

Coe-Pak – A Dressing for Periodontal Wounds

Abstract:

The motive of this article is to review accessible periodontal dressings, their Physiochemical characteristics, biocompatibility, & therapeutic uses.

Various features of periodontal dressings have been examined various studies have been conducted in vitro and in vivo. The dimensional alterations and adhesion qualities of dressings are intimately associated to their physical & chemical properties. Other characteristics addressed in the literature include biocompatibility and therapeutic efficacy.

Surgical wound dressings have been used for millennia to protect surgical areas, prevent postoperative infection, and speed recovery. When used after periodontal surgical treatments, Packs for periodontal treatment are also referred to as periodontal dressings, the same benefits of paste. They are divided into two groups: Dressings based on eugenol and non-eugenol dressings.

The surgeon's goal, Dressings are required to remain on the surgery site for a certain amount of time and its modifications in dimensions are all aspects to consider when choosing an appropriate dressing.

Keywords: Biocompatibility, Coe-Pak, therapeutic uses, healing of wounds, chlorhexidine

Introduction:

Dr. A. W. Ward suggest the practice of periodontal dressings after the treatment of periodontitis in 1923, was the first to introduce them. Periodontics currently utilize periodontal dressings for a variety of purposes, while there is considerable debate about whether or not they are necessary after periodontal surgery.[1][2]

Periodontal dressing can be really effective in some circumstances. One of the main benefit of using periodontal dressing after surgery is that it protects the injury from mechanical harm while also assuring the surgical site's stability during recovery.[3][4]

Patient Convenience during post-surgery tissue healing procedure, Adaptation that is good to the underlying gum and bone tissue, prevention of postoperative bleeding or inflammation, Among

the other benefits are the decrease abnormal sensitivity of the tooth in first hour or few hours afterward surgical procedure, protection of the blood lump from pressures exerted when speaking and mastication, and prevention of gingival separation from the surface of root.[5] Avoidance of coronal flap shifting is apically relocated flaps, gingival grafts with extra support, and, finally yet importantly, safekeeping of exposed bone while curing and splint fixation of movable teeth after treatment. Individuals suffering from aggressive periodontitis may benefit from the use of periodontal dressing in non-surgical approaches. [6]

Despite all of the benefits, periodontal dressings have a restricted number of indications. The goal of this study is to review the literature in order to assess the clinical efficacy of periodontal dressings

Mechanical and Physical Characteristics:

Only a few studies have been conducted to investigate the physiochemical and mechanical qualities of periodontal dressing. These characteristics are influenced by the periodontal dressing mix. There is currently no exact, consistent, or repeatable method for assessing these characteristics. Furthermore, there is a scarcity of research on new periodontal dressings.

Periodontal dressing material is very steady at setting or slow mode to allow manipulation and to create a flatten and non-irritating surface, elastic enough to withstand malformation and displacement, adhesive and coherent without being bulky, and dimensionally stable to avoid salivary leakage and plaque growth. [7]

Gjerdet examined the measurements of three periodontal dressings (Coe-Pak, Ward's Wondrpak, and Peripac) after they had been set.

In a comparative research, several dressings (Coe-Pak Hard and Fast Set, Coe-Pak, and Ward's Wondrpak) were tested for tissue adhesive strength. Ward's Wondrpak has much lower tensile and shear adhesive binding power to enamel than the competitor product. Separately, the adhesive capabilities of three different enamel dressings (Coe-Pak, Peripac Improved, and Peripac) were examined, and all three materials were found to have weak adhesive properties; nevertheless, Coe-Pak had the best adhesive quality. [8]

Classification of Periodontal Dressings:

The composition of periodontal dressings has evolved throughout time, and these materials are now categorised into three types:

- 1) Products containing zinc oxide and eugenol.
- 2) Those that do not include eugenol and contain zinc oxide.
- 3) Those that do not contain zinc oxide or eugenol.

1) Zinc oxide and eugenol-containing products:

Ward's wandr-Pak, invented in 1923, and numerous other packs that employ modified variants of ward's formula are examples of packs establish on the reaction of zinc oxide with eugenol.

