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CASE REPORT

Simulated Tooth Emergence from Soft Tissue in an Anterior Bridge with Ovate Pontic

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ABSTRACT

Pontic is an artificial substitute for the missing tooth. The design of this prosthetic tooth will be dictated by esthetics, functions, hygiene, patient comfort, and maintenance of the dentulous ridge. An ovate pontic has been widely recommended to fulfill esthetic, functional, and hygienic requirements. The convex design of this pontic intends to form a concave soft tissue outline at the site of the alveolar ridge mucosa. This design eliminates the "black triangles" which are created after loss of tooth and interdental papilla thus preserving the emergence profile.

Unfortunately, an ovate pontic design is not frequently advised by the clinicians. The case report presents an ovate pontic design for replacing maxillary anterior tooth to meet both esthetics and gingival health.

Keywords: Anterior missing tooth, Black triangles, Emergence profile, Esthetic pontic design, Ovate pontic.

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INTRODUCTION

In restoring anterior region of oral cavity, the prime requirement is esthetics. In selecting and contouring anterior pontic, every effort is made to artistically reproduce the facial characteristics of natural tooth. When appearance is of utmost concern – an ovate pontic is used in conjunction with alveolar preservation and soft tissue ridge augmentation.

The ovate pontic design is commonly used to maintain or enhance the soft tissue contours of fixed partial dentures (FPDs).[1] The convex design of this pontic has been recommended to fulfill esthetic, functional, and hygienic demands.[2] Its convex tissue surface resides in a soft tissue depression or hollow in the residual ridge. This makes it appear that a tooth is literally emerging out from the gingiva. The tissue-contacting segment of the ovate pontic is bluntly rounded, and it is set into a concavity in the ridge. It can be used in conjunction with soft tissue ridge augmentation; can provide an appearance at the gingival interface, i.e., virtually indistinguishable from a natural tooth.

PROCEDURE

A 27-year-old female reported to Department of Prosthodontics with chief complaint of missing tooth in upper front tooth region since 1 month. Past dental history revealed extraction of maxillary right central incisor (11) 1 month back. An intraoral and radiographic evaluation revealed healing socket with complete soft tissue healing (Fig. 1). Patient was advised treatment of soft tissue recontouring followed by ceramic facing metal bridge on abutments – maxillary left central incisor (21) and maxillary right lateral incisor (12) with an ovate pontic design.

- Diagnostic impressions were made with irreversible hydrocolloid (neocolloid - Zermac) and mock wax-up was done on diagnostic cast to obtain a putty index.
- After shade selection, tooth preparation was done on abutments 21 and 12 with shoulder finish line on

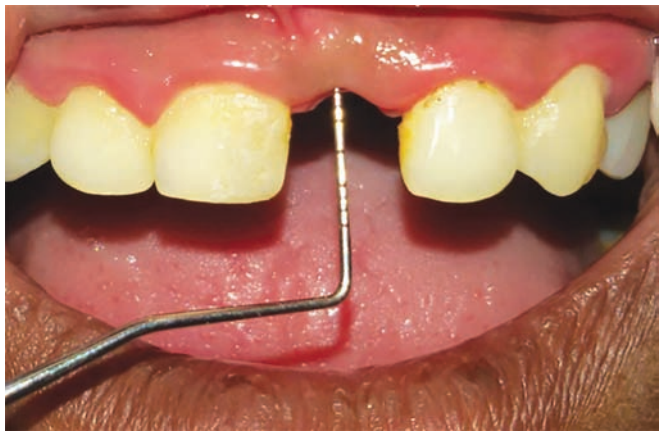

Fig. 1: Preoperative

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Fig. 2: Tooth preparation

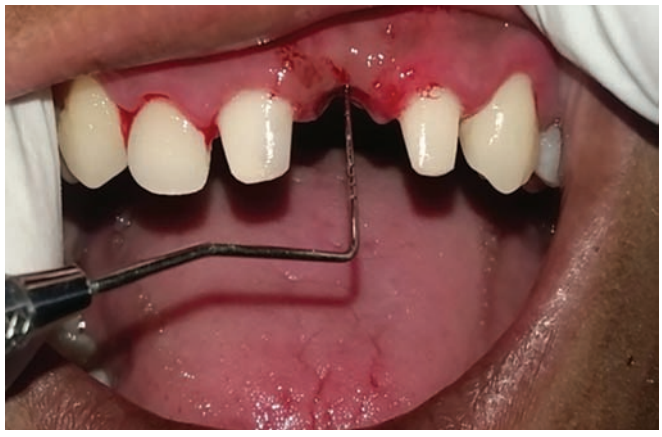

Fig. 3: surgical recontouring of pontic area with diode laser system

Fig. 4: Temporization acting as stent for recontoured pontic area

Fig. 5: Final impression after healing of pontic area

labial side and chamfer on palatal (Fig. 2). Impression was made with irreversible hydrocolloid alginate for temporization.

