

## Impacted Canine: Management of the Edentulous Site with Resin-Bonded Bridge: About a Case

**Soualhi Hicham\* and Ahd Zaghba**

*Department of Prosthodontics, Faculty of Dentistry, University of Mohammed V, Rabat, Morocco*

**\*Corresponding Author:** Soualhi Hicham, Department of Prosthodontics, Faculty of Dentistry, University of Mohammed V, Rabat, Morocco.

**Received:** September 10, 2019; **Published:** September 24, 2019

### Abstract

Due to its situation and anatomy, the upper canine plays a specific role in terms of aesthetics and function. Nevertheless, the missing of this tooth can be considered like an issue for dental practitioners. Various therapeutics possibilities can be made to resolve this problem.

Resin-bonded fixed partial dentures are considered one of the least invasive treatments in modern dentistry. They are particularly recommended for adults and adolescents when orthodontic and implant approaches are contra indicated.

The purpose of this article is to illustrate, through a clinical case, the restoration of an edentulous site caused by an impacted canine, using resin-bonded fixed partial denture.

**Keywords:** Resin Bonded Fixed Partial Denture; Impacted Canine; Tissue Preservation

### Introduction

Due to its location, crown and root anatomy, the upper canine plays a specific role in terms of aesthetics and function. Nevertheless, the missing of this tooth can be considered like an issue for dental practitioners. Various therapeutics possibilities can be made to resolve this problem.

The missing of the canine can be the result of several etiologies; ectopy, trauma agenesis and total inclusion.

The presence of an included canine tooth is conventionally treated by orthodontic if the conditions of traction are met. In the other hand agenesis can be treated by fixed prosthesis with an implant restoration or a conventional bridge if the adjacent teeth present a clinical indication for a crown. However, in some situations, other alternatives should be considered.

Besides the analysis of the clinical criteria before any treatment planning, other factors must be considered like the patient's age and motivation since as these treatment options cited above are

considered time consuming and difficult (young patients, general health problems).

In this situations the resin bonded fixed partial denture seems to be a good alternative for this type of patients.

this clinical report describes the treatment for a missing upper right canine with a resin bonded fixed partial denture as an alternative to other approaches.

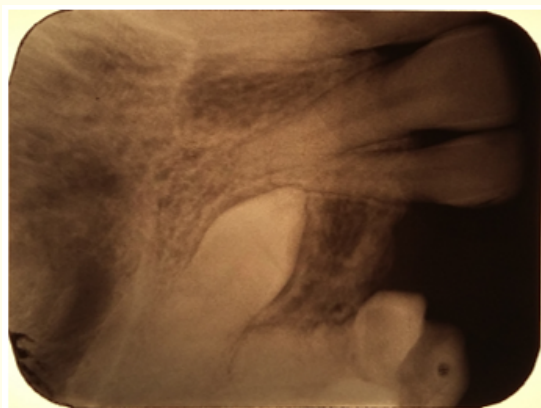
### Clinical Report

A 33-year-old female patient with an unremarkable medical history presented with the chief complaint of missing tooth caused by an inclusion of the right canine tooth 13 (Figure 1 and 2).

The anamnesis reveals that orthodontic treatment was undertaken to pull the canine. However, the patient who cannot tolerate this treatment anymore for multiple reasons (time, availability...) requires an alternative solution.



**Figure 1:** Initial situation: absence of the canine, width of the edentulous site compatible with a canine, thick periodontium.



**Figure 2:** Inclusion of the canine near the root of the lateral.

The clinical examination shows a gingiva with a thick biotype. The adjacent teeth are healthy. The edentulous site has a correct volume without defects (Figure 3).



**Figure 3:** Initial situation, occlusal view: absence of ridge defect.

The included canine is far from the alveolar crest, oblique near the root of the lateral incisor.

The lateral guidance is ensured by the anterior teeth (12 and la11).

