Repair of Cast Partial Denture Made Easy–
An Alternative Approach

Pradeep S
Additional Professor, Dept. of Prosthodontics, Manipal College of Dental Sciences

Abstract
Patients wearing cast partial denture might face breakage of denture due to any reasons. The ideal approach for repair of broken cast partial is electrosoldering. This paper presents an alternative approach for repair of cast partial denture using heat cure acrylic resin.

Key words: Repair of denture, Electrosoldering, Cast Partial Denture.

Introduction
Despite careful planning and competent construction with materials of good quality occasional breakage and distortion of Cast Partial Denture is seen.

Breakage can be either of the acrylic, major or minor connectors, clasps or the tooth. Need for repair may arise due to careless handling by the patient, inadequate mouth preparation, poor construction, metal fatigue, loss of fit, careless handling in the laboratory\(^1\). Ideally electrosoldering is used to repair cast partial denture which is a process of building up of a localized area with a filler metal or joining two or more metal components by heating them below their solidus temperature and filling the gap between them using a molten metal.\(^2,3\)

This clinical report describes an alternative approach for repair of cast partial denture using heat cure acrylic resin.

Clinical Report
A 51-year-old male reported to the department of Prosthodontics with the chief complaint of broken maxillary cast partial denture. On examination, a fracture was observed on both ends of the longitudinal component (strap) of the major connector that was joining the anterior and posterior palatal strap (Fig.1). To repair this cast partial denture the ideal procedure was electro soldering, but an alternate approach was planned. This clinical report describes an alternate approach to repair the broken cast partial denture using heat cured acrylic resin.

Procedure
An impression of maxillary arch was made using alginate with the broken cast partial denture in place. After retrieving the impression, the cast partial denture was removed from the impression and impression poured in die stone. After the cast had set the fractured fragments of cast partial denture were approximated on the cast (Fig.2). Once approximated, mechanical grooves were made on both ends of the broken cast partial denture using a disc and a mandrel to enhance mechanical bonding between metal and acrylic resin (Fig.3). Wax up of the cast partial denture was completed and it was acrylized in usual manner (Fig.4). The final product was finished and polished to prevent affinity towards food debris (Fig.5). When seen through light the thickness of acrylic resin and the joint can be appreciated (Fig.6). The repaired cast partial denture was then placed intraorally and checked for the fit (Fig.7). Any difficulty in placement or any occlusal discrepancy was eliminated.

Advantages
1. Comparatively easy to repair
2. Less technique sensitive
3. Economical
4. No complicated equipment required

Disadvantages
1. Only major & minor connectors can be repaired
2. Can be bulky
3. Less thermal perception
4. Shrinkage can cause distortion
5. Less strength compared to metal
6. If not polished, then can cause irritation


Discussion

Breakage of cast partial denture is very uncommon which can be a result of careless handling by the patient, inadequate mouth preparation, poor construction, metal fatigue, loss of fit, careless handling in the laboratory. Electro soldering is the process by which broken cast partial dentures are repaired which involves the process of building up of a localized area with a filler metal joining two or more metal components by heating them below their solidus temperature and filling the gap between them using a molten metal. Advantages of this technique includes adequate strength in thin sections, less bulky, non-irritating and light weight, whereas disadvantages include technique sensitivity and is expensive.

The technique described in this paper uses heat cured acrylic resin for the repair of broken cast partial denture. The advantages include less technique sensitivity hence easy to repair, economical and less complicated equipments are required. The disadvantages include bulkiness to the cast partial denture, shrinkage of heat cure resin can cause distortion, less strength than metal and if not polished well can cause irritation.

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References