The technique is illustrated through the example of a 50-year-old lady who came for treatment of upper left central incisor.

On examination, the dentition showed signs of attrition with anterior bite collapse such that the upper left central incisor was destroyed almost up to the cervical margin and was in contact with the lower incisor. Several previous attempts at restoring the tooth had failed and the patient invariably came back with a fractured restoration. (Figure 1)

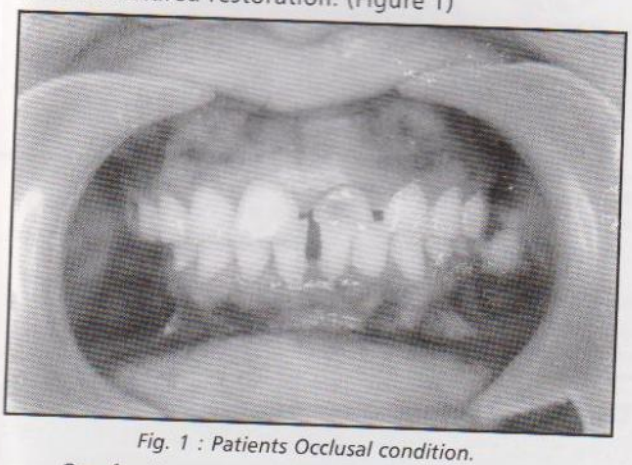

Fig. 1 : Patients Occlusal condition.

On further examination, the posterior teeth showed less than severe wear, relative to the anterior teeth.

On questioning it was revealed that the patient was in the habit of clenching her teeth, which was in accordance with the finding. She further revealed that she had some pain on either side in the joint region but was never very severe.

On palpation except for the masseter none of the other muscles were tender to palpation.

It was decided that it would be in the patient's interest to first give her a stabilization splint and encourage her to give up the clenching habit. Moreover since this was not her primary concern hence to instill confidence in her for the doctor it was preferential to give her an in-office splint, instead of calling her on a later date to deliver the splint.

The splint was constructed thus:

1. Accurate stone casts of both the arches were made.
2. Lucia jig was constructed using green stick and posterior occlusal registration was done using silicone putty. The Lucia jig was removed and with putty in place in the posterior region, anterior occlusal registration was accomplished using silicone putty.
3. Face bow transfer was done to mount the maxillary cast on semi-adjustable Hanau articulator.
4. Putty interocclusal records were used to relate the lower cast to the upper cast and mounted on the articulator.
5. The record was removed and the pin dropped to allow maximum intercuspation. The markings on the incisal pin was noted.
6. Lateral and protrusive records were taken with silicone putty to determine the horizontal condylar guidance and derive the Bennett shift.
7. After adjusting the articulator, the maxillary left central incisor was constructed in acrylic resin and balanced in centric and eccentric relations.
8. The pin was raised such that there was 2mm of space in between the upper and lower casts.
9. The splint was made in wax, such that it covered all the tooth structure in the anterior region since there was a collapse of bite in order to gain retention, still it was short of the gingiva. The thickness of the wax dictates the thickness of the bruxing device.
10. An anterior guidance lip was added on the labial surface of the maxillary 6 anterior teeth to aid in occlusion.
11. The wax was slightly warmed, and the articulator was closed into centric, such that the pin touched the incisal guide table. With the wax still warm, eccentric movements were performed in order to remove any eccentric interferences and to develop a canine guidance. The pin was in contact with the incisal guide table at all times.
12. Then the pin was raised further so that there was a space of 2mm between the waxed splint and the mandibular occlusal surfaces of the teeth.
13. Silicone putty was mixed, and molded over the waxed maxillary cast such that it extended beyond the waxed splint onto the soft tissue portion of the cast. While the putty was still moldable the articulator was closed once again so that the pin touched incisal guide table and held tightly in position.

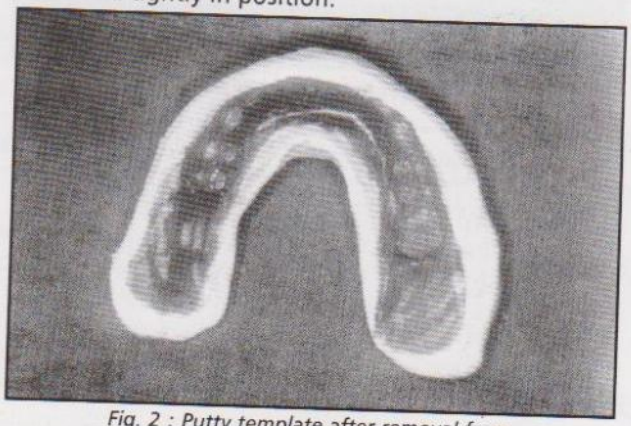

Fig. 2 : Putty template after removal from the articulator along with the waxed splint.

14. After putty had set, it was carefully removed from the upper cast along with the waxed splint (Figure 2). The wax splint was removed from the silicone putty tray and discarded.
15. The undercuts between the teeth were blocked with wax.
16. Clear acrylic resin was thoroughly mixed and poured into the putty tray and this was seated back onto the cast such that it seats back into place. (Figure 3).

