

# ANTERIOR ESTHETIC RESTORATION OF A PATIENT USING MODIFIED OVATE PONTIC DESIGN: A CASE REPORT

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## Abstract

One of the most challenging task in fixed prosthodontics is to esthetically replace the missing anterior teeth. Of critical importance is the natural appearance of the soft tissues. Patients desire for natural-appearing tooth replacements has prompted the development of various techniques designed to achieve a natural appearance of the soft tissues. Specifically, use of the ovate pontic is among the most versatile and effective means for obtaining the desired results. The convex outline of the pontic intends to form the concave soft tissue outline at the site of alveolar ridge mucosa. The design eliminates the black triangle which is created after loss of tooth and interdental papilla. This allows better plaque control and healthy esthetic gingival tissue. This article describes the technique for placing the modified ovate pontic immediately after extraction of a tooth to preserve the soft and hard tissues for enhancing esthetics.

**Key words:** Esthetic restoration, Fixed prosthesis, Ovate pontic

## Introduction

An attractive or pleasing smile clearly enhances the acceptance of the individual in the society where he belongs and the character of the smile influences to the great extent the attractiveness and the personality of the individual. Our ultimate goal, as clinicians is to achieve a pleasing composition in the smile-to create an arrangement of the various esthetic elements to proper proportion or relation according to known principles.

The most challenging issue in anterior esthetic restoration is to preserve the interproximal soft tissue and the alveolar ridge to collapse after the extraction of a tooth. The shape and form of the pontic is not the only important criteria to be taken into account for the good outcome, the contour of the gingival tissue is also an important factor.<sup>1</sup> Pontic should support the gingival tissue and eliminate the black triangle.

Certain factors must be carefully considered when attempting to use the ovate pontic technique. The dimensions of the soft tissues, atraumatic oral surgery (when applicable), and ridge preservation or enhancement techniques are essential.<sup>2</sup> Use of functionally suitable and aesthetically acceptable provisional restorations, such as transitional fixed or removable partial dentures, is also important.<sup>3</sup> The proximal contacts of the provisional prosthesis should be positioned immediately above the interproximal papillae of the adjacent natural teeth to promote retention of gingival form. This will also help to limit loss of tissue. Loss of alveolar bone during tooth removal can also result in aesthetic failure, as support of the soft tissues is contingent upon the integrity of the underlying crestal bone.<sup>4</sup>

This article describes the modified ovate pontic design for replacing upper anterior tooth to give both esthetics and health.

## Case report

A 17 year old female patient reported to the department of prosthodontics. Her chief complaint was an esthetic concern regarding her smile. She had discolored and fractured upper anterior teeth. On examination there was discolored right central incisor and decayed and fractured left central incisor. RCT with respect to right central, left central and lateral incisor was done 1 years back. (Figure 1, 2A and 2B)



Figure 1: Pre-operative Extraoral View

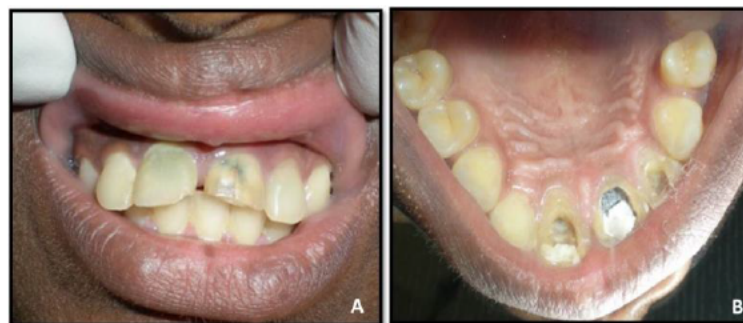


Figure 2A & 2B: Pre-operative Intraoral Views

Intra oral periapical radiograph reveals root canal treated 11, 21, 22. (Figure 3) On examination 21 was grossly decayed with fracture at cervical margin, as it was carious and was not amenable to post and core restoration. It also reveals adequate bone support with respect to 11 and 22 with no signs of periapical pathology. The patient was informed regarding the condition of 21 and no possibility of saving it with post and core restoration.



Figure 3: Intra Oral Periapical radiograph showing 11,21 and 22.

The option of implant and removable partial denture was also given to patient but the patient opted for three unit fixed partial denture.

Canine guide occlusion was present on both right and left side and there are no interferences on protrusion.

