

Case Report

Masking the Metal Color of Cast Post-and-Core Restorations by Metal Ceramic Caps: A Clinical Report

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Abstract

Background: This clinical report describes the treatment of a patient in need of esthetic reconstruction involving all-ceramic restorations of the front maxillary teeth.

Methods: The patient had old metal ceramic crowns with porcelain labial margin on the central incisors. The teeth were previously built by cast metal post-and-core restorations and had very little preserved tooth structures. Metal ceramic caps were fabricated in the dental laboratory to mask the metal color under the all-ceramic crowns, because of the risk for the patient to lose the teeth if we had to grind the old reconstructions.

Results: The clinical case was finished with all-ceramic restorations.

Conclusions: The final esthetic result was satisfying for the patient.

INTRODUCTION

Metal ceramic reconstructions are utilized in large numbers all over the world. The reason is that they are esthetic, functional and financially feasible. However, the metal framework under the ceramic incrustation prevents transition and reflection of light [1]. Optical reactions in all-ceramic and all-composite restorations are similar to the patient's own teeth [2]. A part of the light penetrates and passes through the natural teeth and another part changes its direction [3,4]. This part is repeatedly refracted and reflected by the enamel prisms, the dentin structures and the pulp. Light interference in the metal-free reconstructions and the resin cement below allow the clinician and the dental technician to achieve optimum natural-looking esthetic result.

Ceramics and laboratory composites have two important physical properties – transparency and translucency [3]. Transparency is observed when almost all the falling light passes through the irradiated body. A standard of transparency is glass with 90 % of the light passing. Translucency means that almost 50 % of the falling light passes and the other half are reflected. Frosted glass is an example of translucency. These properties help light interference and creation of natural-looking restorations. Questions arise when the underlying structures are colored (tetracycline-stained; devitalized and colored teeth; teeth built by metal dowels or cast post-and-core restorations). The color of

the structures threatens the esthetics of the restoration. Attempts of removal of the dowels and post-and-core restorations lead to thinning of the dental structures and risk of fracture. The purpose of this clinical report is to present a clinical solution to masking the metal color of cast post-and-core restorations under all-ceramic crowns by means of metal ceramic caps.

CASE PRESENTATION

A 27-years old woman had esthetic problems with her smile. She had orthodontic distortions – missing left lateral incisor; cross bite in the region of the maxillary left canine; deep bite; II class (Angle). She had old metal ceramic crowns on the maxillary central incisors with porcelain labial margin, but the esthetics was not satisfying, because of the short clinical crowns of the teeth. The patient was referred to orthodontist. After 1, 5 – years period the patient was referred to an oral surgeon for operative elongation of clinical crowns of the central incisors.

Laboratory provisional crowns were fabricated to form the marginal gingiva. The maxillary central incisors were previously reconstructed with cast metal post-and-core restorations (Figure 1). This made difficult the prosthetic restoration of the teeth with all-ceramic crowns, because the color of the structures threatened the esthetics. The tooth structures were too weak and there was risk for the patient to lose the teeth if we had to grind the old reconstructions. Metal ceramic caps were fabricated in the



Figure 1 Old metal post-and-core restorations.

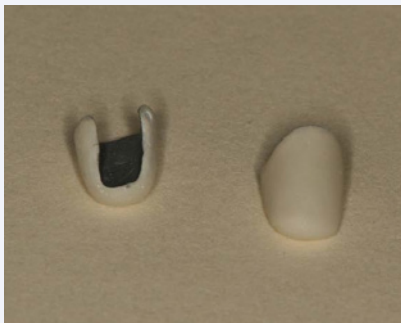


Figure 2 Metal ceramic caps.



Figure 3 The cemented restorations.



Figure 4 Final result.

dental laboratory to mask the metal color (Figure 2). The metal framework was masked by opaque porcelain. These restorations were cemented by dual-cure self-adhesive resin cement (Breeze, Pentron Clinical) (Figure 3).

The clinical case was completed by all-ceramic restorations (HeraCeram Press, HeraeusKulzer). Two all-ceramic crowns were fabricated on the central incisors; the canine was turned to a lateral incisor by ceramic laminate veneer and the first premolar was turned to a canine by an all-ceramic crown. The restorations were cemented with Variolink II (IvoclarVivadent). The patient was satisfied with the final result (Figure 4).

DISCUSSION

This report presents a clinical solution to masking the metal color of old cast metal post-and-core restorations with metal ceramic caps that allow fabrication of all-ceramic restorations with good esthetic results. The patient's quality of life was improved.

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