- Scoring of cast was done to obtain concave surface in the soft tissue of the pontic area.
- Soft tissue recontouring was performed with Diode 980 nm laser system keeping scored cast as guide and checked by the blanching of the soft tissue with temporary restoration (Fig. 3).
- Temporary bridge with an ovate pontic was fabricated on scored cast with putty index using tooth molding powder (DPI Self – Cure Tooth Moulding Powder) and cemented with (Rely X Temp NE, 3M ESPE) (Fig. 4).
- Patient was recalled after 2 weeks for final impression after complete healing with concave contoured soft tissue in the pontic area.
- Gingival retraction was done with retraction cord (roeko Stay-put) dipped in epinephrine and final impression was made with rubber-base impression material (Photosil Soft putty and light body) (Fig. 5).
- Impression was poured in Type IV Gypsum (Ultrarock - Kalabhai), dies were obtained and wax pattern was fabricated (Fig. 6).
- Metal try-in followed by ceramic build up and bisque trial was performed (Fig. 7).

Fig. 6: Fabrication of wax pattern

- Final cementation was done with Glass Ionomer Cement Type 1 (GC Gold Label, Luting and Lining Cement) (Fig. 8).

DISCUSSION

Treatment modalities to restore missing anterior teeth may include options, such as implants, Maryland FPDs, removable prosthesis, or conventional FPDs with various types of pontics.

A modified ridge lap pontic establishes gentle contact on the labial surface of the alveolar mucosa, with no

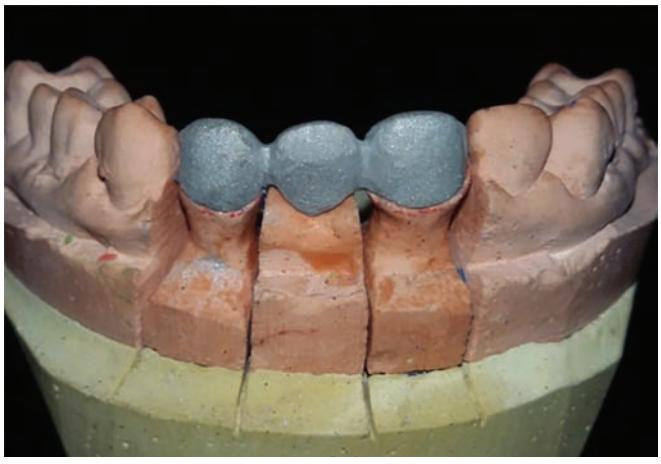

Fig. 7: Metal framework

Fig. 8: Final cementation

contact on the palatal surface.[3,4] This design facilitates good oral hygiene. However, esthetics are compromised, since a complete emergence profile cannot be obtained because of the convex shape of the alveolar ridge.[4]

This article presents a rationale for selection of ovate pontics as an alternative to traditional pontic forms in the anterior quadrants. Its antecedent was the porcelain root-tipped pontic, which was used considerably before 1930 as an esthetic and sanitary substitute for the saddle pontic. The ovate pontic which emerged from these limitations was first described by Dewey and Zugsmith in 1933.[5] Chiun-Lin Steven Liu improvises the design of ovate pontic for enhancing the esthetic and maintenance of hygiene by moving the height of contour of the pontic more labially to support the soft tissue and get the required emergence profile.[6] To ease of hygiene maintenance is technically easier in these type of pontics. The other advantage of an ovate pontic is lateral tissue support and food deflection.[7]

It is important that final impressions for the FPD should be made immediately after removal of the provisional restoration or tissue may "rebound" and create an ovate pontic space on the model substantially shallower than the actual provisional pontic.[1]

An apical pontic height was determined by the existing tissue/bone complex, esthetics, support, ease of cleaning and prevention of food impaction. Passive ridge contact was indicated for most pontic forms but the ovate pontic requires intimate tissue contact to support, form and protect tissues.[8]

A gradual and controlled pressure transformed an unfavorable tissue configuration, without free space between the soft tissue and restoration. This tissue contact prevents visible plaque accumulation and tissue inflammation.[9] Use of an ovate pontic with FDP does require that patients exercise special care with oral hygiene. Home care for FPD demands that cleansing of the pontic area is accomplished without trauma, i.e., flossing should not traumatize or disrupt the soft tissues.

The convex nature of the ovate pontic was created to develop the emergence profile. However, in contrast to the requirements for pontic, which suggest the importance of pressure-free contact over a small area, the ovate pontic comes in contact with a larger area of the underlying soft tissue and applies very light pressure.

CONCLUSION

The crafting of an ideal smile requires analyses and evaluations of face, lips, gingival tissues, teeth, and an appreciation of how they appear collectively. Minor things considered during fabrication of prosthesis in esthetic zone improve the esthetic outcome of the treatment. This case report describes a technique to maintain the emergence profile of the tooth by recontouring soft tissues.

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