Fig. 3 : Acrylic resin poured and putty template placed back on the articulator.

17. Again the articulator was closed such that the pin contacted the incisal guide table and this was held tightly in place till the acrylic resin set.

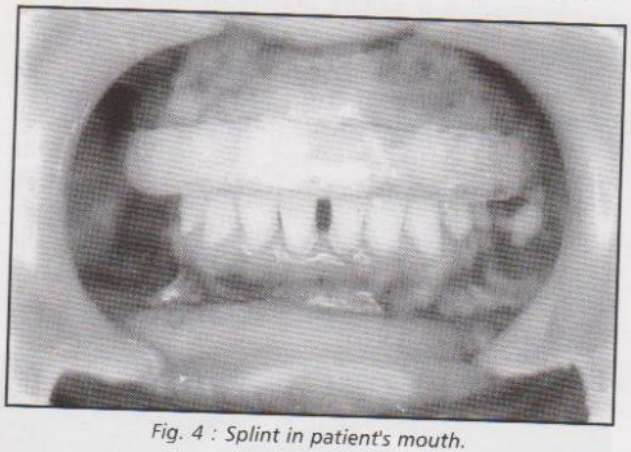

Fig. 4 : Splint in patient's mouth.

18. Once the acrylic resin had cured, the articulator was opened and the putty index removed, the splint was formed in acrylic resin and was a replica of the wax splint.
19. The splint was carefully removed and the excess was trimmed.
20. It was fitted back on the articulator and the incisal guide pin dropped back to the markings used when the wax splint was constructed in wax.
21. The splint was checked for interferences in centric and eccentric motions of the articulator.
22. It was finished and polished and tried in the patient's mouth. (Fig. 4).
23. Using this splint as the guide the maxillary left central incisor was restored such that it offered no interferences in centric or eccentric motion.

The patient was advised to wear the splint throughout the night and as much as possible during the day.

The patient was called back for check up after a week.

CONCLUSION

A simplified method is described for the construction of an in-office splint and is a modification of a technique mentioned by David Austin.[3]

This modification has several advantages over the previously described techniques.

1. This method is less time consuming with no additional time required for allowing the plaster to set in the template or on the jig.
2. More neat as it does not involve making use of plaster.
3. Less cumbersome as it does not involve beading and boxing of the cast.

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Fixed Prosthodontic Impression Systems - An Overview

Vijaysinh More*, S. P. Dange, M.D.S.**

ABSTRACT

Over the past four decades, tremendous progress has been made in procedures for making fixed prosthodontic impressions. Extensive research and development frequently leads to the establishment of a preferred and more filtered method. The matrix system is a technique that complies the features of available procedures and materials into widely applicable impression systems. The matrix system uses a custom matrix to control the sulcular environment and to deliver impression material to the subgingival parts to be impressed. It describes four types of forces involved in gingival displacement during impression. This cordless retraction procedure overcomes important deficiencies in gingival relapse, hemostasis, sulcular cleansing and delivery of impression material subgingivally. This can be used for routine impressions and for some typical problems. This article discusses the various facets of this impression procedure.

INTRODUCTION

A tremendous progress has been made in procedures for making fixed prosthodontic impressions. Today they continue to involve a wide range of procedures and an even wider range of materials and there is little indication of consensus on one optimal method.

The purpose of this article is to review -

1) Features of available impression procedures by category and
2) Highlight on matrix impression system.

The Impression categories are as follows :

1) Copper tube and resin coping methods.[1]
2) Syringe - tray method.[2]
3) Putty wash method.[2]
4) Matrix impression system.[3]

The procedures are studied in relation to[3]

a) Subgingival margins.
b) Retraction, hemostasis and sulcular cleansing.
c) Direct delivery of impression material into sulcus.
d) Optimal flange.
e) Simplicity of the method.

Successful subgingival impressions depend on effective management of the sulcular environment in two key aspects : forces that come to bear on gingiva and contaminants that may be presented or generated in the sulcus. Four forces that must be controlled when making subgingival impressions are :

a) Retraction force : Created by mechanical or chemomechanical procedures to retract gingiva away from the tooth.
b) Displacement Forces : Forces generated by the impression procedure directing the gingival tissue away from the prepared tooth.
c) Collapsing Forces : Generated by impression procedure when the tray impression material contacts the unsupported gingiva & collapses the tissue against teeth.
d) Relapsing Forces : These are inherent in gingival tissue, causing it to return to its original position against the teeth.

IMPRESSION METHODS :

*** Copper Tube and Resin Coping Method[1] :**

The original method is seldom used & is periodically modified and reintroduced.

The group includes :

1) Original copper tube and modelling compound method.
2) Variety of copper tube and elastomer combination.[2]
3) Resin copings and elastomer.[4]
4) Polycarbonate crowns and elastomers.[5]
5) Resin (Interim restoration type) crown or fixed partial denture with elastomer.

