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Case Report

Ceramic Veneers: A Case report

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Abstract

Introduction: In Algeria, dental fluorosis is a real public health problem, where we find so-called endemic areas, particularly in the south. The young people of these regions then make it a real complex which pushes them to get rid of this aesthetic defect by all means. Faced with this increasingly pressing aesthetic demand, our responsibility as a practitioner is significant. Through this clinical case we will illustrate a "perfect" aesthetic solution: which has enabled these patients to regain the confidence represented by the venner.

Case Report: This is a young patient who came to our consultation following an aesthetic gene due to the presence of dental fluorosis which constituted a real handicap in her live: she don't go to the university because of this gene. The clinical examination reveals that it is a serious dental fluorosis "Dean classification". The teeth being healthy, it was necessary to opt for the least mutilating aesthetic rehabilitation technique.

Discussion: According to the therapeutic gradient proposed by Tirlet, the treatment of choice was an aesthetic rehabilitation with ceramic veneers, since lightening and microabrasion have no effect on severe dental fluorosis. For a more conservative approach we opted for veneers with different types of clinical preparations.

Conclusion: Combining tissue conservation without compromising on aesthetics, these ceramic veneers constitute for this type of patient a "miracle" solution to their aesthetic problem.

Keywords: *Ceramic Veneers; Dental Fluorosis; Dental Medicine*

Introduction

Dental medicine combines scientific knowledge with respect for the individual character of people. Mastery of oral aesthetics makes it possible to achieve a balance between medical and dental health and the psychological health of the patient.

It is currently established that dental treatment plays a psycho-social role by simply improving appearance. Many patients complain of aesthetic problems associated or not with functional problems. These aesthetic problems are linked mainly to dyschromias or to anomalies of dental structure caused inter alia by fluorosis.

Fluorosis is a disabling dental anomaly that causes real cosmetic damage. In Algeria it constitutes a real public health problem. Thanks to recent technological progress, very good results can be obtained while respecting the two fundamental principles to be satisfied in any prosthetic restoration, namely the economy of hard tissue and the maintenance of pulp vitality. This "aesthetic and tissue preservation character makes us think of bonded ceramic restorations and ceramic veneers represent the most suitable form amongst them.

Definition of veneers

These are bonded partial overlapping crowns.

According to the German society of dentistry and oral medicine (DGZMK): A crown is said to be partial when the preparation of the tooth; limited to the lesion; fully or partially includes the incisal edge of the tooth and/or the proximal faces.

Figure 1: Ceramic veneer with slight overlap [2].

Advantages and disadvantages of ceramic veneers

Benefits

Ceramic veneers use the combined advantages of composites (adhesion, economy of tooth substance) and ceramics (aesthetics, durability) and best reproduce the physical, anatomical and aesthetic data of the natural tooth.

Reinforcement of the biomechanical resistance of the prepared dental structures

Pascal Magne and Urs Belser cited by Lasserre [1] demonstrated the mechanical resistance of the bonded ceramic veneers. In addition, they believe that from a biomechanical point of view, bonding the ceramic veneers improves the Consider reframing 'coronary resistance'.

Reeh and Ross cited by Magne [2] have shown that the dental crown can recover 100% of its rigidity when feldspar ceramic (modulus of elasticity of around 70 GPa) is used to replace enamel.

Biocompatibility of ceramic and dental enamel

The ceramic veneer and dental enamel are both white and translucent, they react to light in a similar way which gives a natural look to restorations.

Periodontal biocompatibility of bonded ceramic

In 1987 Savitt., *et al*. cited by Touati [4] demonstrated, in an *in vivo* study, that glass ceramic retains seven times less bacterial plaque than dental enamel. In addition, they have demonstrated that these restorations are biocompatible by inducing remarkable gingival healing.

Magne., *et al.* confirmed an excellent response from the periodontium after bonding ceramic.

Color stability

Peumans Marleen [5] in 2004 estimated that porcelain veneers maintained their aesthetic appearance after a period of 10 years in the mouth.

Non-mutilating tooth preparation

These are the most conservative prosthetic restorations, especially when it comes to film preparations This saving of tissues is beneficial, it ensures both good bonding on the enamel and the possibility of re-intervening over time [6].

Veneers also help maintain the vitality of teeth despite their decay [7]:

- The very conservative preparation of the morphology;
- Lack of metal Metal core
- The presence of a Bonded restoration providing optical continuity [8-11] promotes aesthetics.

Friedman [12] reported that ceramic veneers not only restore aesthetics, but also function reliably. They are used to solve certain occlusal problems and restore correct anterior guidance.

Psychological impact on patients

A scientific study concerning the psychological repercussions of treatments with ceramic veneers for aesthetic reasons has demonstrated a positive effect on the self-esteem of the patients examined (Davis., *et al.* 1998).

