

## FRONTAL FIXED PROSTHETIC RESTORATION IN EDENTULOUS SPACE MODIFICATION

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### Abstract

*This study case presents a 53 years old patient with severe aesthetic dysfunctions due to an ectopic maxillary canine associated with a frontal edentulous space. Orthodontic treatment proposition was refused by the patient. After canine extraction, metal-ceramic fixed partial prosthesis successfully restored the aesthetic damage in the conditions of a non-gingival smile.*

*Adapted abutment teeth preparations were made in order to provide necessary space for aesthetic alignment of artificial teeth in the pontic.*

**Keywords:** frontal edentulous space, fixed partial prosthesis, aesthetic

### Introduction

A frontal edentulous space is a prosthetic emergency because of the serious aesthetic and phonetic disorders that affect the socio-professional life of the patient. The clinical situation is favorable for a dental supported fixed prosthetic restoration when the extractions are recent, without significant resumption of the ridge and convenient mesio-distal space for aesthetic alignment of artificial teeth [1].

An ectopic canine is usually accompanied by teeth migrations as well as ancient edentulous spaces which had no prosthetic treatments. In these cases we are faced with aesthetic framing difficulties. The orthodontist and the surgeon interventions are demanded to create optimal conditions for an aesthetic prosthetic restoration. In cases with gingival smile and gum line asymmetries, surgical intervention by coronary elongation or flap surgery is recommended [2].

Frequently, an ectopic canine in an adult patient has deficient bone support and extraction may be the best therapeutic option in these clinical situations.

The aim of this article is to present a practical fixed prosthetic option in a difficult clinical situation.

### Case presentation

Patient O.V 53 years-old, male, presents to our service for aesthetic disorders due to the maxillary ectopic canine 23 position and maxillary central incisors missing (figure 1). No phonetic dysfunctions are present because of a provisional restoration, that doesn't satisfy him esthetically (figure 5)



**Figure 1.** Ectopic canine and frontal maxillary edentulous space (initial situation)

We retain from the interview that he is suffering of type 1 diabetes.

The loss of the frontal teeth occurred in a sport accident, 17 month ago.

Aesthetic analysis follows several criteria [1,3]:

- Visibility of teeth in leisure position of the mandibula and the upper incisal margins rapport with lower lip;
- Amplitude and line of the smile;
- Occlusal plan and intercommissural line;
- Interincisive line and medial sagittal axis;
- Free vestibular lateral space

Frontal examination of the face shows upper lip asymmetry due to the ectopic position of the canine 23. (figure 2). Smile examination reveals favorable upper lip position because the patient does not have gingival smile. Postextractional bone defect is not visible, so there are no

## Case Reports

aesthetical issues in the pontic design on the vestibular crest versant.

Lateral incidence examination of the face shows the visible upper lip clogging (figure 3).

The patient had a reduced acrylic partial denture as provisional uncomfortable restoration of the maxillary frontal arch (figures 4, 5).

The maxillary ectopic canine 23 has 10 degrees disto-vestibular rotation, 7 mm vestibular gingival recession and reduction of the corresponding space on the arch to 4 mm, because of the mesial migration and disto-vestibular rotation of 24 associated with distal migration of 22.



**Figure 2.** Aesthetic disorders - asymmetry of the edentulous space and upper lip deformation due to 23 ectopic position

Asymmetric advance tooth wear of 22 and 24 is present.

Radiologic examination shows root ankyloses and reduced bone implantation on 23; due to these factors, orthodontic treatment could not be performed and we decided to extract 23.



**Figure 3.** Profile modification due to the frontal maxillary edentation



**Figures 4, 5.** The initial situation of the patient and the provisional removable prosthesis

Orthodontic treatment was recommended to the patient in order to correct 22, 24 positions and create necessary proper space for prosthetic restoration, but he refused.

He also refused a fixed prosthetic treatment over implants, but the prognostic of this therapeutic proposition was anyway limited by diabetes and low hygiene. Case analysis and wax-up showed us sufficient space for aesthetic fixed reconstruction if tooth preparation of 22 and 24 was extensive.



**Figure 6.** The clinical situation after canine extraction

Fixed partial metal-ceramic prosthesis was chosen in order to restore the frontal maxillary arch. The abutment teeth 12, 13, 22, 24 were prepared conserving the pulp vitality. Extensive preparation of the distal crown surface of the 22 and mesial crown surface of the 24 was performed to create sufficient space for the artificial symmetric canine 23 (figure 7).



**Figure 7.** Abutment teeth preparation

After canine extraction a 4 mm gingival recession is present on mesial root surface of 24 but this region is not exposed in patient smile (figure 7). This favorable situation permits us to maintain the cervical prosthetic limits in the enamel on this tooth, which is favorable for resin cement adhesion. Provisional fixed prosthesis verified wax-up aesthetic results, lateral group guidance and convenient anterior guide concerning the length and positioning of the maxillary incisors margins [1,4].





**Figures 8, 9.** Fixed partial prosthesis restoring frontal space and ridge resorption

Concerning the esthetic analysis of the case, 1.26 mm – 1.91mm visibility of the upper incisors in a medium age male is recommended when the upper lip is relaxed [3]. The patient has 1.26 mm of upper incisors visibility after final prosthetic reconstruction.

Color choice was guided by the natural aspect, in harmony with present teeth on the arches ( figures 10, 11).

In the finalized restoration, ridge resorption is restored with rose porcelain which improves the aesthetic appearance [5] ( figures 8, 9)



**Figure 10.** Frontal teeth visibility in discrete smile

Group left laterality guidance was improved in fixed metal-ceramic partial prosthesis.



**Figure 11.** Final smile aspect with metal-ceramic fixed partial restoration

### Discussion

Diabetes and other pathological conditions may influence the prognosis of implants and should be considered when the therapeutic decision is selected.

In this case, surgical treatment could restore the ridge resorption, before the prosthetic treatment. When minor resorption class 1 Siebert occurs, rose porcelain can successfully restore crest reduction.

Interincisive line of the metal-ceramic bridge has 1mm left deviation, remaining parallel to mediosagittal axis. Lateral deviation of interincisive line is accepted up to 4 mm if the parallelism to the mediosagittal axis is conserved.

### Conclusions

Extended teeth preparation, without affecting crowns resistance and retention, is demanding in special cases for aesthetic reasons in fix partial prosthesis treatment. This can be an option when the patient refuses orthodontic treatment in order to assure appropriate space for bridge pontic.

The aesthetic result of a prosthetic restoration reflects the complementarity between science and art, based on harmonic communication between dentists and technicians.

### References

1. Fradeani M, Barducci G: *Rehabilitation esthetique en prothese fixe*, Quintessence International Paris, 2010.
2. Salama H, Salama MA, Garber D. The interproximal height of bone: a guidepost to predictable aesthetic; strategies and soft tissue contours in anterior tooth replacement. *Pract Periodontics Aesth Dent*, 1998; 10:1131-1141.
3. Chiche GJ : Les composants clefs de la planification esthétique: proportion, visibilité et longueur. *Quintessence Revue International de Prothèse Dentaire*, 2012 ; 3:196-209.
4. Popa S: *Ocluzia dentara normala, patologica si terapeutica*, Ed Dacia Cluj Napoca, 2004
5. Rosenstiel SF, Land MF, Fujimoto J. *Contemporary Fixed Prosthodontics*, Mosby St Louis, 1998.