All procedures have 3 things in common -

1) Use of rigid carrier.
2) Registration of finish line initially achieved in the carrier.
3) Unlike other procedures, a reinforced sulcular flange is generated and consists of modelling compound or other impression material and an extension of copper tube or resin.

Features :

1) Procedure is "retractionless".
2) Bleeding has little impact on results.
3) Mechanical displacement of the gingival tissue and forced extrusion of compound results in a clean and complete impression of individual teeth.
4) Resin copings can be adapted more easily.

As Read in 30th IPS, Patna

Key Words : Impression methods, Matrix, Elastomers.

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Problem Areas :

1) Sulcular flange would appear stronger but poor adhesion, delamination and tearing often jeopardizes the registration of finish line.
2) Undercuts within preparation and beyond finish line result in distortion of compound. Elastomers can be substituted.
3) Task of adapting and trimming coping tubes is cumbersome.
4) Rigid copings dictate a common path of insertion & withdrawal.
5) Fracturing of dies may occur at time of separation of the impression from the working cast.
6) Considerable effort is needed to ensure registration of finish lines in initial steps.

This system is an effective means of delivering impression material to the sulcus. It provides a definite direction for impression material to flow. Also provides a moderate force to place the impression material into the sulcus while continuously displacing the gingival tissue.

*** SYRINGE / TRAY PROCEDURE[2] :**

This category replaced the tube / coping procedures for many clinicians when elastomers were introduced in fixed prosthodontics. This is a category of impression procedures with the following common features - 1) Retraction to displace the gingival tissue, 2) hemostasis to reduce bleeding into the sulcus, 3) delivery of impression material directly into the sulcus with syringe dispenser and 4) registration of the prepared teeth and other structures with full arch impressions.

It is also called multiple mix technique.[6]

Features :

1) Chemically impregnated cord is frequently used. Its placement and removal may cause bleeding.
2) Syringe is intended to enable the precise placement of the impression material into the sulcus.
3) Syringing is co-ordinated with gentle removal of retraction cord to minimize the possibility of bleeding into the sulcus.
4) The sulcular flange is unsupported impression material and its integrity relies entirely on the configuration and strength of the syringed material.
5) Retraction, hemostasis and syringing becomes significantly more difficult as the number of prepared teeth increases.
6) Inconsistency results in frequent source of frustation.
7) Air, blood and other fluids could create voids in significant portions of the impression.
8) Prolonged displacement of the gingival tissues cannot be assured.
9) Contact of syringe tip can initiate bleeding.
10) Working & setting time of the impression materials may complicate matters.

*** PUTTY / WASH OR IMPRESSION / RELINE METHOD[3] :**

Similar to syringe / tray procedure, the methods rely on closely adapted trays, relieved primary impression or heavier bodies tray material to drive the wash / reline material into sulcus. Syringe phase is eliminated. Developed for condensation silicones and later used for addition silicones as well.[6]

Features :

1) Sulcular flange is similar to the syringed flange without the benefit of precise placement of sulcular material.
2) No mechanism is provided to remove air or fluids from the base of the sulcus.
3) Material is placed gently in sulcus, hence less gingival bleeding.
4) Theory supporting these procedures is more subject to question and success is more random than predictable.
5) It generates unfavourable collapsing forces on the gingival tissue that affects tissue displacement.
6) It provides less control in delivery of sulcular material.
7) Controversy occurs in the concept, the same factors that are expected to drive the impression material into sulcus have an impact on the gingival tissue collapsing the tissue against the prepared teeth. Heavier the material and closer the tray, greater the collapsing forces on the gingival tissue.
8) It is used because of its simplicity as it is less time consuming.
9) Hydrodynamic Impression Method (Lococo, 1986).

He attempted to improve the delivery of material into the sulcus by creating channels in relieved preliminary impression. However, this method did not gain popularity.

*** MATRIX IMPRESSION METHOD[3] :**

This system requires a series of three procedures, using three types and / or viscosities of impression materials. A matrix of occlusal registration elastomeric material is made over the tooth preparation. (Fig. 1)

The Matrix is trimmed to prescribed dimensions. (Fig. 2) and after the retraction cord is removed, a definitive impression is made in the matrix of the preparations with a high viscosity elastomeric impression material. (Fig. 3) The matrix impression(s) is seated, a stock tray filled with a medium viscosity elastomeric material is seated over the matrix and remaining teeth to create an impression of the entire arch. (Fig. 4)

