Jurnal Medical Aradean (Arad Medical Journal)
Vol. XIV, issue 3-4, 2011, pp.99-101

CAST CROWNS WITH CONTROLLED THICKNESS

Authors: ADELINA BERARI, VALERIA COVRIG, TEODORA EVA LUPULESCU, C. PAŞCA, P. FREIMAN, C. MANCAŞ, C. LEUCUŢA, C.CIOBAN

Department of Dental Medicine, Faculty of Medicine, Pharmacy and Dentistry, Vasile Goldis Western University of Arad

Key words: crown with controlled thickness, dental abutment, packing mass.

Introduction

In this paper we sought to illustrate the stages of making a cast crown with controlled thickness through various methods.

The axial walls of the crown, of equal sizes, are situated at a distance from the dental abutment; the close contact with the abutment takes place on the critical surfaces represented by the occlusal and cervical face at 2 mm from the margin of the preparation. The space between the axial faces and the abutment will be occupied by cement. This space should not be too large, as the crown would then be wide and difficult to position correctly on the abutment during cementing. Likewise, the adhesive properties of cement are minimal in the case of a thick layer; under the action of occlusal forces, a large amount of cement will be crushed, and implicitly the work is compromised.

These inaccuracies would lead to decementing or fracturing of the prosthetic piece.

The crown with controlled thickness is used because it has a number of clinical and technical advantages, as follows: thermal changes in the oral cavity are only partially transmitted to the dental abutment, as the cement layer is a thermal insulator; the crown is removed from the abutment with a reduced effort due to the low thickness of metal, which has a less traumatizing effect for the patient.

Materials and methods

Gypsum is a ubiquitous material in dental practice, dominating the part of materials used in making models, and so is wax, which is used to make mockups of future prosthetic pieces.

The packing mass, another habitual material used to make molds, is a mixture of substances that can be plastically processed, and after stiffening it transforms into a rigid mass, resistant to high temperatures.

Other indispensable materials used to make prostheses for the dento-maxillary apparatus are non-noble alloys.

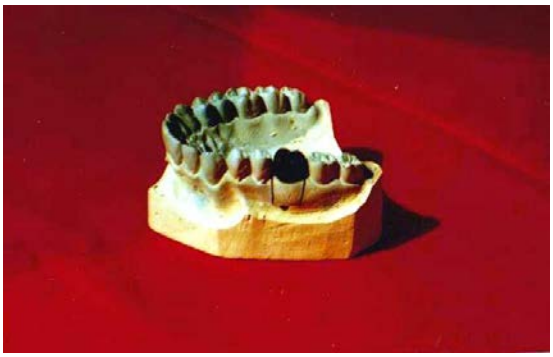
Results and discussions

This method is costly, as we must have sets of prefabricated caps available, and time-consuming, as caps must be well-adapted to the abutment.

In the duplicate model method, the disadvantage is that there is an extra phase, the duplicate model being used in the case where crowns are used as aggregation elements for an extensive bridge with several abutments.

A rectangular band is cut from the wax foil, which is wrapped around the abutment, with the extremities glued together, forming a cylinder.

The characteristic shape of the four faces is obtained by modeling ring walls; the occlusal extremity of the ring is gathered together.



Wax mockup

Packing

Duplicate model

Crown before finishing and polishing

After making the duplicate model, the mockup of the crown is modeled and finished on the abutment of this model.

Final crown.

After smoothing out the crown in all critical areas, traces of abrasive stone can be removed with a soft toothbrush and cleaning solutions.

Conclusions

In the duplicate model method, the disadvantage consists of an extra phase; using the duplicate model is justified if crowns are to be used as aggregation elements for an extensive bridge with several abutments. It is very difficult to accomplish this kind of work if adaptation on the abutment is very tight. It is impossible to lift the mockup from the model without distortions.

The method of making a mockup with ring and lid has only a historical value, as relative adaptation results in error; in this work we used the removable abutment model, so as the cervical areas and contact areas might be modeled correctly.

To conclude, the illustration of stages in making a crown using different technique is welcome anytime, to help understand the advantages and disadvantages of each method and technology.

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