Collarless Metal Ceramic Fixed Partial Denture: 
A Clinical Report

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INTRODUCTION

Collarless metal ceramic restorations combine the excellent esthetic quality of porcelain with the high strength of metal. The conventional metal ceramic restoration presents a metal collar on the buccal surface that provides good fitting and gingival contour. However, the presence of this metal collar may be esthetically unacceptable and the patient may be disappointed (1). Because of the disadvantages of a metal collar, the use of collarless metal ceramic restorations has become more popular (2-8).

The advantages of collarless metal ceramic restorations is the esthetic quality and the excellent biocompatibility of the glazed porcelain (9,10), as well as the fact that the fabrication of this type of restoration does not require special equipment and can be executed by a larger number of professionals. The disadvantages of collarless metal ceramic restorations are related to the difficulty of fabrication because of the sensitivity of the technique (7,11) that requires skill and meticulous care on the part of the operator, with the risk of producing restorations with poorer marginal adaptation compared to the metal restorations.

Several methods for the fabrication of collarless metal ceramic restorations have been described in the literature: platinum foil (3,12,13), refractory die (14,15), and direct lift-off (2,4,5,16-20). Because of its relative simplicity, direct lift-off is the method most frequently used by professionals. With this method it is not necessary to adapt the platinum foil to the die stone or to use the refractory die because the porcelain is applied directly to the die stone.

The objective of this article was to present a clinical case of a collarless metal ceramic fixed bridge.

CASE REPORT

RM, a 26-year old woman, was seen at the clinic of the School of Dentistry of Ribeirão Preto, University of São Paulo, complaining about functional and esthetic discomfort in the anterosuperior region of the oral cavity. She had a direct adhesive prosthesis with broken connectors and poor esthetic quality (Figure 1). Occlusal, radiographic and clinical examinations were performed and the decision was made to remove the pontic and to make a collarless metal ceramic fixed partial denture. Figures 2 to 6 illustrate the major phases of the treatment.

The direct lift-off method to fabricate the buccal
ceramic butt was used. After fitting of the soldered metal structure (Figure 4), it was treated and opacified as any metal ceramic crown, and the opacified metal structure was then readapted to the die stone.

To fabricate the buccal ceramic butt, a sealer (Die-Sealer, Ceramco, Burlington, NJ, USA) and a lubricant (Die-Release, Ceramco) were applied to the die stone. The shoulder ceramic was subsequently applied on the buccal surface of the opacified metal structure, and brushed in direction to the die stone. After condensation and drying, it was carefully removed and fired at a temperature between 10 to 20 degrees lower than the firing temperature of the opaque. Correction of marginal fitting using the same shoulder ceramic was then done.

After the second firing of the shoulder ceramic, the restoration was completely fabricated using body and incisal ceramic. The firing of the body and incisal ceramic can be 10 to 20 degrees lower than the firing temperature of the shoulder ceramic. The buccal portion of the finished fixed partial denture was corrected at the glazing phase using low temperature ceramic to improve the fit of the ceramic butt margin.

DISCUSSION

Collarless metal ceramic combines the esthetic appearance of porcelain with the strength of metal. The use of a porcelain margin on the buccal surface mainly presents an esthetic advantage because the absence of a metal collar allows better distribution of color in this region. Another advantage is that the lack of metal
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allows the finished margin of the preparation to be located at the gingival level or slightly supragingivally without loss of esthetic quality (1,6) (Figure 6). The porcelain margin butt is biocompatible. Bacterial plaque accumulation is very low on this material and its extremely smooth surface is very well accepted by the gingival tissues (9,10).

The main disadvantage of the use of a collarless metal ceramic restoration is the sensitivity of the manufacturing technique (7,11). However, when manufactured by skilled laboratory technicians, these restorations present a clinically acceptable performance as shown in Figure 6 and as reported in other studies (6,7,11).

RESUMO


O objetivo deste trabalho foi relatar um caso clínico de uma prótese parcial fixa metalocerâmica sem colar metálico. Os preparos foram realizados a um nível levemente supragengival, um procedimento que é favorável aos tecidos gengivais. A ausência do colar metálico na face vestibular dos pilares oferece uma excelente aparência estética. O uso de uma prótese parcial fixa metalocerâmica sem colar metálico é um método viável para restaurar a dentição onde a qualidade estética for de fundamental importância.

Unitermos: metalocerâmica sem colar metálico, cerâmica para ombro, estética, prótese parcial fixa.

REFERENCES


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