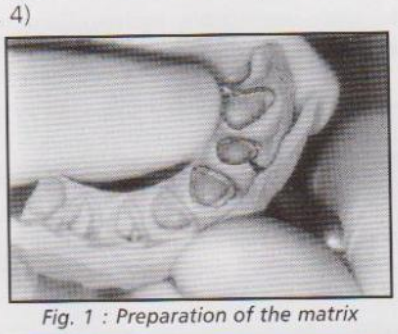

Fig. 1 : Preparation of the matrix

Fig. 2 : Matrix assessed on prepared teeth

Fig. 3 : Impression with high viscosity elastomer

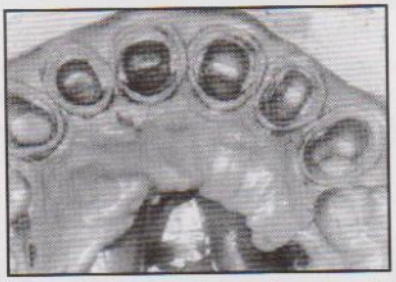

Fig. 4 : Final impression picked in medium viscosity elastomer

1) It effectively controls the four forces that impact on the gingiva when attempting to register the sub-gingival margins.
2) The high viscosity impression material gently cleanses the debris and fills the sulcus.
3) It gently extends the sulcus and does not permit it to collapse.
4) Matrix facilitates the formation of optimum flange.
5) Tearing is virtually eliminated.
6) It permits the use of impression materials with shorter working time.
7) Impression material is dispensed into sulcus with greater precision and consistency, gentle but controlled force and simultaneously into all sulcular parts.
8) It attempts to overcome the deficiencies of the older systems and at the same time incorporate their best features.

CONCLUSION

This article discusses four main categories of impression methods alongwith their features, advantages and disadvantages. Although matrix impression system appears to fulfill most of the criterias required of a successful subgingival impression, long term studies are needed to prove its credibility. Developments in the impression materials e.g. quadrafunctional addition silicones and methods in controlling the dentogingival environment will definitely assist the clinician in making more predictable impressions in the long run.

The use of precisely designed matrix can provide a better control over the unpredictable dentogingival environment when making impressions.

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Aesthetic Management of Gingival Recession - A Flexible Gingival Mask

CHANDANA NAIR*, S. P. DANGE, M.D.S.**

ABSTRACT

Gingival recession is a common sequelae to periodontal disease, trauma or surgery. This loss of gingival coverage poses an unesthetic appearance. Mucogingival surgical techniques have evolved to the point where predictable root coverage can be obtained. But however, there is currently no predictable surgical method for correction of these esthetic defects.

INTRODUCTION

One of the most frequently encountered problems in our day to day practice is gingival recession. The loss of interdental gingival papillae leaves unsightly black triangles between the teeth affecting the patient both psychologically and esthetically. This creates a dilemma in patient management. A dentist's first impulse is to attempt a surgical correction of these defects. But surgery may be contraindicated in deficient areas with very thin or dense scar tissue, compromised blood supply or compromised medical status of the patient. This article describes the use of flexible gingival prosthesis to treat these defects.

Gingival recession[1] is defined as the exposure of the root surface by an apical shift in the position of the gingiva.

FLEXIBLE GINGIVAL PROSTHESIS MADE OF SILICONES - A FLEXIBLE GINGIVAL MASK :

Indications :

a. Correction of unesthetic appearance.
b. Interim measure to improve esthetics of anterior crowns after periodontal surgery.

Contraindications :

a. Poor plaque control.
b. Unstable periodontal health.
c. High caries activity.
d. Heavy smoking (due to likelihood of surface staining).
e. Known allergy to silicones.

Key words : Gingival Recession, Gingivamoll, Lacquer.

This paper was read at the 30th IPS, Patna.

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Fabrication :

1. Preliminary impression[2] of the upper arch is made with irreversible hydrocolloid impression material and a labial custom tray is fabricated (Fig. 1).

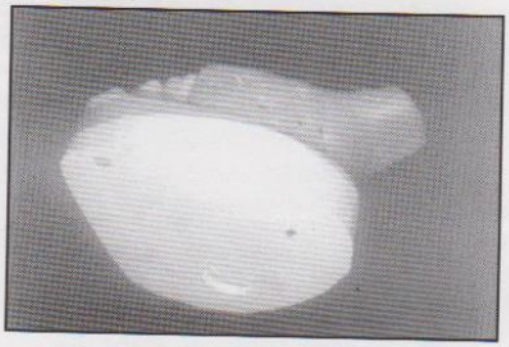

Fig. 1 : Labial custom tray fabrication.

2. To prevent the impression material from flowing out of the palatal aspect, a silicone putty is molded on the palatal aspect of the teeth.
3. Impression is taken using elastomeric impression material. (Fig. 2).

Fig. 2 : Maxillary impression.

4. Wax up of the mask is done. It should appear exactly as it is in the patient's mouth. (Fig. 3).

Fig. 3 : Wax up of the mask.

6. The cast is flasked and dewaxing done. Apply seperating medium.
7. Place gingivamoll opaque in the interdental spaces and on the tooth neck, with a piece of polyethylene foil press it in place. (Fig. 4).

Fig. 4 : Packing of cervical and interdental areas.

8. Gingivamoll pink is then placed and place a piece of polyethylene foil. Close the flask (Fig. 5).

Fig. 5 : Packing of the silicone mask.

9. Apply pressure to the flask for 10 min. The flask is placed in a dry heat oven and heated to 150°C for 2 hrs. and maintained for 30 min.
10. On completion of curing, the mask is removed from the flask and trimmed using scalpel and scissors.
11. The mask is finally colour shaded with pigments and a protective lacquer is applied. It is dried in an oven for 10 min. at 115°C.
12. The mask is tried in the mouth and if necessary trimmed to remove excess material. The patient is shown how to insert and remove the mask (Fig. 6, 7).

