

Repair of complete denture

One of the advantages of using acrylic resin denture base in complete denture construction that it can be repaired easily to be useful device again.

In the early days, repair done with heat cure resin. Today cold cure material makes repair even simpler and prevent warpage which is happened in the denture from overheating in using heat cure.

Classification of fractured dentures:

I) According to location of fracture

1. Midline fracture
2. Any part fracture

II) According to extent of fracture

1. Without broken or missing part and/or teeth
2. With broken or missing part and/or teeth

III) According to timing of fracture

1. Early fracture
2. Delayed fracture

IV) According to cause of fracture

1. Operator
2. Patient

Causes of fracture of a tooth or teeth:

1. Cuspal interference.
2. Excessive grinding of the tooth.

Causes of fracture of the denture base:

1. Ridge resorption will cause the denture to be unevenly supported.
2. Warpage of acrylic resin that caused during flasking or happened in denture with previous repair.
3. Inadequate relief of the denture over some anatomic landmarks of the mouth.
4. Excessive relief of the denture that reduce the thickness of the denture beyond the limit of safety.
5. Inaccurate impression on which the denture is constructed may cause a considerable stresses that will be induced in the denture base during mastication.
6. If upper teeth set outside the ridge will cause a large component of force to be transmitted to the mid line of the denture and this will frequently result in a mid line fracture.
7. Deep labial frenum also result in a mid line fracture.

Clinical and laboratory procedure:

1. Repairing of fractured denture base

1. Accurate re-assembly of the broken parts and fixed by sticky wax applied to the fracture line on the polished surface to maintain the two pieces in correct position. Don't allow the sticky wax to flow in the fracture lines.
2. Reinforce the denture by attaching one or more wooden stick or old bur to the occlusal surfaces by sticky wax also.
3. Block any undercut in the tissue side of the denture by wax and apply separating medium to the tissue side.
4. Pour the tissue surface of the denture by stone and after setting remove the two pieces of the denture gently.
5. The edges of the fractured line of the two pieces are beveled toward the polished surface which reduced to form a groove of 8-10mm wide along the fractured line.
Dove tail cuts may be made to strengthen the repair joint.
6. Coat the cast with separating medium and re-assemble the pieces of the denture on the cast.

7. Self-curing acrylic resin material is mixed in a jar and used at dough stage, an alternate application of monomer and polymer are made until the area to be repaired is filled. *Another method is to wax and contour the fracture line to the desired form using base plate wax, followed by flasking, wax elimination, packing and curing. The area should be slightly overfilled to allow for finishing.
8. Porosity of new resin material and warpage of the old resin material can be prevented by using a pressure curing unit for 10min.
9. After removing the denture from the unit and from the cast, remove the excess acrylic by bur, finished and polished.

2. Replacement of a broken or missing tooth

1. The area lingual to the broken tooth is reduced using a small bur.
2. The fractured tooth is then heated by a flame to soften the area surrounding it then pushed out.
3. The shape and shade of the tooth is selected.
4. Place the new tooth in position and fixed by sticky wax applied labially or plaster can be used and vaselien can be applied on the teeth before applying the plaster to facilitate removal of plaster.
5. Cold cure resin is used to attach the tooth to the denture base, an alternate application of monomer and polymer are made until the area overfilled, or we can do the mixing in a jar and used at dough stage.
6. Place the denture in a pressure unit for 10min., then removed, finished and polished finally delivered to the patient.

3. Missing labial or lingual border

1. Broken of small pieces from the denture borders that are lost or impossible to position can be replaced by using tracing stick compound, placed in the patient's mouth, molded and recontoured.
2. Then pour the denture to form a cast.
3. The tracing is removed and cold cure acrylic is used to fill the area of the missing border.

4. The denture is then removed from the cast, finished, polished and delivered to the patient.
5. If borders are missing from several areas of the denture or if a large piece is missing, it may be necessary to make an impression over the fractured denture inside the patient mouth with a perforated stock tray and alginate impression material.
6. Then remove the impression with the denture from the patient mouth, apply separating medium to the denture and pour it with stone.
7. After stone setting, open the impression and replace the missing areas with acrylic resin.

The End