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INTEGRATED REVIEW OF THE PERIODONTAL DRESSING

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ABSTRACT

Periodontal dressings are applied over surgically traumatized tissue in periodontal surgery so that it is shielded from further insult. Other than that, periodontal dressings protect the wound from post-operative irritation, salivary contamination and food stagnation. They have been claimed to alleviate pain, reduce hemostasis, improve healing when incorporated with antibiotics and facilitate recovery. Several dressings are commercially available.Traditionally, periodontal dressings were based with zinc oxide eugenol and due to various side effects of eugenol latest periodontal dressings are usually formulated without eugenol. This comprehensive updated review on periodontal dressing is presented here with their values and usefulness.

KEYWORDS: Periodontal dressing- types-properties-therapeutic effects.

INTRODUCTION

The periodontal dressings (pack) are protective materials applied over the wound created by periodontal surgical procedures (Glossary of periodontal terminology 2001). Periodontal dressing protects the surgical wound from saliva, food stagnation and trauma, thus making post-operative period comfortable and healing more rapid.[1] When adapted properly to the wound surface and when there is no change in the dimension after adaptation formation of pathogenic bacterial plaque and seepage of saliva between wound surface and dressing material can be arrested. Thus the periodontal dressing protects the wound indirectly from infection.

The value of periodontal dressing and their effects on periodontal wound healing has been questioned for many years. In 1923 the periodontal dressing was introduced by Dr.A.W.Ward

and he advocated the use of packing material around the teeth following periodontal surgery and was called **Wonder Pak**. It consists of zinc oxide eugenol mixed with alcohol, pine oil and asbestos fibres. Traditionally periodontal dressing was based on zinc oxide eugenol system. Eugenol was included in these dressing because of its anodyne and weak antiseptic properties.The zinc oxide eugenol - dressings seems to prevent or retard bacterial growth. The obtundent effect of eugenol on the tooth and superficial tissue was considered advantageous.

Persistent taste of eugenol, rough surface of set material, tendency to cause tissue necrosis and delayed healing led to the introduction of non eugenol dressings in late 1950s. Coe pak, peripac, cyanoacrylate and tissue conditioner are some of the examples for non eugenol periodontal dressing materials.

This review discusses about the different types of periodontal dressings, its application, advantages and disadvantages, biological, therapeutic and the antimicrobial effects of the dressings.

Historical Review

The main objectives of periodontal dressings are to obtain an optimized healing and ensure minimum discomfort to the patient. In 1728 Fauchard treated the surgical wound by rubbing the surface with calcined alum once a day. Zentler used strips of iodoform gauze to pack the surgical wound, while Box recommended the use of wax, paraffin and gauze as dressing. Dr.A.W.Ward in 1923, introduced the first periodontal pack known as the “wonder pack” which was followed by many dressing materials and marketed for clinical use .In 1942, Box and Ham described the use of the zinc oxide eugenol dressing to perform a chemical curettage in treatment of necrotizing ulcerative gingivitis Orban in 1943 described a Zinc Oxide dressing with paraformaldehyde to perform ginigivectomy by chemosurgery. He stated that although pocket depth reduction was achieved, this dressing causes extensive necrosis of gingiva and bone, and was felt to promote abscess formation by the blockage of exudates. Ariaudo and Tyrell in 1957 recommended using a dressing to position and stabilize an apically positioned flap . Blanquie in 1962 also stated that periodontal dressings are to protect the wound from further injury during surgery. In 1963- Baer et al described about the use of non eugenol dressing containing Zinc Oxide and bacitracin. He stated that a dressing was to provide patient comfort, improve healing and not be used to control post operative bleeding

and to splint the tooth. Bhaskar SN in 1986 advocated the use of cyanoacrylate as periodontal dressing material.

Generally the periodontal dressings used in previous years consisted of **Powder** – zinc oxide-8 parts and resin powder-1 part and the **Liquid** includes eugenol-1 part and olive oil – 1 part. There are different types of pack material used previously which are Merritt's pack, Orban's pack, William's pack (to disclose calculus), Font's pack, Linghorne and o'ponnel, Ward's pack, Viogen, Tincture of metaphan and Goldman's pack.