The inclusion of accelerators, such as zinc acetate, increases the operating duration of the dressing. Dressings containing zinc oxide and eugenol come in two varieties: liquid and powder, which must be mixed together before using it. Eugenol in this pack may produce an sensitivity reaction in some persons, causing skin reddening and burning irritation.



Fig 1. Dispense on glass slab

2) Those that do not include eugenol and contain zinc oxide:

Coe-Pak is made by the interaction of a metallic oxide with acids with fats, which is frequently utilised in dressing in the United States.

It comes in 2 ducts, the materials of which needs to combine together instantly before using it. Zinc oxide, oil, gum and lorotidol are all in one tube. The liquid fatty acid of coconut in the other tube is thickened with rosin and chlorothymol. [9]

Other examples: PeriPac, Vocopac, Septopack and Periocarea

3) Those that do not contain zinc oxide or eugenol:

Periodontal dressings made of cellulose, such as Reso-pac and Mucotect, fall under this category.

Reso-pac :

This product is a single ready-to-use hydrophilic paste (Hager & Werken Gm bH & Co. KG, Post fach, Germany). This dressing may stay on a bleeding wound for up to 30 hours due to its hydrophilic qualities. After about 3 to 4 minutes, this pac gets enlarge to a gel-like density and viscosity. [10]

Mucotect:

This product is offered in a single tube and contains carboxymethyl cellulose, polyvinyl acetate, ethyl alcohol, vaseline, and polyethylene oxide resin (Hager & Werken Gm bH & Co. KG, Germany). Mucotect is a hydrophilic paste that lasts up to 30 hours on the skin. It sticks nicely to moist and even bleeding regions because of its composition. [11]

Barricaid:

Provided in the form of a syringe for direct injection another indirect technique is to utilise the syringe. The use of a visible light-curing apparatus is required to set this dressing. This product has a transparent appearance that gives great aesthetic value.

Biological Characteristics:

Wound Healing Effects

To counteract the irritating and harmful effects of liquid eugenol, eugenol-free dressings were created. Numerous studies have documented the negative effects of eugenol-based dressings on tissue and the severity of inflammatory reactions.[12] In vitro investigations have also showed that eugenol-based dressings may limit the proliferation of permanent cells and primary leukocytes of human is less than some non-eugenol formulations.[13]

Pain and Dressing after Surgery:

Periodontal dressings have several purposes, one of which is to alleviate postoperative pain. In earlier research, the quantity of analgesic pills ingested affected the patient's level of discomfort. Pain is significantly more prevalent after taking Peripac instead of Coe-Pak or Wondrpak,

according to these trials, owing to the Peripac group's greater pill intake. When it comes to sensitivity, the Coe-Pak had the largest proportion of sensitive teeth and the Peripac had the lowest [14]. According to studies using the visual analogue scale, pain levels with Coe-Pak were more and higher after a Gingivectomy procedure than with Woodpark (VAS). [15]

Clinical trials:

When periodontal surgery is necessary, the surgical site is covered for 3-14 days with a periodontal dressing. Although it is said that the dressing speeds up the wound recovery process, there is no universal agreement on whether periodontal dressing should be used on periodontal sores. According to one research, dressings do no short-term harm to normal Periodontium, but plaque growth under the dressing causes irritation in the long run.[16]

Another research looked at clinical characteristics after a reversed bevel flap and do not found other Big difference in fluid of gingival measurement between groups. However, in the case of the gingival index, the scenario was inverted. On the 7th day, the bare area revealed increase in bleeding and sensitivity. [17]

Are Periodontal Dressings for Everyone?

After discussing the biologic and therapeutic advantages, clinical trials, and qualities of periodontal dressings, the question of whether they are required for every surgical treatment remains unresolved. The fact that complete healing may occur if the surgical site is kept tidy and clean instead of using dressing, and that there is no misunderstanding in recovery between clothed and naked injuries, adds backup to the idea that surgical packing is not required in all sites. [18]

Periodontal dressings have also been explored in terms of patient preference and comfort. There are inconsistent findings in the matter since these measurements are support on patient reactions and hence cannot be analysed in objective ways owing to the subjectively criteria that normally utilised.[19]

