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Recent advances in gingival retraction – A literature review.

Dr Arun p s[1]
[1]*MDS (Prosthodontics and Implantology) India*

Abstract:
Success of fixed prosthesis depends on accuracy of the impression. Marginal integrity plays a key role in prognosis of restoration. For this adequate exposure of the finish line is a must. The goal of gingival retraction is to atraumatically displace gingival tissues to allow access for the impression material to record the finish line and provide sufficient thickness of gingival sulcus so that the impression does not tear off during removal. This article describes some recent advances in the field of gingival retraction.
***Key Word**: **gingival rétraction, Expasyl, Stay put, G cuff**.*

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I. Introduction

The term gingival retraction is defined as the deflection of the marginal gingiva away from a tooth (GPT 9)[1]. Proper gingival tissue retraction is a must for crowns and bridges with subgingival margins. Currently there are different types of materials and techniques available for gingival retraction. This review presents the recent advances in the field of gingival retraction.

II. Types of retraction

Retraction methods can be classified as mechanical, chemical and surgical. More widely used method is a combination of chemical and mechanical that is chemico mechanical technique. In this chemico mechanical technique, a retraction cord is impregnated with some hemostatic agents and placed below the finish line. Even though this technique is capable of producing finish line, having its own disadvantages like time consumption, epithelial damage, pain etc. There are various newer materials that are able to overcome these limitations. The following review presents various materials that are currently available in the market.[2]

1. Expasyl

Expasyl® (Kerr Corp) utilizes both mechanical and chemical component for sulcus opening and hemostasis. It is comprised of kaolin, water and aluminum chloride. Kaolin (a white clay) maintain the consistency of paste and its mechanical action, while the hemostatic action enhanced by aluminium chloride[3].

Expasyl is syringed into the sulcus with autoclavable stainless steel dispenser. It is extruded directly into the sulcus where it holds its rigidity to create space between the tooth and the tissue, much like retraction cord. Average retraction time: 1-2 minutes, according to intraoral conditions.

Advantages[9]

1. Minimal or no physical damage to the gingival tissues
2. Time saving in situations where multiple teeth are being impressed
3. Predictable hemostasis is achieved.

Disadvantages

1. Less effective with very subgingival margins

2. Magic foam

Magic foam is an expanding polyvinyl siloxane material which can be injected into the sulcus. The setting reaction releases hydrogen gas and becomes an expanded foam, thus results in deflection of the free gingival margin away from tooth to achieve gingival displacement[4, 5]. The patient is advised to bite on a comprecap or putty index while maintaining the pressure on for 3 minutes.

Advantages[9]

1. Less traumatic to tissues than retraction cord
2. Color of foam makes it easy to see during use
3. Easy to remove material from preparation and sulcus
4. Adequate working time.

Disadvantages

1. No hemostasis provided
2. Expensive when compared to cord

3. GingiTrac

GingiTrac is a medium-viscosity, vinyl polysiloxane (VPS) gingival retraction paste with 15% ammonium aluminum sulfate (alum) which gently displaces the gingiva from the tooth and stops bleeding. A gingicap is also used with this retraction system. This is available in 2 types of delivery systems. GingiTrac mini mix and Automix cartridge.[6]

Advantages[9]

1. Easy to express from automix gun
2. Longer shelf life
3. Faster setting time
4. Controls oozing of blood
5. Removal is fast and easy
6. Materials slip cleanly out of sulcus without trauma.

4. Merocel

Merocel retraction strips are a synthetic material that is specifically and chemically extracted from a biocompatible polymer (hydroxylate polyvinyl acetate) that creates a netlike strip without debris or free fragments and is easily adaptable[7]. The porous and sponge-like microstructure of Merocel produces a dry field which helps the impression to accurately capture the details[8].

Advantages[9]

1. It can be shaped easily
2. It effectively absorbs oral fluids
3. The sulcus is clean without the presence of any debris.

5. Stay put

This combines both the advantages of an impregnated and braided cord with the adaptability of an ultrafine copper filament. Aluminum chloride hexahydrate is used for impregnation. A hemostatic agent can be used in case of non-impregnated stay put cord[9].

Advantages[9]

1. Hemostasis is fast
2. Can be preshaped
3. Relatively safe for cardiac patients

6. G Cuff

A disposable plastic collar that is inserted on the apical end of the abutment before the abutment is engaged to the implant. After the abutment's engagement to the implant, the plastic collar is found between the apical part of the abutment and the gingival soft tissue. Shortly after the removal of the impression from the mouth, the plastic collar is pulled out and removed permanently. The plastic collar creates a perfect gingival retraction with a valve factor preventing the liquids from contaminating the area of the finish line of the abutment[10].

Advantages[10]

1. Eliminate the use of impression copings, lab analogue etc. (abutment level impression can be taken)
2. Acts as a cement barrier making the peri-implant area free of cement remains.
3. Doesn't traumatize the tissue when compared with retraction cord.

III. Conclusion

Proper selection of retraction system is still a dilemma for the clinician. Each system have its own advantages. Before choosing any retraction system, prior importance is given to the gingival health and patient comfort.

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