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Gingival Prostheses - A Review

Abstract

Gingival replacement is often a component of comprehensive prosthodontics. Gingival prosthesis may be fixed or removable and may be made from acrylics, composite resins, silicon or porcelain based materials. Undercuts or dental attachments are used to secure removable prosthesis, which are esthetically pleasing and easy to maintain. This paper describes the condition where gingival prosthesis is needed and how it will provide esthetic demand placed on it.

Introduction

Gingival replacement prosthesis have historically been used to replace lost tissue when other

methods (e.g., surgery regenerative procedures) were considered unpredictable or impossible:

- With these methods, large tissue volumes are easily replaced
- Gingival prosthesis takes several forms, and various authors have described their uses and methods of construction.

Problem encountered with tissue loss

1. Esthetically unpleasant.
2. Phonetics.
3. Expectoration during speech.
4. Psychological interference to the patient.

Indications

- Lost tissue through surgical gingival prosthesis.
- Ridge resorption or traumatic tooth extraction.
- Surgical removal of congenital or acquired anomalies such as cyst or neoplasm.

- Traumatic tissue loss.
- Excessive gingival recession in anterior teeth (esthetic demand).
- Midline diastema.
- This are the condition where surgical periodontal therapy like ridge augmentation or regenerative therapy is not possible due to one or other reason then lost tissue replacement through prosthesis is considered.
- Surgical procedure contra-indicated due to medical illness of the patient or surgery refused by the patient are the candidate for such prosthesis.

Materials

1. Pink selfcured acrylic.
2. Heat cured acrylic.
3. Pink porcelain.
4. Composite resin and thermoplastic acrylic.
- Silicon based soft materials.

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Various design according to condition

Diastema due to surgery

After periodontal surgical procedure there is loss of papilla occur which creates spaces in between teeth. This is specially anony in anterior region because it looks esthetically very unpleasant. Bonding procedure with dental restorative gives less than ideal result in such cases. In this type of situation removable prosthesis should be planned.

Procedure

1. Intro-oral try in of wax up should be done with blue utility wax should be placed into the diastema between central incisor to evaluate effect of obturation of space. This wax up then can be duplicated to form removable prosthesis.
2. Polyether impression should be made and shade matching should be performed with patient's tissue. Impression should then pour multiple times in type IV die stone.
3. With wax up as guide prosthesis can be constructed for the either materials described above. For esthetic demand moloplast B (silicon based material) is more satisfactory material of choice due to its color (Figs. 1-5).

Result shows that the patient has been wearing prosthesis with great success from the prospective of phonetic, expectoration and comfort.

This type of prosthesis has limitation. Retention may be difficult, and because of inherent

porosity of the silicon based material, staining and plaque accumulation may be problem. Another concern is the possibility of inhalation or ingestion of the prosthesis during function. This type of prosthesis therefore requires regular maintenance and occasional revision.

Recession and loss of papilla due to periodontal surgery

Periodontal surgery improves patient's periodontal condition but it will leave significant loss of papilla. The patient found the resulting tooth sensitivity extremely uncomfortable even sometime they take breathing. Esthetic appearances are often very unhappy and look like elongated teeth. In such cases removable prosthesis should be considered (Figs. 6 and 7).

Procedure

A buccal approach master impression should be used which capture interproximal detail without tearing the impression upon removal from the mouth. The lingual embrasure should be blocked out with utility wax, and custom tray should be used to support polyether impression material. The impression should be poured in type IV die stone, and gingival prosthesis should be waxed and processed in heat cured acrylic resin. Retention can be achieved with minor interproximal undercuts as well as undercuts on the distal surface of the cuspid. The prosthesis could be maintained extremely thin so that flexibility of prosthesis enhance to engage this undercut this type of prosthesis often referred to "party gums".

Extraction of the teeth

After extraction of the anterior teeth immediate interim prosthesis can be placed for the healing period. Significant postextraction resorption can occur which leave defect under the interim pontics. The space can be filled with pink auto cured acrylic resin for the patient who refuse or at risk for the surgery (Figs. 8 and 9).

Because of multiunit fixed prosthesis should be fabricated for neighboring teeth, prosthetic treatment planning includes use of prefabricated dental attachment to support and retain prosthetic flange. This flange can be needed to replace the missing papilla and also help to support lip (Figs. 10 and 11).

A Gausson attachment can be incorporated into the pontic region of prosthesis this attachment consist of curved slot (accessed from buccal aspect) containing spring loaded ball. A curved metal wafer processed into heat cured acrylic flange. The terminal and of the wafer consist of dimple to engage the internal ball and provide retention.

The esthetic result is excellent with this type of removable soft tissue component and can be used during mastication as well as other daily activity (Figs. 12 and 13).

After period of long time this type of prosthesis needs replacement as resorption continues so regular follow up should be maintained.

Space deficiency

In cases where space is not sufficient (i.e., mandibular two incisor) for two implants, single implant placed in middle of the

available space and two crown placed on the single middle implant is the possible. In such case gingival papilla can be made with pink porcelain. Pink porcelain is material of choice because of its esthetic quality and maintain continuity of material within the prosthesis (Fig. 14).

Trauma

In case of trauma, there is severe loss of bone associated with teeth loss in this type situation, prosthetic reconstruction includes placing implant and then restoring with fixed prosthesis that consist of gingival component. Gingival component should be characterized to match the neighboring tissue (Figs. 15 and 16).

Discussion

Gingival defects may be treated with surgical or prosthetic approach. With successful surgical treatment, the result mimics the original tissue contour. Such treatment include minor procedure to rebuilt papilla and grafting procedure that may involve not only soft tissue manipulation but also bone augmentation to support the soft tissue. It is possible to create esthetically pleasing and anatomically correct tissue contour, when small volume of tissue are reconstructed, but this method is unpredictable when large volume of tissue is missing. The surgical cost, healing time, discomfort and unpredictability make this choice unpopular.

Prosthetic replacement with acrylic, composite resin, porcelain

and silicon, is a more predictable approach to replacing lost tissue architecture. It is especially useful when larger amount of tissue needs replacement. Ideal tissue contour can be waxed, process and then colored to match the surrounding tissue. The patient need not undergo any additional surgical procedure and receive an esthetically pleasing, functional restoration. It is possible to show the patient a waxed up result or even take a try in prosthesis directly to the mouth for evaluation before significant treatment is initiated.

A fixed prosthesis gives patient significant comfort and peace of mind, as well as self confidence (because prosthesis is always present) however its application may be limited to certain clinical situation where oral hygiene is manageable, desire esthetic result is achievable or esthetic are not critical and fixed prosthesis is already planned for the immediate area. With removable prosthesis, larger volume of tissue can be replaced, but proper cleaning is still feasible it is easier to create an ideal contour with removable prosthodontic material and missing tissue can be replaced without disturbing the other dental units. If fixed tooth replacement is planned, a combined approach, with both fixed and removable elements, may be undertaken with dental attachment being used to increase support and retention.

A clear understanding of the clinical requirement is essential before soft tissue replacement

with either fixed or removable prosthesis the final result can be esthetically pleasing and usually solves the clinical deficit.

Summary and conclusion

This paper includes various methods of using different pink material to create gingival prosthesis. Dental esthetic is based, not only on the "white component" of the restoration but also on the "pink component". A clear understanding of the color and form is essential for fabrication of the prosthesis and its acceptance by the patient. Understanding method used to incorporate gingival prosthesis into prosthodontic treatment is vital to insuring that patients are offered all possible option at the outset of treatment planning.

Suggested readings

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