Although the answer to this subject is still being debated, it is most probable that the utilization of a periodontal dressing is a person own choice and the operator discretion. However, It is recommended that work of a dressing stabilize free gingival grafts and protect the donor site, retain an apically flap position. Protects exposed bone from injuries, protects the implant site

during periodontal reconstruction, and promotes understanding of locally deliverance of drug to the sub gingival site. [20]

The impact of adding chlorhexidine into a periodontal dressing:

Most commercial antibacterial periodontal dressings rapidly lose their antibacterial qualities. Because of its substantiality and slow-release qualities, Chlorhexidine (CH) is a long-acting antibacterial agent in the cavity of the mouth. In a split-mouth clinical study, a double-blind, split-mouth design was utilised to assess the effect of adding CH acetate

Chlorhexidine has antimicrobial properties, as we discovered. Addy and Douglas established the antibacterial capabilities of methacrylate gel as a carrier for transporting chlorhexidine in vitro and in vivo, as well as that it is a better transportation intermediate and a continuous flow of chlorhexidine into the wound. [21][22]

Dressings' retention:

Splinting and the use of stents to keep periodontal dressings in place have been used since the 1950s. In 1953, Waerhaug and Anerud demonstrated how length based cotton thread was used to improve performance. The dressings are held in place by interproximal retention.[23]

It's critical to keep the dressing on palatal wounds because they are so many likely to produce postoperative morbidity if left exposed .Ferguson (1992) suggested a strategy for increasing palatal wound retention by employing a light cured periodontal dressing – such as Barricaid – in conjunction with maxillary canine surgical involvement. [24]

Because of the morbidity following surgery exposed palatal wounds, the retention over palatal wounds has long received special attention. Over the years, experts have attempted to provide an approach to cover this topic and obstruct any difficulties that can arise.

Application of Dressings:

Coe-Pak is widely used in non-eugenol intraoral dressing in the United States. The basic paste is made up of zinc oxide, oils, and gums, as well as lorchido, a fungicide linked to Hexachlorophene. Fatty acids of coconut are thick with resin or rosin, & chlorothymol is used as an antimicrobial medium in the catalyst paste.

On a waxed paper pad, equal lengths of paste is placed and combined with a wooden tongue depressor until the mixture is thick and consistent in hue is formed. Adding a little drop of warm water during the addition process, or plunging the pack in a basin of mild hot water immediately after adding, may affect the setting time. When the paste has lost its tackiness it can be handled and molded with water. The pack is then made of rolls which is size of pencil and joined inter in the interproximal facial and lingual zones in mechanical manner. [24]

Based on the time it was set and uniformity, the Coe-Pak is available in ordinary, hard, and quick set formulas, and it accessible in both manual and auto mix variations commercially.



Two Paste System



Dispense on glass slab



Manipulation



Application of coe-pak over surgical wound

Fig. 2

Materials are compared to periodontal dressings in the literature:

Various materials, including, aluminum borate, cellulose carboxymethyl, Tincture of myzotect and fittydent, have been used as dressings in various studies (cream denture adhesive to improve

retention). Their use for this purpose is predicated on their capacity to cling to soft tissue, and they do not have a brand name that identifies them as periodontal dressing.

Conclusion:

In this review paper, the physical features, availability, and therapeutic actions of periodontal dressings were briefly investigated and applied.

After surgery, periodontal dressings appear to be useful. However, it is preferable to limit their use to certain situations; for example, because gingival bleeding and root hypersensitivity are mild and undisplaced flaps return to their normal location, their usage is unneeded. The mending of wounded tissue by live tissue is referred to as wound recovery [25]. The Goal Of Periodontal Dressing According To The Surgeon. The length of time a periodontal dressing must be applied to the surgical site: extended usage of Coe-Pak might enhance its antineoplastic properties. Ward's Wondrpak is more cytostatic or toxic to cells than other dressings, However Barricaid is suitable once polymerized.

It appears that periodontal dressings made of cellulose cause inflammatory response, therefore more patient friendly. Choosing the best periodontal dressing might be tricky because they must be compared under the same settings. In general, cellulose-based periodontal dressings appear to be a viable alternative to standard periodontal dressings.

In terms of therapeutic effects, modifying the physical qualities of medicinal substances does not always result in the desired effectiveness.

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