Purpose of periodontal dressing

Wound protection and patient's comfort are the main purpose of periodontal dressing . Generally periodontal dressings are mixture of special materials that are initially soft and have putty like consistency so that they can be easily placed over and adapted to the surgically treated area. The dressing will become hard in the mouth to form rigid and protective covering while they heal and could be used to splint the teeth as the cement hardens. Protection of the wound area, enhancement of patient comfort, maintenance of debris free area, control of bleeding, protecting the newly exposed root surfaces from temperature changes and protecting the sutures are its different uses. The dressings also acts as a template to prevent formation of excessive granulation tissue, stabilize and protect the suture material.[2] Periodontal dressings also protect the surgical healing areas from irritants such as hot and spicy foods.

Blanquie felt that the purpose of a dressing was to control post-operative bleeding, decrease post-operative discomfort, splint loose teeth, to allow the tissue healing under aseptic conditions, prevent reestablishment of pockets and desensitize the cementum. Dressings are also recommended to position and stabilize an apically positioned flap.

Properties/ Ideal requisites of periodontal dressing[3]

Ideal periodontal dressing materials should be soft with enough plasticity and flexibility to facilitate its placement in the operated area and to allow proper adaptation. .It should be non-irritant to the tissues of the patient and the operator. It should have a reasonable setting time with sufficient rigidity to prevent dislocation. It should be smooth enough to prevent irritation to the cheeks and lips. Apart from having bactericidal properties to prevent excessive plaque formation, the dressing must not detrimentally interfere with healing of surgical area. Gjerdet and Haugen measured the linear dimensional changes of freshly prepared samples of coe pac,

peri pac and wonder pack and showed peripac expanded while other dressings contracted.[4,5] Dimensional stability to prevent salivary leakage and accumulation of plaque debris with acceptable taste is very important and at the same time it should not induce allergic reactions. Due to the dimensional change in the dressing, there is movement of the dressing which results in irritation of the tissues and disturbance in the adaptation.

Coe pak and Wards wonder pack exhibits varying degree of adhesion compared to peripac which did not adhere to soft and hard tissue. Compressive strength of coe pac, wonder pack are at the same magnitude and helps in preventing leakage and plaque formation at the tissue interface. The lack of adhesion of peripac combined with dimensional change results in plaque formation at the tissue interface. The retention mainly depends on mechanical interlocking in the proximal embrasure. The teeth covered with acquired pellicle exhibits stronger adhesion compared to teeth without an organic coating.

All dressings exhibited ideal flow properties during manipulation and adaptation.[3] Clinical disadvantages are, no pack seems to exhibit well defined set, anterior restorations might be stained at their margins by substances such as chlorhexidine in the dressing. Most of the pack exhibit certain desirable properties such as plasticity and adherence but lack certain ideal properties for clinical use.

It should have an acceptable taste and smell, economical, easily available, should possess a good shelf life. According to Sachire et al a review of literature on the physical properties of dressing material indicated that none of the dressings have all the ideal requisites of periodontal dressing for clinical use and the further research is needed to improve their properties.

Functions of periodontal dressing[4]

- It provides comfort to the patient and also gives psychological feeling of healing to the patient.
- It helps to obtain and maintain a close adaptation of the mucosal flaps to the underlying bone.
- It provides additional support to stabilize the free gingival graft.
- It protects the suture.
- It protects the wound post-operatively from irritation.

- It helps to minimize post -operative infection and hemorrhage by maintaining pressure after it becomes hard.
- It helps to obtain debris free area
  - It prevents proliferation of granulation tissue by filing up the "dead space" primarily the interdental spaces.
  - It helps to splint the mobile teeth.
  - It acts as a template for healing (prevents excessive formation of granulation tissue).
- It helps to desensitize the root surface and protect the exposed root surface from temperature changes.
- It helps in maintenance of oral hygiene which helps the patients to brush their remaining teeth.

Classification

According to Glickman, periodontal dressing are classified as.

