain the gingival contour around the extraction site.
- **Free gingival graft:** Similar to connective tissue grafts, free gingival grafts can help stabilize the gingival tissue height and prevent recession.
- **Acellular dermal matrix:** This material can be utilized to augment soft tissue volume and promote wound healing after extraction.
- **Resorbable hemostatic plug:** Placing a resorbable plug in the extraction socket can aid in controlling bleeding and preserving the socket architecture.
- **Membranes with or without bone grafts:** Barrier membranes can be used to protect the extraction site and promote bone regeneration. Bone grafts may also be utilized in conjunction with membranes to enhance bone preservation.
- **Provisionalization with a pontic:** Immediate provisionalization with a pontic that supports the gingival contours can help prevent the formation of a "black triangle" between adjacent teeth, maintaining the esthetic appearance of the smile.

In this case report, a novel technique is introduced for enhancing the emergence profile of a pontic in a fixed dental prosthesis by modifying the pontic site reception in the gingiva.

Traditionally, achieving an ideal emergence profile for a pontic involves careful manipulation of the soft tissue and underlying bone to create a natural-looking transition between the pontic and the surrounding gingiva. However, conventional methods may not always result in optimal esthetic outcomes, particularly in challenging cases where the existing tissue contours are inadequate.

This novel technique aims to address these challenges by introducing innovative modifications to the pontic site reception in the gingiva. By customizing the shape and dimensions of the pontic site, clinicians can create a more harmonious and esthetically pleasing emergence profile for the pontic. This may involve sculpting the soft tissue, utilizing grafting materials, or employing novel prosthetic components designed to enhance tissue integration and esthetics.

The case report likely provides detailed descriptions of the technique, including step-by-step procedures, clinical photographs, and outcomes. By presenting this innovative approach, the authors aim to contribute to the advancement of prosthetic dentistry and improve the esthetic outcomes of fixed dental prostheses, particularly in cases where conventional techniques may be insufficient.

IV. CONCLUSION

By implementing this novel technique for pontic site reception in the gingiva, clinicians aim to overcome the limitations associated with inadequate socket preservation. The technique likely involves innovative approaches to sculpting the soft tissue and modifying the pontic site to enhance the emergence profile of the pontic in the fixed dental prosthesis.

The goal of applying this technique is to achieve optimal esthetic outcomes and functional stability in the final restoration despite the absence of proper socket preservation measures. It provides a solution to address the deficiencies in tissue architecture and contour that may result from the lack of socket preservation, ultimately enhancing the overall esthetics and longevity of the prosthetic restoration.

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