Esthetics in Removable Partial Denture - A Review

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INTRODUCTION

Denture esthetics as defined by Glossary of prosthodontics terms is the effect produced by the prosthesis that affects the beauty and attractiveness of the person. When planning treatment for partially edentulous patients, both masticatory function and esthetics should be taken into consideration. An esthetic prosthesis will improve patient motivation and acceptance. It is very unrealistic to assume that because acceptable masticatory capability has been achieved, patients will tolerate a poor appearance of the prosthesis.¹

Recently, Implants have gained the attention over removable prosthesis as a treatment option in partially edentulous conditions too. However sometimes financial, anatomic, psychological, or medical considerations of the patients still require the dentist to treat them with removable prosthesis.

This article focuses on the esthetic considerations during various phases of removable partial denture planning and fabrication that should be kept in mind by the clinician and can aid him/her in achieving an excellent esthetic outcome as far as the patient’s realistic expectations are concerned.

ABSTRACT

Removable partial denture is a repulsive modality of treatment that we still must rely upon for certain cases and is a part of the practice. But these patients expect it to look as esthetic as any other contemporary modality of treatment. This article thus focuses on the esthetic aspects that a clinician must place emphasis upon during the designing and fabrication of prosthesis to provide the desirable outcome.

KEY WORDS

Clasps, connectors, designing of RPD, esthetics, flanges

Citation

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compromised because most clasp arms, denture borders and other components will show when the patient smiles or speaks.

Various factors including the attitude of patient, his perception of esthetics and the status he/she holds in the society must be kept in mind while planning a removable prosthesis. Quite often, a patient who is dissatisfied with the esthetic appeal of his prosthesis complains of inability to wear it although it is functionally good. A good esthetic result thus can motivate the patient to wear his new denture.

The patient’s cosmetic index also can provide valuable information and thus should be evaluated to know patient’s expectations towards the final results.

Surveying

It is essential to determine a path of insertion or dislodgment that is well consistent with the esthetic requirements. The dental surveyor is the fundamental instrument of RPD design and treatment planning and hence its use will optimize the desired esthetics of the final prosthesis. Surveying permits the location of clasp arms and arrangement of prosthetic artificial teeth to derive maximum esthetics.

Esthetic consideration does not ordinarily justify the alteration of the path of insertion at the expense of other fundamental factors. But, whenever given a choice between two paths of insertion with all other factors remaining unaffected, the path of insertion that enhances the esthetic outcome should be given a preference. In cases of anterior tooth replacement, esthetics must be given a primary consideration, even at the expense of altering the path of placement and making all other factors conform.

To obtain optimum esthetics-firstly the metallic components must be concealed as much as possible by ensuring that the retentive clasp arm is placed in the gingival third of a clinical crown. And secondly, the artificial anterior teeth should be placed in the most natural position possible. Often large undercuts are present, adjacent to teeth bordering the anterior edentulous span. They can be eliminated or decreased in size by altering the tilt of the cast or by selective grinding of the proximal surfaces.

Mouth Preparation

After surveying of the diagnostic cast and formulating appropriate treatment plan, the next important step is mouth preparation.

Alignments of the proximal tooth surfaces in anterior edentulous spaces often lack parallelism, are bell shaped, tipped, or rotated and may be marked for recontour with the dental surveyor. The height of contour of proximal tooth surface, that are to be used as the guiding planes may be lowered to permit the rigid portions of the clasp to be placed closer to the gingival margin of the tooth, resulting in a clasp design that is considerably less visible.

Surgical reduction of the frenum attached close to the ridge should be carried out to control the depth of notches in the denture flange to improve fit and esthetics of the prosthesis. So the clinician should wisely plan out all mouth preparations needed before heading for the further procedure.

Designing of RPD

Designing for an RPD should be such that all its components are as inconspicuous as possible to further enhance esthetics. Extra-coronal direct retainers are not pleasing for patients concerned about esthetics. Clasps are the only components which are placed on visible surfaces of the teeth. Following are the esthetic alternatives to conventional clasps to eliminate visible display of metal and improve esthetics.

Equipoise system: It is an esthetic retentive concept for distal extension situations. Rests are placed away from edentulous span. Vertical interproximal reduction of 1mm between abutment and adjacent tooth is carried out. It is a lingual back action clasp that is fully reciprocated and extremely esthetic with no facial clasp display (Fig 2)

Spring clasp/ twin clasp: It consists of a wire clasp soldered into a channel that is cast in the major connector. As this clasp is flexible, it does not generate as much torque when the distal extension denture base is under occlusal load. The ability to adjust this clasp and its conventional path of insertion provides an excellent design option for retention to an adjacent edentulous segment (Fig 3)

Saddle lock clasp: Also called as Hidden clasp. It uses the more pronounced mesial/ distal concave surfaces of the

Figure 1. Making the Undercut Favourable for Retention.

Figure 2. Equipoise clasp design.
abutment adjacent to the denture saddle. Clasp terminals are positioned at each end of the denture saddle, effectively locking the segment onto the ridge.7 (Fig 4)

Round-rest distal depression clasp: A round-rest, distal depression clasp is suggested as an esthetic alternative to a conventional clasp for maxillary anterior teeth serving as abutments for a removable partial denture. A lingual round rest provides support for the prosthesis, and a mesiolingual reciprocating plate is present. A split minor connector engages a distal depression for retention. The facial surface of the abutment displays no metal and provides an esthetic result.8 (Fig5)

Metal free clasps: The metal free materials available currently eg. Acetyl resin, flexible thermoplastic materials are ideal for flexibility and esthetics, thus allowing esthetic functional care in true sense. These may be combined with metal framework to provide esthetics. Masking of clasps with resins/composites by macro/micromechanical retention is another way of improving esthetics. (Fig 6)

Rests

Use of inconspicuous rests further improves the esthetics of the removable partial denture. The clinician should try to restore the anatomy of the tooth as it existed before the rest seat preparation and minute anatomical observations should be inculcated in the framework design. The cingulum or lingual rest provides the best combination of function and esthetics. They are more acceptable than incisal rests because they can be hidden from view, create less leverage on the abutment teeth by loading at a more apical level and are less bothersome to the tongue.9,10 In cases where incisal rests are to be used, the patient should be made very well aware of its esthetic impact. Occlusal rests on posterior teeth are quite inconspicuous and hence poses no major problem. Occlusal surface of a rest should be concave rather than convex so that its shape follows the normal occlusal contour of the abutment tooth.11 (Fig 7)

Major Connector

An appropriate major connector design also aids in esthetic RPD especially in the mandibular arch when there are abnormally large interproximal spaces present between the teeth. The lingual bar is a suitable major connector in the presence of diastemas, but only if the distance from free gingival margin to the floor of the mouth permits its use. In cases where the distance is insufficient, interrupted lingual plate major connector (with step back design) should be used in the presence of diastemas to avoid the display of metal. (Fig 8)

Minor Connector

Proper location and contour of minor connectors can contribute to the appearance of the removable partial
dentures: A clinical report.


REFERENCES