**Treatment plan**

The patient is informed of the need to extract her included canine before initiating any sort of treatment.

From a prosthetic point of view, several options were possible:

- An implant restoration
- A conventional bridge
- A resin bonded fixed partial denture

Considering the patient's age, and her request for a quick solution without any surgery, the implant solution was not an option. At the same time, the lack of any crown indication in the adjacent teeth makes us reject the conventional bridge.

For conservative reasons, the patient opted for resin bonded fixed partial denture based on teeth 14 and 15 (the 13 being in extension).

**Patient treatment**

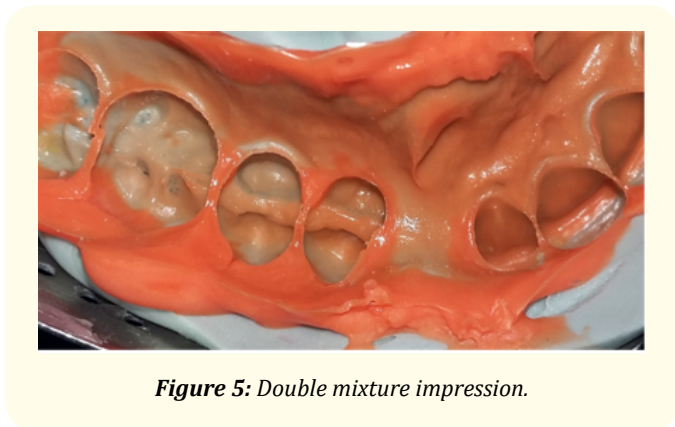
The different steps of the procedure consist in the preparation of 14 and 15 (Figure 4) with:

- Palatal limit in the form of supra gingival chamfer,
- Reduction of the palatal and proximal areas with convergence compared to the axis of the teeth,
- The grooves and preparations for occlusal cleats have been replaced by the construction of an occlusal trench, which allows mesio-occluso-distal boxes to be created,
- The non-overlapping of palatal cusps allows the preservation of occlusal impacts on these cusps with easy adjustment of the occlusion and smooth functional integration.



**Figure 4:** Reduction form of the 14 and 15.

The impression was taken with a silicone by addition using a double mixing technique (Figure 5).



**Figure 5:** Double mixture impression.

After the fabrication of the metal ceramic fixed partial denture was made in the laboratory then sent to the office for adjustment and fitting in chairside (Figure 6 and 7), the bonding was achieved after the following protocol (Figure 8):

- Etching of enamel with phosphoric acid
- Silanization of the intrados of the metal parts of the splint.
- Bonding with a 4 meta resin: “super bond” using the opaque powder type to mask metal parts.

### Discussion

The upper canine can be the site of various incidents such as agenesis, inclusion or extraction. For included teeth, according to epidemiological data, the rates of included canines vary from 0.9% to 4.51% [1,2].

Canine inclusions are not necessarily diagnosed and/or treated in early age. Some adults keep their milk canines as long as they remain stable on the arch. However, aesthetic complaints can arise later with adolescence and adulthood, therefore an appropriate treatment for the missing canine must be provided.

The treatment of choice for inclusion is orthodontic traction. However, when the tooth is ankylosed or the adult refuses to undergo orthodontics, the solution usually becomes surgical by extraction and implant restoration. The implant placement can be simultaneous or delayed [3,4].

Actually patients are seeking for a quick solution that would allow them to avoid the invasiveness of the traditional approach from extraction and delayed implant placement to orthodontics. In 2009, a non-conventional protocol along these lines was

developed [5,6]. Its main idea is to place an implant through the canine without the avulsion of the included tooth, which makes it a fast and especially non-invasive treatment. However, this protocol remains controversial.

Our case illustrates the need to have several solutions in our therapeutic armamentarium.

The classic therapeutic options such as orthodontics and implantology, could not be accepted by the patient because of complexity, time-consuming and expensiveness of the treatment plans cited above.