Disadvantages of bonded ceramic veneers

- The preparations for veneers require great rigor and a lot of training. The finer the preparations, the more they require special instrumentation.
- At the bonding stage, the slightest error can lead to immediate or delayed failure.
- The Veneers are very fragile and delicate to handle. There is a risk of a facet fracture during the bonding session and once bonded, it can no longer be repaired.
- It is also difficult to obtain a correct shade when the tooth is severely discolored, and the shade cannot be changed once the veneer is bonded.

Clinical Case

Figure 2: Initial situation.

This is a 24 year old patient who presented to our service following an aesthetic discomfort.

Clinical examination revealed that this is Dean's Class V dental fluorosis: Moderate fluorosis.

Code	Criteria	Email description
0	Tooth	Smooth glossy appearance, creamy white color, clear and translucent surface.
1	Suspicion	Some white spots or white spots.
2	Very light fluorosis	Small opaque spots (like pieces of white paper stuck to the tooth), covering up to 25% of the surface of the tooth
3	Medium fluorosis	White opaque areas covering up to 50% of the tooth surface.
4	Moderate fluorosis	The entire surface of the teeth is affected, with marked wear of the contact surfaces. Sometimes brown spots are present.
5	Fluorosis serious	The entire surface of all the teeth is affected; with discreet bites. Presence of brown spots

Table 1: DEAN'S classification.

Figure 3: Very light fluorosis.

Figure 4: Medium fluorosis.

Figure 5: Moderate fluorosis.

Figure 6: Fluorosis serious.

According to Tirlet's therapeutic gradient, which classifies the therapies from the least mutilating to the most mutilating, the practitioner suggested to patient to start with a clarification associated with a microabrasion, then if the result is not satisfactory, we move on to next therapeutic namely the ceramic veneers.

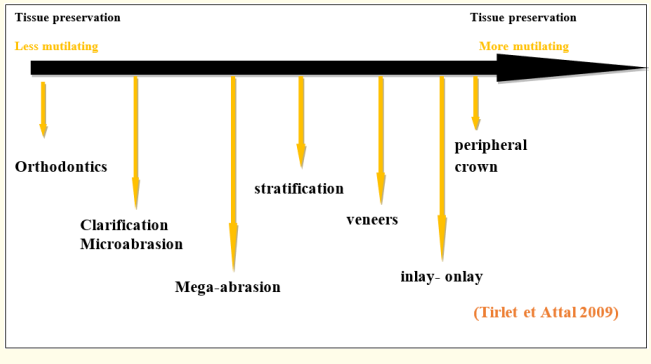

Figure 7: The therapeutic gradient.

Thanks to the media, the well-informed patient had decided to opt for the second therapy: bonded ceramic veneers.

Once the indication was given, we started with a pre-prosthetic treatment: motivation for hygiene, scaling.

We opted for the progressive penetration technique and therefore the prosthetic preparation was started with the utilization of a high viscosity silicone key which must cover at least one tooth on each side of the tooth concerned by the preparation. All the teeth are vital and therefore the preparation will be done under water jet to Avoid any thermal damage to the pulp.

We start dental preparation by making horizontal deepening grooves using a calibrated ball bur (Figure 8) whose diameter is 1.8 mm. As soon as the mandrel of the cutter comes into contact with the dental surface we stop, which will give a groove of 0.4 mm deep (Figure 9) (the diameter of the mandrel being 1mm). Each tooth present on the vestibular side three planes: a cervical plane, a median plane and an incisal plane; a groove is made on each plane in the same way (Figure 9).

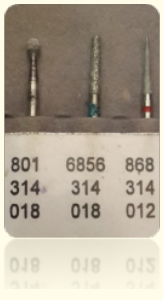

Figure 8

Figure 9

The dental preparation is continued by removing the persistent enamel bridges using chamfer bur with a diameter of 1.8 mm (green ring) (Figure 8).

The dental bur used have a working end, its use at the cervical level will lead to a draft of the preparation limit which will be at the start at a distance from the gingival ring; We note that with the removal of the enamel bridges there is no longer any trace of fluorosis (Figure 10). Therefore, a supra-gingival margin was used for all its advantages: respect for gingival health, easy cement removal.

Figure 10: Removal of persistent email bridges.

Figure 11: Preparation completed
"Vestibular view" "Palatal view".

The provisionals are made by laminating the composite by free-hand while remaining at a distance from the gum to avoid any gingival inflammation which could compromise bonding (Figure 12 and 13).

Figure 12: Provisional provisioning.

Figure 13: Final result.

After trying the veneers and once they were deemed satisfactory, bonding was ensured by *Variolink®,* Ivoclar Vivadent, a composite dual, respecting the manufacturer's instructions and respecting the requirements for bonding.

The occlusion was checked during all mandibular excursions. Any retouched surface has been polished using cups.

Conclusion

Nowadays, ceramic veneers have reached a very high level of quality: the parameters of tissue economy, aesthetics and function are no longer antagonistic.

As a result, they have become an indispensable treatment modality in the field of dentistry. Ceramic veneers should be our first option when establishing a treatment plan for indirect restoration in the aesthetic area.

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