Fig. 6 : Pre operative photo with increased corwn length.

Fig. 7 : Post operative photo with reduced crown length.

Maintenance :

- Patients are called for recall visits to check plaque control and cleanliness.
- Smoking and frequent drinking of tea are discouraged.
- Mask should be cleaned in a mild detergent solution once every day and by gentle brushing on each side of the mask.

Advantages :

1. Can be tinted to achieve optimum esthetics.
2. Does not readily tear.
3. Comfortable for the patient to wear.
4. Stable during eating and speaking.

Disadvantages :

- Reconstruction in 1 year required.

Conclusion :

Surgical correction of periodontal defects prior to prosthetic reconstruction is a valuable therapy when indicated. Dramatic esthetic results are seen with this flexible mask enabling many patients to smile again with confidence.

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Extra-Orbital Prosthesis

JITENDRA JETHWANI, M.D.S.*

ABSTRACT

The agony over the loss of an eye and the resulting facial defect has a crippling effect on the psychology of the patient. An artificial prosthesis is probably the only alternative in such cases to help rehabilitate such patients. An extra-orbital prosthesis is undoubtedly a challenge to any maxillo facial prosthodontist because you are attempting to replace a moving organ with a static prosthesis.

Presented here is the case report of an extra due to orbital prosthesis replacing an eye lost retinoblastoma.

INTRODUCTION :

The agony over the loss of an eye and vision cannot be described in words. In addition, the resulting facial defect has a crippling effect on the psychology of the individual. Such facial defects may be secondary to malignant disease or trauma or may be congenital. With all the advancements in reconstructive plastic surgery, it is still not possible to create a perfect esthetic illusion of normal. Also, in some cases, age and the medical condition of the patient may contradicate any major reconstructive surgery, leaving a huge void in the complete rehabilitation of the patient. An artificial prosthesis is probably the only alternative in such cases to help fill this void.

Presented below is the case report of an extra orbital prosthesis that went a long way in helping a young girl overcome the mental trauma of the loss of an eye.

REVIEW OF LITERATURE :

Early records indicate that artificial eyes, ears and noses were found on Egyptian Mummies. Chinese physicians aided by sculptors and painters also made facial reconstruction with waxes and resins.[1]

Ambroise Pare (1510-1590) was one of the pioneers to use glass and porcelain eyes.[2]

Kingsley (1880) described artificial appliances for the restoration of congenital and acquired defects of the palate, nose and orbit.[3]

By 1835, artificial glass eyes were produced on a large scale in Germany but diminished supply during the World War II initiated research on plastic eyes as a suitable substitute.[4]

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At the end of the 19th century, Maxillofacial prostheses were made in vulcanite, the surface of which was painted in an effort to match the skin colouring.[5]

Today, almost all patients with facial and/or oral defects are referred to the Maxillofacial prosthodontist as they possess the knowledge, artistic skills, materials and techniques for the prosthetic repair of such defects.

CASE REPORT

A 14 year old girl reported to the Prosthodontic Clinic with the left eye lost due to surgery for retinoblastoma (Figure 1). Surgery created orbital defects often do not allow total reproduction of opposing natural tissue. This sometimes means that the margin of a prosthesis may have to be extended in order to allow the prosthesis "to flow" into the natural tissue. Large orbital defects of this nature may also involve areas of unsupported mobile tissue. To counter these problems, it was decided in this case to extend the prosthesis margin to rest on static tissue, ensure a perfect color match with skin and use of spectacles to support the prosthesis in place.

Fig. 1 : Post Surgical defect

MATERIALS AND METHOD :

The materials used were :

1) Alginate
2) Dental Stone
3) Eye shell
4) Modelling wax
5) Functional / fluid wax
6) Colouring agents (Cosmedica)
7) Oil based paints, stains and tints

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METHOD :

A complete history was elicited and a thorough examination of the patient was done especially of the area of the defect to ascertain the extent of the defect and the post-operative healing. The procedure and its limitations were explained to the patient and the patient's motivation was determined.

1) A wax frame was fabricated defining the area of the face to be included in the impression.
2) Separating medium (vaseline) was applied to the eyebrows and one inch plastic tubes were positioned in the nostrils to facilitate respiration during the impression procedure.
3) Alginate was mixed in a fluid consistency in a large quantity and poured into the patient's face in an even thickness in two layers. Wisps of cotton were embedded into the unset alginate surface.
4) Over this, a layer of plaster of paris was poured to provide a stable base for the impression.
5) A stone cast was poured of the impression to get a model of the patient's face.
6) A "donor" was chosen whose facial structure closely matched that of the patient, preferably a sibling.
7) An impression of the area to be restored was made of the donor's face as described above.
8) The impression was filled with modelling wax and this wax template was fitted into the patient's model.
9) The margins were trimmed and the wax template contoured as necessary.
10) An appropriate eye-shell was selected and necessary adjustments made.
11) The dimensions of the normal eye were measured, the position of the eyelids were marked on the wax model and vertical and horizontal axes were established.
12) The eye shell was positioned in the prosthesis and further carving and adjustments were done in the wax.
13) Colour matching was done to match the skin colour.
14) The eye shell was removed from the wax model and the prosthesis was acrylised.
15) The prosthesis was trimmed and polished and tried on the patient for further adjustments.
16) The eyeshell was fitted to the prosthesis and its positioning and central axis rechecked on the patients face.
17) The eyeshell was fixed to the prosthesis with selfcured acrylic.
18) A spectacle frame of a large size was selected and positioned on the prosthesis so that the margin of the prosthesis were concealed by the frame. It was then fixed in this position with self cured acrylic. (Figure 2). The prosthesis was then delivered to the patient. (Figure 3).