Therefore the resin bonded partial denture option was approved.

This technique was first described by Yves Samama in the 1980s and long-term subsequent studies have shown results as reliable as conventional bridges. It allows a significant tissue conservation compared to peripheral metal ceramic preparations [7-10]. Indeed, during the last two decades, adhesive fixed partial dentures have been reintroduced into daily practice due to a better understanding of adhesion mechanisms and by improving bonding systems [11-13].

This type of prosthesis is still considered as a minimally invasive solution in modern dentistry. It is particularly recommended for adults when the implant option is considered doubtful or contraindicated (periodontal diseases and/or anatomical and prosthetic obstacles, general health problems...).

In our case two options were possible relying on the preliminary clinical examination: either the preparation of the two premolars with the intermediate in extension, or the preparation of the premolar and the lateral incisor.

The low volume of the lateral, the risk of transparency of the metal, and its participation in lateral guidance, redirect our therapeutic choice for the preparation of the 24 and 25.

The inlay-onlay preparation as an additional anchoring system gives to the resin bonded fixed partial denture, an answer to the load specifications set by the rules of replacement of the upper canine.

### Conclusion

The replacement of the missing canine appears to be a challenge for the dental practitioner due to the key role played by this tooth in aesthetics and function. The tissue economy will be the main

objective both from the point of view of the durability of the prosthesis in one hand and from a biological point of view in the other hand, in this sense, the implant solution finds its full value.

### Bibliography

1. Dachi S, Howell F. A survey of 3,874 routine fullmouth radiographs: II. A study of impacted teeth. *Oral Surg Oral Med Oral Pathol.* 1961;14:1165-1169.
2. Hitchin AD. The impacted maxillary canine. *British Dental Journal* 1956;100:1-14.
3. Mazor Z, Peleg M, Redlich M. Immediate placement of implants in extraction sites of maxillary impacted canines. *J Am Dent Assoc.* 1999;130(12):1767-1770.
4. Garcia B, Boronat A. Immediate implants after the removal of maxillary impacted canines: a clinical series of nine patients. *Int J Oral Maxillofac Implants.* 2009;24(2):348-352.
5. Davarpanah M, Szmukler-Moncler S. Unconventional implant treatment. II. Implant placed through impacted teeth. 3 case reports. *Int J Periodontics Restorative Dent* 2009;29(4):405-413.
6. Davarpanah M, Szmukler-Moncler S, Davarpanah K, Rajzbaum P, de Corbière S, Capelle-Ouadah N, Demurashvili G. Unconventional transradicular implant placement to avoid invasive surgeries: toward a potential paradigm shift. *Rev Stomatol Chir Maxillofac* 2012;113(4):335-349.
7. Samama Y, Nguyen T, Attal JP. Prothèse collée-prothèse sur implant: les critères de choix. *Rev Odontostomatologie.* 1995;24:549-572.
8. Samama Y, Rajzbaum P. Le remplacement de la canine en prothèse: analyse et rapport de cas cliniques. *Actualités Odonto-Stomatologiques.* 2008;244:317-344.
9. Samama Y. Fixed bonded prosthodontics: a 10-year follow-up report. Part II. Clinical assessment. *Int J Periodontics Restorative Dent.* 1996;16(1):52-59.
10. Samama Y. Fixed bonded prosthodontics: a 10-year follow-up report. Part I: Analytical overview. *Int J Periodontics Restorative Dent.* 1995;15(5):424-435.
11. Rochette Al. Attachment of a splint to enamel of the lower anterior teeth. *J Prosthet Dent.* 1973;30:418-423.
12. Degrange M, Roulet JF. Quintessence Publishing Co, Inc 1997:153-176.
13. Gonzalez JM, Rajzbaum P. Bridge collé vs. prothèse sur implant. *Alternatives* 1999.

**Volume 2 Issue 10 October 2019**

**© All rights are reserved by Soualhi Hicham and Ahd Zaghba.**