1) Eugenol based periodontal dressing
2) Non eugenol based periodontal dressing

Zinc oxide eugenol based

- Wards wonder pack
- Orban's pack
- Goldman's pack
- Kirkland's pack
- Modified Kirkland pack

Non eugenol based

- Coe pak
- Perio care
- Peripac
- Vocopac
- Perioputty
- Barricaid- light cure
- Collagen dressing
- Metha acrylic gel dressing
- Cyanoacrylate dressing

- Fat containing pack
- Pack containing antibiotics
- Intra oral adhesive bandages.

Zinc oxide eugenol dressing

1) Kirkland pack

(Kirkland pack, Prudent, Corporation of America-, Brookline, Maes).

Power and liquid: The powder contains zinc oxide, tannic acid, rosin, kaolin, zinc stearate, asbestos and their liquid is composed of eugenol, peanut oil and rosin. The dressing is prepared by mixing the powder and liquid.

Zinc oxide (150 grams) is an antiseptic and astringent, tannic acid (14.0 grams) is hemostatic and zinc stearate acts as an accelerator. Tannic acid has been associated with liver disease. Rosin increases the strength and speed of the reaction and it yields a smooth and more homogenous product. Studies have proved that the presence of asbestos fibers has resulted in chronic destructive lung disease and carcinoma.

Eugenol (59.0 cc) is an anesthetic and obtundent, peanut regulates the setting time. It also contains lamp rosin (70.0 grams) that acts as filler and 29.5 cc of sweet almond oil. When the powder and liquid are mixed, setting occurs as a result of chemical reaction between Zinc Oxide and eugenol forming **Zinc Eugenolate.**

Paste form: They are dispensed as two separate pastes. In this , tube1 contains base as Zinc oxide -87%, mineral oil 13% -which acts as a plasticizer and aids in offsetting the action of eugenol as an irritant. The tube 2 contains accelerator oil of clove or eugenol 12%, gum or polymerized rosin 50%, silica type of filler 20%, lanolin- 3%, resinous balsam- 10% -which helps to increase the flow and improve mixing properties. It also contains accelerator solution (calcium chloride) and coloring agent 5%.

2) Modified Kirkland pack

In this type of pack the powder contains zinc oxide, tannic acid and powdered rosin. The liquid contains lamp rosin, sweet almond oil and eugenol.

Advantages

- It can be mixed long before the procedure

- Slow set

Disadvantages

- Brittle hence fracture may occur during placement
- Lack of patient's acceptance.

3) Kirkland Kaiser Pack

- The powder consists of equal amount of zinc oxide and polymerized rosin to form a mixture.
- Procedure: The powder and liquid are mixed together and heated over bunsen burner until polymerized rosin is liquefied and the pack is ready to use. It is wrapped in a butter paper and may be frozen.

4) Ward's wonder pack:(Westword Dental Products. Co.San. Francisco; USA).

Powder and liquid form

Powder contains zinc oxide, powdered pine, resin, talc and asbestos. The liquid contains isopropyl alcohol 10%, clove oil, pine oil, pine resin, peanut oil, camphor and coloring material. The main bulk is the zinc oxide powder and it reacts with eugenol to form zinc eugenolate by chelation reaction. Zinc acetate and stearate acts as accelerators and polymerized rosin provide strength and hardness. Cotton seed oil is used so that the irritation by the eugenol is reduced. To mold the pack easily the pack is mixed in putty consistency.

Paste form

Tube 1 contains base- zinc oxide-87% and fixed vegetable oil 13%.

Tube 2 contains accelerator -oil of clove or eugenol-12%, gum or polymerized rosin- 50%, filler(silica type)-20%, lanolin- 3%, resinous balsam-10%, accelerator solution – calcium chloride-5%, coloring agent Canada and Peru balsam.

Advantages

- Prepared in advance
- Immobilize the surgical area for desired time

Disadvantages

- Attributed to allergic reactions due to presence of free eugenol
- Spicy taste

- Lack of smoothness
- Difficulty with adaptation
- Frequency of fracture
- Crazing of acrylic material.

Advantages of zinc oxide eugenol dressing include

- Distinct splinting effect as it sticks to the teeth.
- It can be mixed in a large quantity, divided into smaller amounts, swapped tightly and frozen and at the time of use it is defrosted to room temperature.
- It is easy to manipulate.
- It does not stick to clinician finger as the non eugenol materials.

