FLEXIBLE DENTURE FOR PARTIALLY EDENTULOUS ARCHES - CASE REPORT

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ABSTRACT:
Conventional fixed partial dentures, implant supported Fixed Partial Dentures (FDPs) and removable partial dentures are the most common treatment modalities for the aesthetic and functional rehabilitation of partially edentulous patients. Hard and soft tissue undercuts are frequently encountered in the fabrication of prosthesis in partially as well as completely edentulous arches. Removable cast partial dentures are used as definitive removable protheses when indicated, but location of clasps may affect aesthetics. So, when patient is concerned about aesthetics, flexible partial dentures which is aesthetically superior to flipper and cast partial dentures, may be considered. This article describes as a valuable esthetic potential of flexible denture base material to prosthetic dentistry.

Key words: flexible denture base material, esthetics, Rpd, nylon

CASE REPORT

INTRODUCTION
Esthetics is a matter of great concern for patients receiving dental treatment, especially prosthetic treatment. Therefore, esthetic aspects must be considered to ensure patient satisfaction with dental treatment. Patients find the sight of the metal clasp of removable partial dentures (RPDs) in the esthetic area undesirable for both aesthetic and psychological reasons; this is one explanation for patients disliking the use of RPDs.¹ Polyamide material is rugged, not rigid, highly resilient in thin sections, with perfect “elastic memory”, abrasion-resistant, practically unbreakable, and highly esthetic with color fast tissue tones. Its use makes it possible to have positive retention without pressure: (1) in partial dentures where gentle but firm retention is obtain by the resilient fingers resting in recessed areas of supporting alveolar contours, effecting both an esthetic ideal and the safeguard of the remaining teeth from damaging stresses and caries; and (2) in full dentures, by the use of thin fingers of plastic denture base materials gentle stabilizers in the recessed contours over protuberances such as tuberosities, tori or bulging alveolae.²

CASE REPORT
A 55 year old female patient reported to the Department of Oro-Maxillofacial Prosthodontics, Crown & Bridge And Oral Implantology, Dasmesh Institute of Research and Dental Sciences, Faridkot, (Punjab), with a chief complaint of multiple missing teeth.

The patient presented with partially edentulous arch with bilaterally missing posterior teeth in maxilla (Kennedy class I, Modification I as shown in Fig 1a and bilaterally missing teeth in mandible as shown in fig 1b. Some of the remaining teeth had carious lesions, cervical abrasions and carious exposures. Carious and cervically abraded teeth were restored.

Figure 1a: Preoperative view of maxillary arch

Patient demanded for nonmetal clasp partial denture for both maxillary and mandibular missing teeth. Treatment plan was made to restore both arches with flexible denture base material as per patient demand.
PROCEDURE

- Upper lower diagnostic impressions were made with alginate and models were poured with dental stone.
- Cast was mounted on surveyor and was analyzed on the basis of present undercut.
- The diagnostic casts were articulated (semi adjustable articulator) using centric relation record and face bow transfer to evaluate inter arch space.
- Custom trays were fabricated for making dual arch impression for both arches as they were distal extension cases. Technique used for dual arch impression was pickup impression technique. Border molding of edentulous area was done by using green stick, secondary impression was made using zinc oxide eugenol paste and this secondary impression was picked up using alginate in stock tray as shown in figure 2a & 2b.
- Final casts were made with Type III dental stone
- Maxillomandibular relationships were recorded with check bite method
- Definitive casts were mounted on semi adjustable articulator.
- Shade selection was done and artificial acrylic resin teeth were arranged
- Partial dentures were tried in patient’s mouth and after approval by patient dentures were processed in injection system using Valplast denture base material as shown in figure 3.
- Partial dentures were finished, polished and inserted. Occlusion was evaluated and adjusted as shown in figure 4.
- Postoperative instructions on how to insert the prostheses and with instruction on adequate oral hygiene maintenance were given.

Figure 1b: Preoperative view of mandibular arch

Figure 2a: Final impression of maxillary arch

Figure 2b: Final impression of mandibular arch

Figure 3: Fabricated maxillary & mandibular flexible partial dentures

Figure 4: Intraoral view of inserted flexible partial dentures

Figure 5: Postoperative view of patient
DISCUSSION
Removable partial denture is commonly used for treating the patients who are not good candidates for conventional fixed partial dentures and implant supported prosthesis. These prostheses can be fabricated from metal alloy, acrylic resin and thermoplastic resins. The removable cast partial denture is a definitive prosthesis which has been in use in dental profession since decades for rehabilitation of partially edentulous patients. It consists of a metal base (made up of base metal alloys, commonly with cobalt-chromium alloy), with acrylic teeth attached to it. Metal retentive clasp holds the cast partial denture in place. The metallic appearances of the clasp may be restrictive,treating the patient who are very much concerned about the aesthetics. When maxillary posterior teeth are missing and only anterior teeth are present, placement of metallic clasps on canines may not be acceptable to few patients (Naylor et al., 1983). The second type of removable partial denture is all acrylic resin prosthesis, which is also known as temporary, interim removable partial denture or a "FLIPPER". It acts as a space maintainer and is usually used to restore the function during the treatment until the definitive prosthesis is fabricated. Flexible denture material is available in the form of granules in cartridges of varying sizes. It was first introduced by the name of valplast and flexiplast to dentistry in 1956. These are superpolyamides which belong to nylon family. Nylon is a resin derived from dicarboxylic acid, diamine, amino acid and lactams. Injection-molding technique is used for fabrication of flexible denture base prosthesis. The prosthesis fabricated from these materials requires minimum or no mouth preparation, it provides a good retention, it is comfortable for patient (thin and lightweight), it is resistant to fractures and is aesthetically good because translucent and pink shade matches that of natural tissues. Acrylic resin teeth do not bond chemically with flexible denture base resin. They are mechanically retained by making T shaped holes into which denture base resin flows to retain teeth mechanically.

The clasps of flexible removable partial dentures are extensions of denture base into undercut areas, which can be adjusted by dipping the clasp area in boiling water and then bending with the plier in or out to increase or decrease the retention. Flexible prosthesis is difficult to reline and rebase with soft tissue denture liners, acrylic resin and even with the other flexible denture base materials. It is difficult to repair and is prone to staining by various ingredients of food, tea and coffee if it is not polished properly and cleaned by the patient regularly. The patient should be instructed to practice good oral hygiene and clean prosthesis regularly after every meal, in order to maintain appearance and cleanliness of the prosthesis. The prosthesis should be removed during the brushing of the natural teeth, to avoid the scratching of the prosthesis (Naylor et al., 1983; Antonelli and Hottel, 2001 and Lowe, 2004).

BIBLIOGRAPHY

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