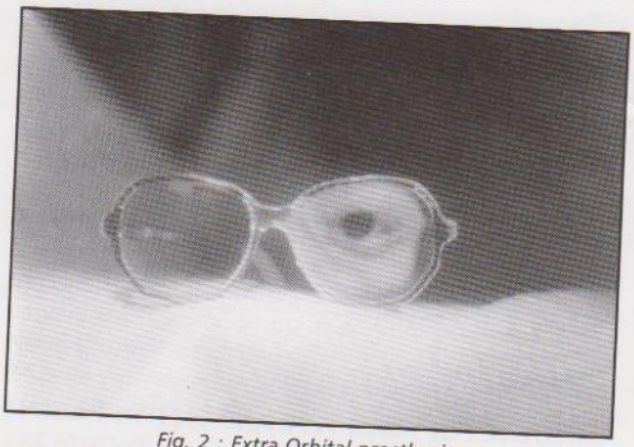

Fig. 2 : Extra Orbital prosthesis

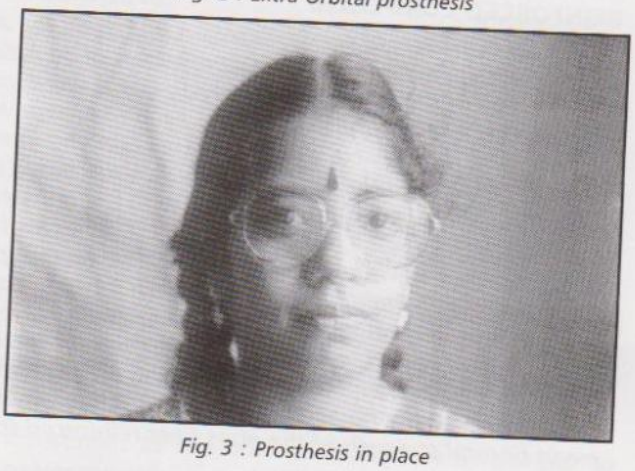

Fig. 3 : Prosthesis in place

DISCUSSION

Without a doubt, the extra orbital prosthesis is the most difficult to construct. This is because you are attempting to replace moving eyes with a static prosthesis. No matter how realistic the appearance of the prosthesis, it will soon become evident due to the constant movement of the existing eye and surrounding tissue. Hence, it is imperative to allow the margins of the prosthesis "to flow" with the natural tissue and match the skin color perfectly. Cosmedica stains used in this prosthesis proved to be very effective in obtaining a good color match. The large spectacle frame used helped to conceal the margins of the prosthesis further enhancing the cosmetic effect - a simple but effective technique.

There have been a lot of advances in the materials used for maxillo facial prosthetics today. In place of acrylic commonly used; the majority of the prosthesis today are made of silicone - which are soft,

comfortable and allow a good colour match to be achieved.

CONCLUSION

In the above case, the improvement in esthetics contributed immensely to the physical and the mental well being of the patient. The maxillofacial prosthodontist today is part of a team in rehabilitating patients with Maxillofacial defects alongwith the Surgeon, Radiotherapist and Psychiatrist. This multidisciplinary approach and the newer materials and techniques will result in added benefits to the patient.

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Abstract

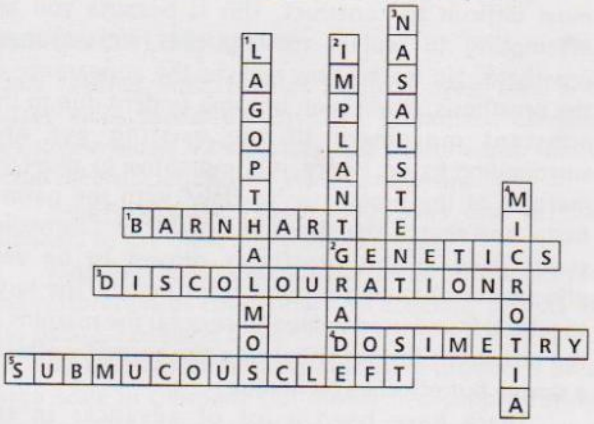
INFLUENCE OF FIBER TYPE AND WETTING AGENT ON THE FLEXURAL PROPERTIES OF AN INDIRECT FIBER REINFORCED COMPOSITE

Different fiber types are available. In this study the authors examined the influence of storage time and 2 fiber wetting agents on the flexural properties of an indirect dental composite reinforced by 3 fiber type.