Disadvantages

1) Free eugenol in the set material-

- increases in amount as the Zinc eugenolate decomposes- MOLNER 1967
- cause burning and persistent taste alteration
- Marked inflammatory reaction and delayed healing

2) Rough surfaces of the set material causes tissue necrosis and delayed healing

3) Because of the firmness it is necessary for the clinician to use more pressure to manipulate and adapt the dressing. This could displace newly repositioned flaps.

4) Set with a sharp edge irritating the soft tissue and leaves a bad taste in the patients mouth.

The ingredients of the zinc oxide eugenol pack that where added previously are changed today. Asbestos fibers are now left out because of their related role in the etiology of pulmonary fibrosis, plural and peritoneal mesothelioma and lung cancer. Tannic acid is often omitted now since the need for a hemostatic agent in periodontal dressing is questionable. Negative qualities and lack of patient's acceptance makes this dressing not popular as it is once.

Non –Zinc oxide dressings

Coe-pak, peripac, vocopac, periocare, collage dressing, barricaid, cyanoacrylate, metha acrylic gel dressing (tissue conditioners), perio putty are all different types of zinc oxide non-eugenol dressings.

1) Coe pak(Eisenbrand in1962)

It is most commonly and widely used dressing material. Due to the pleasant taste than eugenol containing dressings they are more commonly used. Strength, setting time, handling characterization and patient acceptance makes this paste best than any other periodontal dressing.

It is supplied as two pastes or as an auto mixing system contained with a syringe.

Tube 1 – base

Contains rosin(regulates setting time) cellulose, natural gums, waxes, fatty acid and chlorothymol(bacteriostatic), alcohol.

Tube 2 – accelerator

Zinc oxide(astringent and antiseptic), vegetable oil, chlorothymol, magnesium oxide(helps in setting reaction), silica, synthetic resin, coumarin, lorothidol(fungicide).

On mixing it sets by chemical reaction between the ions and fatty acids. On setting it is firm and the pack is softer than zinc oxide eugenol dressing. The adhesion of powder gives the final dressing material more body and makes it less sticky

Auto mixing system

It is contained within the syringe. This syringe is made of two separate cylinders. Each contains one of the pastes. As the trigger is pulled mixing occurs within the tip of the syringe. The dressing material is then deposited in a mixing pad and applied on the surgical area within 30seconds to an appropriate shape. This will set harder than the manually mixed system.

Setting reaction

The reaction between the two pastes is by a process known as saponification. On mixing, the reaction between metallic oxides and non-ionizing carboxylic acids occur to form fatty acids. Antimicrobial properties of the coe pack are minimum. Physical properties like adhesiveness, homogeneity, non- permeable to saliva and bacteria make this periodontal dressing successful.

Application

When using coe pac the interproximal areas are filled first. Thin rolls of dressing are placed against the buccal and lingual surfaces of the teeth. The rolls are pressed against the tooth

surfaces and the dressing materials are forced into the interproximal areas. For isolated teeth separated by edentulous spaces the pack should be made continuous from tooth to tooth covering the edentulous areas.

Improper adaptation- overextension

- Tend to dislodge the dressing.
- Irritates the soft tissue.
- Interferes with occlusion and movement of tongue.
- Disturbs the wound healing- rocking motion.

Advantages

- Smooth, non-brittle and cohesive dressing material with pleasant taste.
- Germicidal activity

Disadvantages

- Poor appearance,
- Ill-defined setting time;
- Poor flow properties during manipulation
- Microbial colonization
- Does not stay for longer time and pushed up as tissue shrinks.

Peripac

Eberle and Muhleman introduced peripac.[6] It is a premixed paste.

Contents

Calcium phosphate, zinc oxide, acrylate, organic solvent, flavoring and coloring agents.

It sets to a hard state when exposed to air or moisture. Through the loss of glycol to the water in the saliva, it sets in the mouth. It is not as popular as other dressings because its use causes pain and swelling than other dressings. The main disadvantage in the new pack is that the material cannot be added to the existing pack which is deficient. It does not adhere to hard and soft tissue. It is not suitable to cover the wound surface in small areas due to its lack of cohesive property.

Haugen in 1977 studied the linear dimensional changes of freshly mixed samples of peri pac and concluded that the peri pac expanded and this expansion may be related to movement of dressing over the wound site.

