

Coloring the Teeth for Duplicate Denture Using a Sectional Mold Technique

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Key words

Sectional mold technique, duplicate denture.

Abstract

This study describes a method of coloring the teeth to give natural appearance by using interchangeable flasks for duplicate denture by using a sectional mold technique.

Introduction

Duplication of an existing complete denture can be helpful in many circumstances that offer's a considerable advantages to both patient and clinician to saving time and in achieving a satisfactory treatment. Several techniques for duplication have been discussed in the literature, using a variety of techniques have been developed and various materials are available for denture duplication⁽¹⁻¹¹⁾. In construction of duplicate complete denture using a sectional mold technique as being referred to our previous article published (in the journal of prosthetic dentistry, volume 85, number 1 January 2001 issue page 12-14). That tooth colored heal-activated acrylic resin (only one dentine color) had been used⁽¹²⁾. It is preferable to give vitality to these artificial teeth to resemble a natural dentition, thus an artificial teeth with grading colors including the incisal, dentine and cervical colors will show grading to give natural tooth appearance. In this technique one lower part of flask that fitted on two upper parts of the same flask (interchangeable upper part).

Procedure

In this work the same technique that had been used in our previous article was followed concerning the construction of duplicate denture using a sectional mold

technique, from the point(1-13) where the arch wax was prepared.

1-Make a final impression with a thin layer of zinc oxide eugenol (Cavex, Haarlem, Holland) in the original denture in centric occlusion to increase retention and reduce possible changes in vertical dimension of occlusion in the duplicate denture.*This article presented to the 34th Annual Conference of the European Prosthodontic Association, September 23-25 2010, Prishtina. Perform muscle trimming, and remove excess impression material extraorally from the borders.

2-Create a master cast by pouring the impression with stone (New Plastone, GC Dental Industrial Corp, Tokyo, Japan). Apply a thin layer of petroleum jelly to the outer surface of the denture. Remove any excess jelly with a clean piece of cotton

3-Flask the master cast and original denture in the lower half of a Broden flask (Svensaka, Sweden) by using dental stone as the investing material.

4- Use a brush to paint the outer surface of the denture with the stone mixture. Use the remaining stone to invest the denture until only the tips of the teeth remain.

5-Apply cold mold seal separating medium (Quayle Dental, Sussex, England) on the stone surface, and pour a third layer of stone (the cap stone) to complete the flasking.

6-Complete the deflasking after immersing the flask in warm water at 70°C for 15

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minutes for easier removal of the denture from the cast. Softening of the impression material may prevent fracture of the cast. If fracture does occur and the fracture line is clean, it can be easily fixed with the appropriate adhesive material.

7-Remove the cover of the upper half of the flask, loosen the lateral screw, and remove the stone with the denture from the upper half of the flask .

8- Separate the cap stone layer from the second layer by using a plaster knife.

9-Make 3 cuts with a minisaw in the heels and at the midline on the second layer of stone .

10-With a plaster knife, separate the second layer from the denture. Clean the denture, and return it to the patient.

11-Gently reassemble the 4 stone pieces to their original positions in the upper half of the flask. To get the exact position of the parts, position the upper half with the lower half of the flask under the press, and then tighten the lateral screw.

12-Separate the flask, and immerse the upper half in warm water for 5 minutes. Melt hard modeling waxes (Hard type, GC Dental Industrial Corp) in a container, and then pour the molten wax into the teeth mold.

13- After gradual cooling, immerse the upper half of the flask in cold water (25°C) for 15 minutes. Remove the cover of the upper half of the flask, and loosen the lateral screw of the flask, Remove the stone and wax from the flask gently. With a plaster knife, separate the cap stone layer from the second layer. Then separate the parts of the second layer to get the arch wax of the teeth intact .

14 - Separate the arch wax with a sharp blade for four segments, two segments for the anterior teeth and two segments for the posterior teeth.

15-Flask the four segments in the usual manner in the lower half of flask using dental stone investing material; the facial surfaces of the teeth should be towards the top.

16-After the stone has been set, paint cold mold seal separating medium on the stone surface, and put the first upper half of the flask, and do another mix of stone to complete flasking procedure.

17-When the stone has been set separate the two halves without immersing the flask in boiling water .

18-With a sharp blade cut a part of the wax in the incisal and cervical region from the facial surface. Paint cold mold seal separating medium on the stone surface and put the second upper half of flask and do another mix of stone to complete flasking procedure.

19-Complete wax illumination procedure; scrub the lower half and two upper halves with detergent solution to thoroughly remove wax residue. Flush them with clean boiling water and paint the mold with cold mold seal separating medium.

20-Mix a dentine shade of heat activated acrylic resin resemble the shade of the original denture teeth and when reaches the dough stage pack for the first trial closure, using the lower half and the second upper half of the flask. Put a cellophane paper between the two halves and close the flask using a bench press for twenty minutes to let the acrylic to reach the rubber stage.

21-Separate the two halves of the flask, cut the excess flashes of acrylic, put another mix of incisal and cervical shades of heat activated acrylic resin when reaches the dough stage, pack the second trial closure using the lower half and the first upper half of the flask, using a cellophane paper between the two halves, press the flask, separate the two halves and cut the access flashes, close the flask, press and cure the acrylic according to the manufacture instructions.

22-After curing separate the two halves of the flask, trim the access of acrylic especially from the gingival and interdental areas.

23-Place the four pieces of arch teeth in position on the cap stone with the other 3 pieces of the second layer ,and place the upper half of the flask on it.Press the lower half of the flask ,and tighten the lateral screw.Finally,separate the flask halves.