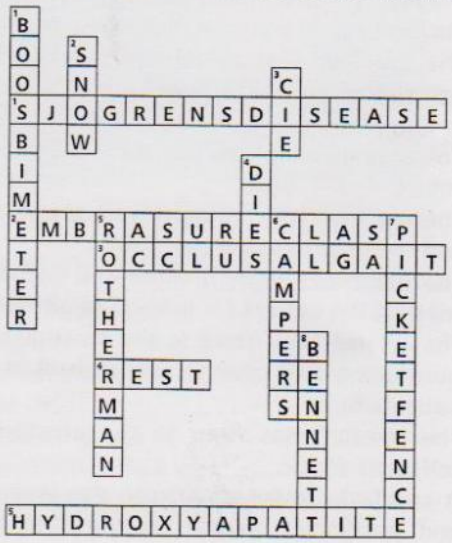
3 types of fiber (Poly thene, Kevlar, Glass) were used to reinforce samples of an indirect composite (Artglass) prepared to test flexural proportion. Each fiber type was used to prepare 3 groups of 10 specimens after fiber wetting with an unfilled or a filled resin bonding agent. All fibers were weighed to an accuracy of 0.01 mg to standardize the amount of fiber placed in the base (tensile side) of the specimen preparation mold (2 x 2 x 25 mm). Fiber reinforced samples wetted with the unfilled resin were stored for 24 hrs before flexural testing, where as separate groups of fiber reinforced. Samples wetted with filled resin were tested after both 24 hrs and 6 months storage in water at 37°C. Two additional groups of unreinforced composite control specimens (10 samples per group) were prepared, one for each of the 2 storage times, resulting in 11 groups total. Mean flexural strength and flexural modulus values were determined in a 3 point bend test at a cross head speed of 1 mm/min by use of a universal testing machine significant increases (124 - 490% in mean flexural strength ($P<0.01$) were found for all fiber reinforced groups. The silane containing unfilled bonding agent gave the greatest reinforcing effect when used with glass fiber (364%). After 6 months storage in water, a significant decline (28%) occurred in mean flexural strength of the glass fiber reinforced composite.

- Ayman E. Elakwa
Adrian C. Shortall.

ANSWER : PROSTHODONTIC WORD POWER - 3



ANSWER : PROSTHODONTIC WORD POWER - 4



aboratory Section : Waxes in Fixed Partial Denture

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ne of the important steps in preparation of complete cast restoration is the fabrication of an rate wax pattern. Dental inlay casting wax is used in the mouth by the direct technique or at room . On a die in the indirect technique.

Inlay casting wax composed of paraffin wax erally the main ingredient), carnauba wax, bee ceresin wax, candellila wax. The American Dental ciation Specification No. 4 for the dental inlay ing wax classify, these materials into Type-I edium), Type-II (Soft). Type-I is a direct technique and Type-II is an indirect technique wax. 3 Types waxes are available for making pattern cervical, usal and body wax. Occlusal wax is soft.

PERTIES

Thermal

Thermal conductivity of waxes is low, and time is ired both to heat them uniformly through out to cool them to body or room temperature. Inlay expands and contracts thermally more per degree perature change than any other material. The rage linear coefficient of thermal expansion of the is 350 x 10^{-6} per degree centigrade. This property less significant when the wax is used in indirect nique. According to ADA specification a minimum 0.6 percent linear change in dimension when they heated from 25 to 37°C, is permitted for Type-I es.

Flow

The American Dental Association Specification 4 provides certain requirements for the flow perties of inlay waxes at specific temperatures. The imal flow permitted for Type-I waxes at 37°C is 1 rcent. The low flow at this temperature permits ving and removal of the pattern from the prepared ity at oral temperature without distortion. Type-I d Type-II waxes must have a minimal flow of 70 rcent at 45°C and a maximum flow of 90 percent.

WAXING INSTRUMENT

Waxing instruments can be categorized by intent of their design; 1) wax addition, carving, or burnishing of PKT instruments, No. 1, No. 2 are wax addition, No. 3 is a burnisher for refining occlusal anatomy and NO. 4, No. 5 are carver. No. 7 spatula is useful in adding large amount of wax. Electrical waxing instruments are preferred as they allow precise temperature controll of wax. No. ½ and No. 3 Hollenback and No. 2 ward carvers are popular. Another popular burnisher is DPT No. 6 (Darby-Perry trimmer).

* Single Pot - dip wax, electrical wax, foule tripple pot.

TECHNIQUE

There are two methods of fabricating wax pattern, a) Dip Wax, b) Wax added.

There are two wax added technique :

a) first one is developed by E. V. Payne. Here one cusp is developed before starting the next cusp.

b) second one is invented by P. K. Thomas. All cusp cones are placed initially followed by marginal ridges and cusp ridges. Axial ridges are added next. Thickness of pattern is measured by wax gauge. It's tip are rounded.