Fat containing pack

The powder contains zinc oxide, rosin powder and zinc bacitracin and the ointments containing zinc oxide and hydrogenated fat. It functions by giving the patient the feeling of healing to the site. It prevents proliferation and growth of granulation tissue by filling up to the dead space.

Advantages

- Absence of tissue irritation and hard sharp edges like eugenol dressing.
- Aids in healing
- Being thermoplastic this material will soften in the mouth and it is easier to use and more comfortable to the patient and appears to be better tolerated.

Disadvantage

Did not set to a hard consistency as do eugenol dressing.

Periogenix

- It is a non eugenol dressing
- It contains perflurodecalin, pure glycerin, hydrogenated phosphatidyl choline, ceteary polysorbate, benzyl alcohol, propyl paraben and oxygen.
- Periogenicx allows for the exchange of oxygen and carbon dioxide into and out of the tissue.

Intra oral adhesive bandages

Oral adhesive (Bernard levy and Charles)[7]

It is supplied in thin and thick form and has protecting paper. Thin is 3” x 4” x 0.02” and thick is 3” x 4” x 0.06” .It is composed of polyisobutylene, sodium carboxymethyl cellulose, pectin, gelatin and a polyethylene backing. Just before use, it is cut to the designed size and shape and the thin protecting paper on the dull side is removed. The exposed adhesive surface is applied to the moist mucosal surface to be covered and held firmly for 30-60 seconds.

Wax pack

It is a mixture of cocoa butter and paraffin in equal amounts and cut into strips and applied after.

Periodontal varnish

It consists of gum of copal, gum matrix, tincture myrrh, ether and celloidin to cover the blood clot and protect the gingiva. Periodontal varnish is applied following scaling and curettage. They are dried before use.

Barricaid Light cure periodontal dressing[8]

A light curing dressing is useful in anterior teeth region. It is an advanced concept in the protection of periodontal wound site. This periodontal dressing eliminates time consuming processes like mixing of the pastes as in currently available periodontal dressings. It is available in a syringe for the direct application or dispensing on a pad and intraoral placement. The syringe should be discarded after the single use. Excess of dressing material can be easily removed following the curing with knife or finishing burs in a low speed handpiece.Curing of the material is accomplished by visible light curing unit and easily controlled by illumination with visible light. This will form a film, protective, non-brittle and elastic covering of the site. It offers protection and appealing appearance and is tinted for supreme esthetics and because of this it is used particularly following muco gingival surgical procedures. It can be applied without dislocating the soft tissues. It is important to dry the teeth and the soft tissues before the application for optimal adherence. Eye protection should be worn while curing with a visible light curing unit .Components of this material are polyether, urethane, di methacrylate resin, silanated silica, VLC photo initiator and accelerator, stabilizer, colorant. The disadvantages of this material are that it may cause skin sensitization in susceptible person and the polymerisable monomers can cause allergic contact dermatitis.

A recently introduced light cured resin claimed to be more biocompatible and esthetic[8]. This material is based on a polyether urethane dimethacrylate resin commonly known as Barricaid. Its physical properties like easy manipulation, better surface smoothness, interdental retention and mechanical properties are superior compared to non eugenol dressing and favor its clinical application. Translucent pink color which is esthetically pleasing is its major advantage with no unpleasant taste or smell. It is biocompatible, only a thin layer is required to be applied and does not limits its application in clinical practice.

Studies concluded that barricaid proves to be a better alternative to coe- pac as it overcomes the drawbacks of coe-pak.

Perio care: (Pulpdent Corp.brookline M.A)

Available as paste - gel form

Paste: Zinc oxide, Magnesium oxide, calcium hydroxide and vegetable oils.

Gel: Resin, fatty acids, ethyl cellulose, lanolin and calcium hydroxide.

- It is highly elastic periodontal dressing and does not chip
- It provided durable protection of tissue
- It does not support the growth of bacteria
- It is patients pleasing and has a neutral odour and taste.
- It contains no eugenol or asbestos

Manipulation: Exclude equal amount of paste and gel on the mixing pad. Using a suitable spatula mix until uniform color is formed. Mixing time is 30 seconds. It has 7 minutes of working time and sets in15 minutes. Clean the spatula with wonder- orange organic solvent.