24-Apply cold mold seal separating medium on stone surface,and pack and cure pink heat-activated denture base material(Quayle Dental).

25-Finish and polish the duplicate denture.

Discussion

1-In this technique we overcome to the only body color of teeth for duplicate denture in

our previous article to give vitality to the teeth to have more acceptable esthetic shade.

2-Another point that using interchangeable upper halves of flask was used to have two molds of the teeth, a mold for the body shade size and the other mold for the complete crown size. This method was used to have enough time to form the dentine mold by carving the wax teeth to get a nice shadow grade from darkness to brightness.

3-The acrylic of the body color was left in the flask in the first trial closure to the rubber stage then opened to pack the cervical and incisal colors to decrease the possibility of

distortion of the shape of the dentine in the second trial closure.

Summary

This study describes a method of duplicating a complete denture using a sectional mold technique and tooth colored heat activated acrylic resin with a grading shades using interchangeable flask and pink heat activated acrylic resin in a dental stone mold .

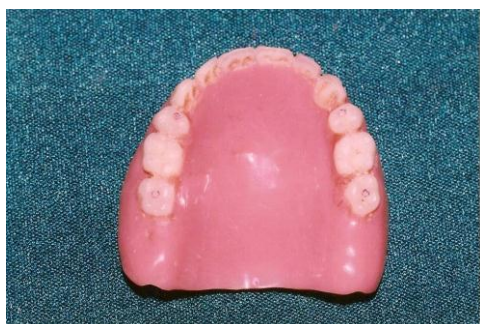


Fig.(1):-Original denture after cleaning.



Fig.(2):- Original denture with wash impression.



Fig.(3):- Cast the impression.



Fig.(4):- Flasking the lower half.



Fig.(5):- Painting stone on the denture.

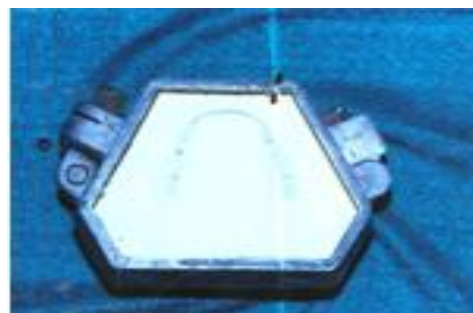


Fig.(6):- Flasking the second layer of stone.



Fig.(7):- Painting stone on the occlusal surfaces.



Fig.(8):- Deflasking.

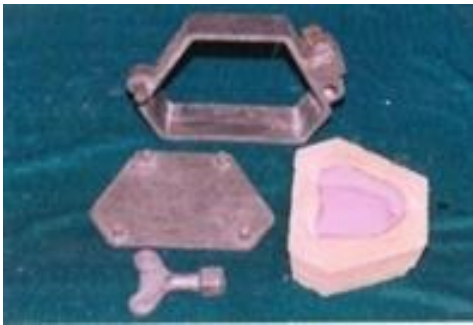


Fig.(9):- Denture with investing stone.separated from upper half of flask.

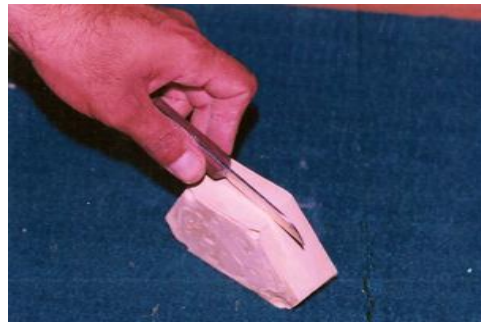


Fig.(10):- Cap stone layer separated from second layer.



Fig.(11):- Cap stone layer separated from second layer.



Fig.(12):- Cap stone layer separated from second layer with saw cuts.



Fig.(13):- parts of second layer with original denture after separation.



Fig.(14):- Stone parts of the upper half of flasking before forming the mold.



Fig.(15):- The palatal stone part on the cap stone layer.



Fig.(16):- stone pieces reassembled in the flask.



Fig.(17):- Molten wax poured into teeth mold



Fig.(18):- Arch wax separated from stone pieces of the upper half



Fig.(19):- Flasking the segments of arch wax 1.



Fig.(20):- Deflasking without heat.



Fig.(21):- Deflasking the 2nd half after reshaping wax.

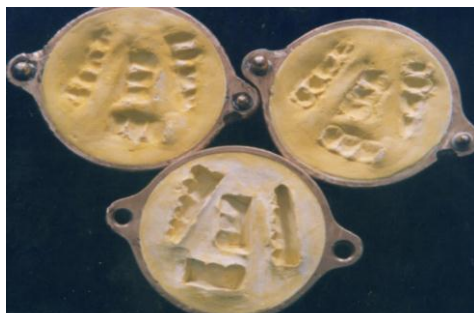


Fig.(22):- lower half and two upper interchangeable halves

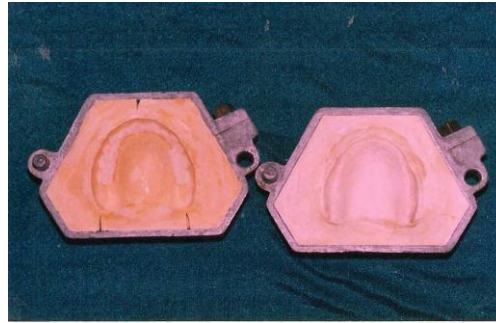


Fig.(23):- Acrylic arch teeth in its mold prior packing

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