

Gingival retraction

It is a procedure by which the finishing line is temporarily exposed by enlarging the gingival sulcus so that we can take a good impression, involves the details of the end margin of the preparation that is located subgingivally Fig.(1).

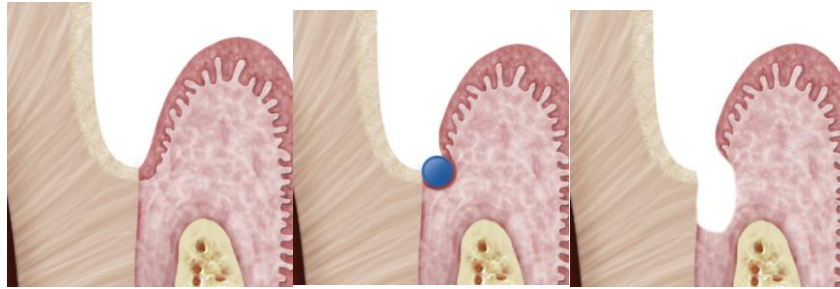


Fig. (1) Gingival retraction

Objectives of gingival retraction:

1. To create an access for the impression material to the area of the preparation that is located subgingivally.
2. To provide enough thickness of the impression material at the area of the finishing line to prevent tearing and distortion of the impression material.
3. To control the amount of fluid in the gingival sulcus (crevicular fluid) that will cause voids in the impression.

Techniques of gingival retraction:

1. Mechanical.
2. Chemo-mechanical.
3. Gingival retraction paste (cordless technique).
4. Electrosurgical.
5. Laser.

1. Mechanical:

In this technique, we apply pressure on the gingiva to open the gingival sulcus. It might be done by either of the followings:

-Using of a temporary crown with a slightly long margin leaving it in place for 24 hours, or

-Using a plane retraction cord (free of any medicament) which is the most common. The retraction cord is a special cord made of cotton which comes either plane (free of medicament), or is pre-impregnated with a medicament (usually a vasoconstrictor). Using a plane retraction cord is considered as a mechanical means only Fig(2).



Fig.(2) Retraction cord

2. Chemo-mechanical:

In this technique, we use a retraction cord that is pre-impregnated with a medicament, usually a vasoconstrictor (adrenaline, aluminum chloride, or ferric sulfate). By packing this cord with a plastic instrument (Ash No.6 or Ash No.49) in the gingival sulcus between the gingival tissue and the prepared tooth, the cord will mechanically push the gingiva away from the finishing line, and the combination of the chemical action of the medicament and the pressure exerted by the cord will cause a transient gingival ischemia. This will lead to shrinkage of the gingival tissue and control the fluid seepage from the gingival sulcus.

The retraction cord is left inside the gingival sulcus all around the tooth for 10 minutes. The working area should be kept dry during this period. Then the cord

can be removed leaving the gingival tissue in an expanding state. This will provide a space to inject the impression material all around the tooth at the area of the finishing line by the use of an impression syringe.

3. Gingival retraction paste (Cordless technique):

In most cases, gingival retraction cord is the most effective method for retracting tissue to the depth of the sulcus. Unfortunately, gingival retraction cord may injure the gingival sulcular epithelium and the gingival bleeding is difficult to control when packing a cord into the sulcus making impression difficult or impossible. Using a retraction cord requires proper tissue manipulation and is technique sensitive. For this reason a new class of gingival retraction materials has been introduced in the form of retraction paste like Expasyl (Aluminum chloride 15%) and Magic Foam Cord (Polyvinylsiloxane, addition type silicone elastomer) (Fig3).



Fig.(3) Expasyl retraction paste

The advantage of cordless retraction technique is providing a non-traumatic, non-invasive tissue management and excellent hemostasis in the gingival sulcus for fixed prosthodontic impressions.

4. Electro-surgical:

In this technique, an electro-surgical unit fig.(4) could be used to remove the gingival tissue from the area of the finishing line with the advantage of controlling the post-surgical hemorrhage. However, electrosurgery is contraindicated when there is gingival inflammation or periodontal disease. In this case, gingivectomy could be performed .

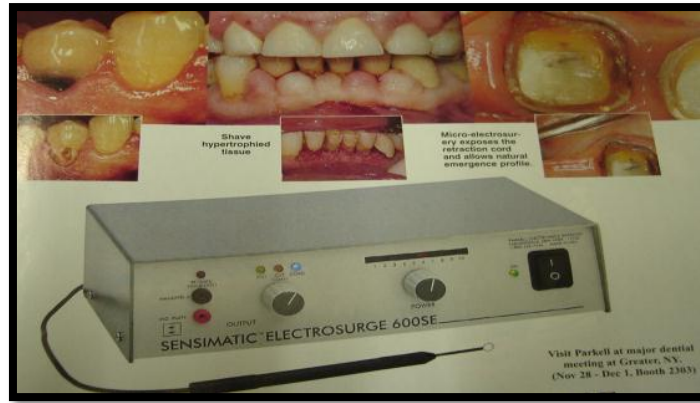


Fig.(4) Electro-surgical unit

5. Laser:

Lasers can be used to bring about tissue coagulation which facilitates hemostasis as well as tissue displacement by removing the sulcular epithelium. Some of the popular lasers that are used for gingival displacement include CO2 lasers, diode lasers, Nd:YAG (Neodymium-Yttrium-Aluminium-Garnet) lasers, erbium lasers Fig.(5).



Fig (5) Laser unit used for gingival retraction

Advantages:

- Sterilizes sulcus
- Reduced tissue shrinkage
- Excellent hemostasis and faster wound healing.
- Relatively painless

Disadvantages:

- Slow technique
- Expensive