

## CASE REPORT

# A Novel Technique to restore Anterior Esthetics with Cast Partial Denture

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## ABSTRACT

**Purpose:** To overcome the dilemma of fabricating a cast partial denture in patient with missing maxillary anterior teeth.

**Materials and methods:** A round rest distal depression clasp is used as an esthetic alternative to a conventional clasp for maxillary anterior teeth serving as abutments for a removable partial denture.

**Keywords:** Maxillary anterior edentulous area, Round rest distal depression clasp, Esthetic cast partial denture.

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## INTRODUCTION

Driven by increased interest within dentistry and greater patient awareness, the desire of patients to improve their appearance has grown in importance. Fabricating inconspicuous restorations in the esthetic zone is challenging and the treatment options vary from fixed dental prosthesis (FDP), removable partial prosthesis and implants. The advances in implant dentistry today have enabled the dentists to provide the desired esthetics to the patient. However, financial, anatomic, psychological, or medical considerations may not allow the placement of implants in all cases. Fixed dental prosthesis also serves as a good option in these cases but long span edentulous areas or cases where abutment teeth are not suited to provide support for an FDP are best treated by a removable dental prosthesis.

Infrabulge clasps are the most esthetic of the conventional retentive clasps, offering dentists the best

opportunity for placing metal in less-conspicuous locations but may present unacceptable esthetics for patients with high lip lines or high smile lines.<sup>1</sup> Other esthetic alternatives are as follows:

- Extracoronal and intracoronal precision attachments<sup>2,3</sup>
- Rotational path designs<sup>4-6</sup>
- Tooth-colored polymer clasps
- Lingual retention and the elimination of the visible facial clasp arm<sup>7,8</sup>
- Fabrication of crowns with milled surfaces.<sup>9</sup>

This clinical report describes a method of eliminating the display of metal on the maxillary anterior abutment teeth by using a round-rest distal depression (RRDD) clasp.

If the edentulous residual ridge is distal to a maxillary incisor or canine, the RRDD clasp consists of a round rest seat located near the cingulum, a mesiolingual reciprocating plate, and a split minor connector engaging a distal depression for retention. If the edentulous ridge is mesial to a maxillary incisor or canine, this clasp design is no longer called an RRDD; it becomes a round-rest mesial depression (RRMD).<sup>10</sup>

## CASE REPORT

A female patient aged 57 years presented to the Department of Prosthodontics of AB Shetty Memorial Institute of Dental Sciences, Mangalore, with missing 14, 15, 22, 23, 24 and 25. 16 and 26 were restored with composite and amalgam respectively. She was not willing for implant-supported restorations and a fixed prosthesis was not the treatment of choice because of lack of sufficient abutment teeth. Because of high esthetic demands of the patient, a removable partial denture was planned which eliminated the use of conventional clasps.

Diagnostic impressions were made with reversible hydrocolloid (Neocolloid, Zhermack, Italy) and casts were poured in dental stone. The diagnostic casts were surveyed and a maxillary removable partial denture (RPD) was designed with an anteroposterior palatal strap major connector, occlusal rests and cast circumferential clasps on molars, and an RRDD clasp on the maxillary left central incisor and right canine.

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Because of extensive amalgam restorations on molars, they were prepared to receive metal ceramic crowns with rest seats incorporated in the crowns. A round cingulum rest was prepared with a round bur (No. 4) to a depth of 0.75 mm. A thin parallel chamfer tip carbide bur was used to prepare the reciprocating plane on the mesiolingual surface of the incisor from the mesiolingual line angle, and stopped just short of the mesial proximal contact. The guiding plane on the distolingual surface of the tooth was prepared from the distolingual line angle to stop just short of the distal proximal contact area. In the middle of this surface, a distal depression, 0.5 mm deep, was prepared with a No. 4 round bur, 1 mm above the gingival margin, and 1 mm lingual to the proximal contact (Fig. 1).

After completion of mouth preparations, an addition-reaction silicone impression (Elite HD, Zhermack, Italy) was made. The definitive cast was surveyed and blocked out. The minor connector and mesiolingual plate of the RRDD were 3 mm wide mesiodistally and 0.5 mm thick occlusogingivally respectively, to provide adequate rigidity.

Distal to the minor connector, a 1 to 1.5 mm wide split was placed in the casting. A smaller minor connector, 2 mm wide tapering to 1 mm, engaged the distal depression. This small minor connector had a length of 10 mm from the major connector to the center of the depression to allow adequate flexibility.

A cast chrome RPD framework was fabricated (Wiralloy, Bego, Germany) (Fig. 2).

The framework was evaluated intraorally and adjusted. After maxillomandibular jaw relation records were completed, denture teeth were arranged and evaluated intraorally. The denture base was processed and finished. The denture was inserted, and the patient was pleased with the functional and esthetic results (Figs 3 and 4).

## DISCUSSION

A RRDD clasp may serve as an excellent choice of treatment for patients who require removable partial dentures as it eliminates the need of conventional clasps. Although, it is technically demanding, the facial surface of the abutment displays no metal and provides an esthetic result.



Fig. 1: Mouth preparation

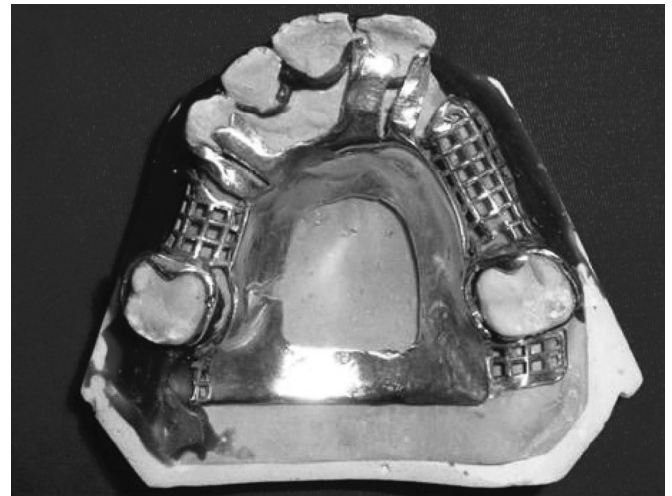


Fig. 2: Removable partial denture framework



Fig. 3: Removable partial denture insertion



Fig. 4: After treatment

The RRDD clasp is not recommended for abutment teeth with excessive mobility, or in situations in which the cingulum of the abutment tooth has significant centric or eccentric occlusal contact.

The RRDD clasp does not achieve 180° encirclement of the abutment; therefore, it is not recommended as the terminal abutment for a distal extension RPD.<sup>10</sup> The design satisfies the criteria for esthetics, retention, support, and stability for a maxillary RPD. Dentistry is varying with induction of modern science to practice dentistry.<sup>11</sup>

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