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Original ARTICLE

A Comparative Study of Aluminum Chloride Retraction Cords and Expasyl as Gingival Retraction System

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***ABSTRACT*:**
Background: The present study evaluated aluminum chloride retraction cords and expasyl as gingival retraction system. **Materials and Method:** The present study was conducted on 40 edentulous patients. Patients were divided into 2 groups of 20 each. In group I, aluminum chloride retraction cords and in group II expasyl retraction cord was used. **Results:** In group I, retraction was aluminum chloride and in group II it was expasyl. The mean gingival displacement in group I was 812.2 microns and in group II was 614.2 microns. The difference was significant (P< 0.05). **Conclusion:** Author found that maximum gingival retraction was achieved with aluminum chloride retraction cord as compared to expasyl.
Keywords: Aluminum chloride, expasyl, retraction cords

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INTRODUCTION

Gingival retraction is defined as the deflection of marginal gingiva away from a tooth. Accurate impressions for subgingival crown margins require gingival tissue retraction.[1] Various materials, methods, and techniques exist for gingival retraction. Due to inadequate access to the area subgingivally, there is always limited recording of the tissue which is the main reason for failure restoration. The displacement of the soft tissue, debris or fluids gingivally is of paramount importance before recoding impression. [2]

A gingival retraction agent should be effective for its intended use, safe both locally and systemically, and the effects should be spontaneously reversible, wearing off in a short time, leaving no permanent tissue displacement. The impression material flows sufficiently beyond the finish line allowing overall recording of area subgingivally. Kaiser et al[3] reported a certain uniformity of the dimension of some components of biologic width: mean depth of the histologic sulcus is 0.69 mm, mean junctional epithelium measures 0.97 mm (0.71–1.35 mm), and mean supra-alveolar connective tissue attachment is 1.07 mm (1.06–1.08 mm). The total of the attachment is, therefore, 2.04 mm (1.77–2.43 mm) and is called the biologic width, essential for the preservation of periodontal health, and removal of irritation that might damage the periodontium (prosthetic restorations, for example). If the biologic width is violated during the preparation of the tooth, some authors claim that there will be no place left for the attachment and the result in the development of attachment loss and pocketing can be observed.[4] The present study evaluated aluminum chloride retraction cords and expasyl as gingival retraction system.

MATERIALS & METHODS

The present study was conducted in the department of Prosthodontics. It comprised of 40 edentulous patients of both genders. The study was explained to all patients and their written consent was taken. Patient data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 20 each. In group I, aluminum chloride retraction cord was used and in group II expasyl retraction cord was used. Preliminary impressions were made after inserting different retraction cords. The mean retraction values were calculated in all groups.

Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that in group I, retraction was aluminum chloride and in group II it was expasyl. Table II, graph I shows that mean gingival displacement in group I was 812.2 microns and in group II was 614.2 microns. The difference was significant (P< 0.05).

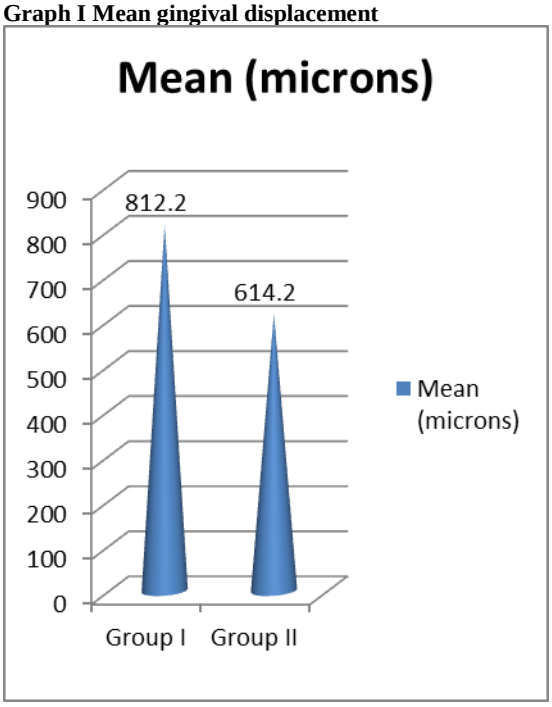
Table I Distribution of patients

Groups	Group I	Group II
Agent	Aluminum chloride	Expasyl
Number	20	20

Table II Mean gingival displacement

Groups	Mean (microns)	P value
Group I	812.2	0.01
Group II	614.2	

Graph I Mean gingival displacement



DISCUSSION

The aesthetics and longevity of restorations is significantly dependent on gingival and periodontal factors. The intimate interaction between the restorations and the surrounding soft tissues means that all procedures performed should keep the health of the gingiva and periodontium under consideration. Restorations placed in close proximity to the soft tissues sometimes require consideration of subgingival margins, otherwise the subsequent restorations

may have a high chance of failure. Two basic factors should be taken into account. First is the shape and the method of preparation, which depends on the therapist.[5] The second factor is the ultimate success of the restoration, which is influenced by a number of items. It is desirable to place the margin in a location that will facilitate the following, preparation of the tooth and finishing of the margin (easiest supra-gingivally), duplication of the margins with impressions that can be removed past the finish line without tearing or deformation (easiest supra-gingivally), fit and finish of the restoration and removal of excess material (easiest supra-gingivally), verification of the marginal integrity of the restoration (easiest supra-gingivally).[6] The present study assessed aluminum chloride retraction cords and expasyl as gingival displacement systems.

In present study, in group I, retraction was aluminum chloride and in group II it was expasyl. Chaudhari et al[7] in their study used aluminium chloride; Tetrahydrozoline and Expasyl according to Latin block design. Impressions were poured with die stone. There was gingival retraction of 148238.33 µm2 with aluminium chloride followed 140737.87 µm2 with tetrahydrozoline and 67784.90 µm2 with Expasyl. Gingival sulcus is also an important parameter to assess the placement of restoration margins. Margins placed too deep in the sulcus require more retraction of the gingival tissue, resulting in damage to the supporting structures of the tooth. If margins are to be placed subgingivally, it is recommended to place the margins 0.5−1mm below the gingival margin, especially where the probing depth is less than 1.5 mm, and ideally to control the apical extent of the preparation so as not to encroach on the epithelial and connective tissue attachment.[8]

Although studies have indicated that there is no accelerated bone loss with subgingival margins, there can be recession of the soft tissues with the unaesthetic exposure of the gingival margins.

Retraction cords are considered the most popular method for displacement of gingival tissue.[9] According to fabrication, they can be knitted, twisted or braided and can also be classified as impregnated (if already containing medicament or haemostatic agent) or non-impregnated. Any configuration of the cord can be used according to the clinician's preference, as all different types of cords lack standardization in size. They are, however, colour-coded and vary in diameter to be used in different clinical situations and gingival sulcus depths. They come pre-cut (according to the diameter of teeth) or can be dispensed from a container or a clicked.[10]

CONCLUSION

Author found that maximum gingival retraction was achieved with aluminum chloride retraction cords as compared to expasyl.

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