Vocopac(Germany)

It is a newly formulated product which contains 90 grams of base and 90 grams of catalyst. There is no eugenol or coumarin. No history of gingival irritation and retains its elastic quality throughout its life in the patients mouth and does not become brittle. Mixing time is 20-30 seconds and it is applicable for approximately 10-15 minutes. Its adherence property is excellent and promotes healing.

Wax pack

It contains mixture of coco butter and paraffin in equal amounts. It is used after gingivectomy procedures. It is cut into strips and applied.

Perioputty: (Gurney in1961)

It is a non eugenol dressing in current use. It contains methyl and propyl –paraben for their effective bacteriocidal and fungicidal properties. It also contains benzocaine which is a topical anesthetic.

Advantage- bactericidal and topical anesthetic.

Collagen dressing: (collacote)

It is a collagen sponge and this material is type 1 collagen which is derived from bovine Achilles tenden. It is completely absorbable dressing sponge and that is approximately 3mm thick and can be cut to fit the graft site, following which bleeding is arrested and can absorb 30-40 times its weight in fluid, without swelling. It is used to cover and protect the palatal graft site. Collagen band dressing may offer significantly greater advantages over traditional non eugenol dressing.

Metha acrylic Gel dressing(periacryl 90)

Methacrylatic gels were used as tissue conditioners or as denture liners. Its elastic nature is ideal for using as denture liners.

This zinc oxide eugenol dressing is soft resilient, elastic like consistency and flow under pressure. Tissue conditioners are used as a dressing along with zinc oxide, otherwise when it is used alone it causes poor retention. Stiffness is obtained by incorporating the zinc oxide powder. The major advantage of this material is that it can be adapted closely to the tissue and is very comfortable with the wound site. Ability to carry and release medicaments to the soft tissue is another major advantage of this material.

Addition of chlorhexidine gluconate has an effective antibacterial activity. Disadvantage includes sensitivity to methacrylate.[9]

Cyanoacrylate

The basic formula for cyanoacrylate is CH=C(CN)-COOR. The use of cyanoacrylate is an alternative to suture and surface adhesive periodontal dressings. This material has a unique ability to cement the moist living tissue surface. In deeper tissues they become only partially phagocytosed. It can be applied as drops or sprayed on the tissue. A spray gun is used and the dressing solidifies in 10 seconds, polymerization from liquid to solid is catalyzed by heat, moisture and pressure. It can be applied to single tooth and does not induce excess granulation tissue formation. They prevent the accumulation of plaque and debris by sealing the wound site and because of that it was found to produce better healing. Advantage of this this periodontal dressing is the lack of apparent side effects, easy adherence to living tissues, immediate hemostasis, lack of evidence of systemic toxicity or sensitivity, excellent wound healing, precision in placement of flaps, absence of discomfort compared to suture, decreased suturing time, better patient acceptance, ease of application, less bulky compared to other

dressings and reapplication over existing materials. The disadvantage is once it gets trapped under the soft tissue flap, wound healing is delayed. Its major disadvantages are difficulty in application around posterior teeth and rapid polymerization upon contact with small amount of moisture.

Various anti-microbial agents in dressing- Packs containing antibiotics[10]

To reduce infection and to promote healing of surgically treated tissue, antibiotics and other antibacterial agents have been added. Drugs commonly used are Zinc bacitracin 3000 units per gram .Teramycin 125 mg powder with 6 drops of liquid. Neomycin and Nitrofurozone are tried and showed hypersensitive reactions.

Baer et al used bacitracin as an antibacterial agent in dressing and found suppressive effects on the growth of microorganisms.[11] Antibiotics like Teramycin in dressings following gingivectomies have been used before.[12] Chlorhexidine is well known for its antibacterial effects and its use with a dressing post surgically may be of value. Addition of chlorhexidine gluconate to methacrylic gel dressing has an antibacterial activity.

Factors to be considered while applying periodontal dressing

It should

- Adequately cover the exposed wound surface.
- Be bulky and its surface should be smooth.
- Never approach the muco gingival junction.
- Never approach the frenum and muscle attachments.
- Not encroach vestibule and alveolar mucosa and never cover the incisal and occlusal surface of the teeth.