There is distortion of wax pattern due to setting expansion of environment. It is observed that the wax patterns offered more resistance to the expansion of investment at the occlusal level than at margin. To overcome this distortion, Lorey, Asgor and Peyton (1962) described the dual wax technique which uses waxes with different strength properties for the occlusal and cervical portion of the wax pattern. If a wax pattern is made entirely with hard wax, the occlusal portion offered more resistance to the forces of expansion than this cervical portion. As a result casting is either too tight at the occlusal or open at the cervical margin. Use of a soft wax at the occlusal two thirds of the pattern resulted in less resistance to forces of expansion and minimum distortion.

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Clinical Tip

Locating the correct anterior position for the anterior repositioning splint

The anterior repositioning splint is an interocclusal appliance that encourages the mandible to assume a more anterior position to centric occlusion. This position is an attempt to provide more favourable condyle disc relationship in the fossa so that normal function can be established.

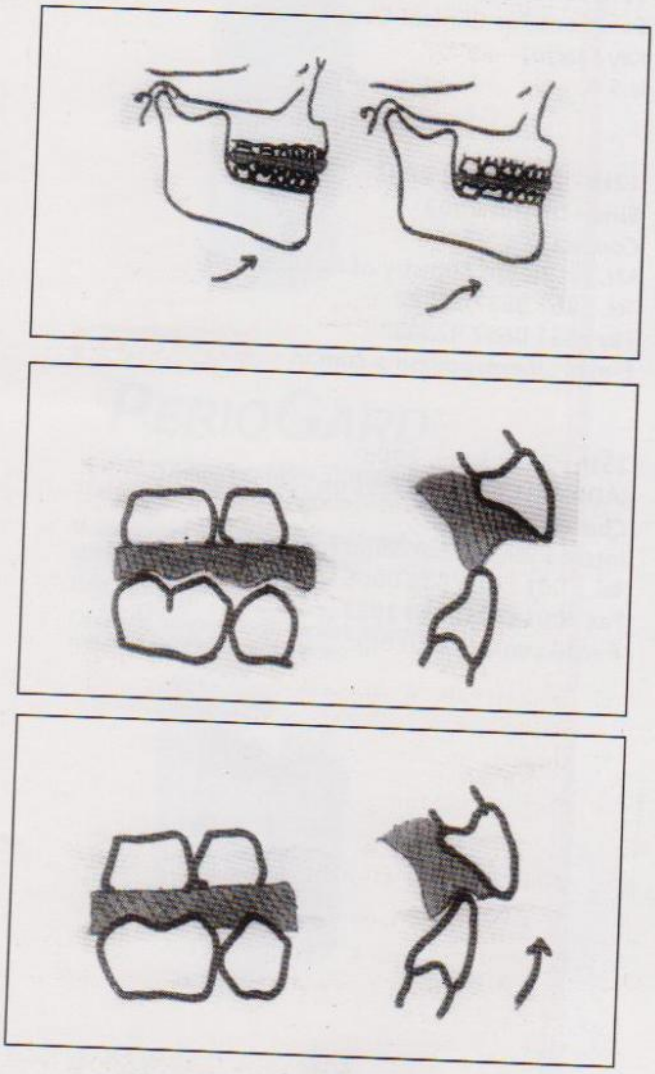
The goal of anterior repositioning splint is to eliminate the signs and symptoms associated with disc interference disorders.

Locating the correct anterior position :

The key to a successful anterior repositioning splint is finding the position that is most suitable for eliminating the patients symptoms.

The anterior stop is used to locate this position. As with the centric relation splint, the patient reportedly contacts a mandibular incisor with the anterior stop. The surface of the stop is so adjusted that it is primarily a flat surface perpendicular to the long axis of the contacting mandibular incisors. When the incisors occlude with the stop, the posterior teeth are extremly close but not in contact with posterior portion of the splint. Once this has been accomplished, the patient closer on the anterior stop. The joint symptoms are then evaluated. If the joint clicking has not been eliminated, the patient is instructed to protrude slightly and to open and close in that position. The joint is reevaluated for symptoms. As soon as the anterior position is located that eliminates the clicking during opening and closing, it is marked with red marking paper as the patient taps on the anterior stop. The position used should be shortest anterior distance from CO position that eliminated the symptoms. Once this has been marked, the splint is removed and the area of contact is grooved approximately 1mm deep with small round bur. The splint is returned to the mouth and the patient locates the groove and taps into it. Once the proper location for incisors has been found, the patient opens and closes, returning to this position, while the joint symptoms are evaluated. There should be no joint sounds during opening and closing. Joint pain during clenching should also be reduced or eliminated.

When joint symptoms have been eliminated, verified by the anterior stop, the splint is removed from the mouth and self cure resin is added to all occluding areas of the splint except the anterior stop. This will form retrusive guiding ramp. During the initial stages of setting, the patient asked to occasionally move the mandible slightly anteriorly & posteriorly within the groove approximately 0.5mm. When the resin becomes firm and just before heat is produced, the splint is removed and allowed to bench cure.



ANTERIOR REPOSITIONING SPLINT