#### Treatment plan

Extraction of 21 followed by replacement with fixed partial denture in relation to 11, 21, and 22 using modified ovate pontic design

Diagnostic impressions were made and diagnostic casts were mounted using face bow records on semi adjustable articulator. (Figure 4, 5 and 6)

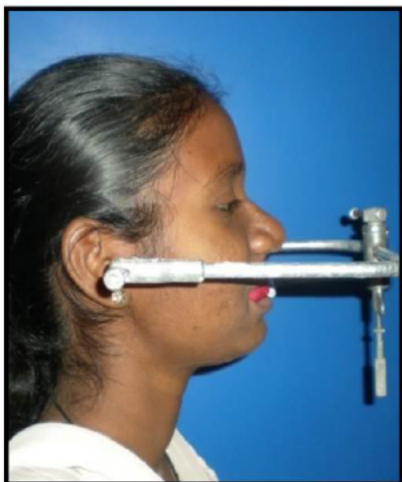


Figure 4: Face bow records

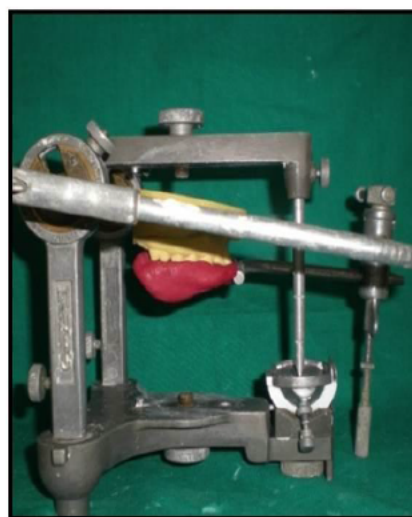


Figure 5: Transfer of face bow records to semiadjustable articulator



Figure 6: Mounted diagnostic casts

Wax-up was done for case evaluation (Figure 7).



Figure 7: Completed diagnostic wax up



Silicon Putty index was made with help of wax up to guide tooth preparation and provisionalization. Removal of remaining caries and composite core build up of abutment tooth was carried out. (Figure 8 and 9)



Figure 8: Removable of remaining caries



Figure 9: Composite core build-up

Tooth preparation to receive a fixed partial denture was carried out for 11 and 22 with shoulder finish line. (Figure 10)



Figure 10: Prepared tooth

An irreversible hydrocolloid impression of the prepared teeth and future extraction site was made. Scraping of the cast was carried out at the future extraction site for the modified ovate pontic. Provisional bridge was fabricated in tooth coloured acrylic resin. (Figure 11, 12 and 13) by the indirect technique using the putty index. provisional was built up to create a modified ovate pontic with a shallow convexity.



Figure 11: Alginate Impression



Figure 12: Stone Cast



Figure 13: Provisional restoration over cast

Tissue surface of the pontic was kept highly polished so that irritation to the tissues and plaque accumulation can be avoided. (Figure 14)



Figure 14: Provisional restoration

Extraction of 21 was done by preserving buccal and lingual cortical plates and interdental papilla. (Figure 15)



Figure 15: Extraction of 21

After homeostasis and clot formation the pontic was further modified to support the bone and soft tissue contour. (Figure 16)



Figure 16: Modified perovisional restoration

Cementation of provisional restoration was done using eugenol free interim luting cement. (Figure 17)

Extraction and immediate placement of the provisional restoration would allow the soft tissue to be supported by ovate pontic. The tissue condition was monitored at 1 week, 3week and 6week interval by removing the provisional restoration checking the ovate pontic site for absence of

ulceration or extravasation of blood vessels. Pink healthy tissue and minimum tissue rebound was found. At each visit the modified ovate pontic was polished on the tissue surface. The convex nature of the ovate pontic allows the correct emergence profile to be created and overcome the disadvantage of the ridge lap or modified ridge lap design. As a result, this pontic is easier to clean.



Figure 17: Cementation of provisional restoration



Figure 18: Final prosthesis intra-oral view

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The preparation was modified to compensate tissue shrinkage and to maintain the finish line sub gingivally, for the esthetics final impression were made to receive full coverage all ceramic restoration after a period of 2 months. The bridge was fabricated with highly glazed ceramic at the tissue side of the pontic by creating the illusion of pontic emerging from the soft tissue, thus creating the natural looking effect.<sup>6</sup>



### Conclusion

Ovate pontics are an excellent option for the esthetically concerned patients. It is possible to maintain oral health with ovate pontics as long as they are properly designed and well maintained. In the esthetic zone, ovate pontics have many advantages over conventional or hygienic pontic designs. They help to limit loss of soft tissues and the alveolar bone which prevents the aesthetic failure. Thus, they allow for maximum esthetics, are functional, and maintain tissue health. Their drawback is that they are laborious and their need for multiple appointments before the completion of procedure.

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