Retention of the dressing

Mechanically by interlocking in interdental spaces, wire ligation, suturing the dressing with cotton tape embedded in it, a variety of stents and splints which fit over the teeth and gums, the use of interproximal spiral saws with cotton thread and foil are some of the devices used to keep the dressing from either being displaced or to reinforce them. Using copper band for retention on a solitary tooth surgical site has also been successfully used and it has been reported by Ahmed et al in 1972 and 1989.[13]

Removal of periodontal pack

- When the patient returns after one week, by using a surgical hoe the pack is removed along the margins with exerting gentle lateral pressure. Pieces of the pack retained interproximally and particles adherent to the teeth surface should be removed with scalers. Small particles should be carefully picked off with fine cotton pliers. The entire area is debrided to remove the surface debris.

Fate of the pack

- The pack is kept for one week conditioned demands- period may be extended for one week. It is advisable to repack for patients with low pain threshold[14], unusually extensive periodontal involvement and with slow healing for an additional week.

Theraupetic effects

- Teramycin in the dressing showed more of anti-bacterial effects accelerated healing, less odour, unpleasant taste, more comfortable, allergic reactions for some patients are expected. Peripac has the greater antibacterial effects and coe pac almost none. Due to its antibacterial property the dressing containing chlorhexidine promoted healing because of decreased bacterial colonization of the wound. As it inhibits the plaque role chlorhexidine is a valuable asset in post-surgical care.

Biological side effects

Tissue irritation

Both eugenol and non eugenol dressings can be cytotoxic[15,16] and in vivo, dilution may occur, as toxic substance leach into saliva and therefore dressing may be better tolerated when frequent mouth wash is used.

Cultural studies on cyanoacrylates showed definite toxicity with short chain molecules. Miller et al in 1974 noted some bone resorption in response to cyanoacrylates and considered that heat polymerization might also affect tissues.

Baer and Wertheimer in 1961- stated that tissue irritation in non eugenol was less when the periosteum is left intact.

Conclusively, tissue irritation is itself cannot be a ground for the definite exclusion of any materials except the short side chain cyanoacrylates. The irritant effects of eugenol are

perhaps countered to some extent by the obtundent action (Trevor -1979). Beyond doubt the accumulation of cyanoacrylate under flap could impair healing. It also prevents re vascularization in the case of free graft. Erickson in 1976 preferred suture to adhesives because of fistula formation.

Allergy

Koch et al 1973 was able to produce 10% incidence of allergy to eugenol. When the tissue is damaged a very low dose of antigen may sensitize a person.

Toxicity

- Tannic acid was also used in some dressing but absorption of this substance may lead to liver damage(Baer et al).
- Dyer in 1967, pointed out that asbestos has not only been involved in destructive lung diseases, but also in carcinoma of lung and mesothelioma.

Bacterial ecology

In the complex oral micro flora, variations may easily occur, where antibacterial dressings are used. Ramanow in 1964 found that clinical signs of candidiasis occurred when using tetracycline in dressing material alone. Bacitracin enhanced the growth of yeasts, though without clinical signs- Trevor 1979.

In complex oral micro flora, variations may easily occur where antibacterial dressings are used. Heaney et al in 1972 – if antibiotics are employed two problems may occur:

1) Emergence of resistant organisms
2) Opportunistic infection.

Zinc oxide eugenol causes irritation of the soft tissue which is probably due to irritation of soft tissue due to larger grain size. Free eugenol has shown to cause burning and persistent taste sensation. Tissue necrosis and delayed healing is caused by rough surface of set material. (Colman 1962). Radden in 1962 found that eugenol causes marked inflammatory reaction and necrosis of tissue. Koch et al in1973 was able to produce 10%incidance of allergy to eugenol. Barricaid visible light cure periodontal dressing causes allergic contact dermatitis as it contains polymerisable monomer.

Effects on wound healing

Effects of periodontal dressing on wound healing are still uncertain. Dressing has little influence on healing provided the surgical area is kept clean. The presence of inflammation at the wound site had nothing to do with the rate of healing whether or no dressing is placed. Stahl et al speculates that repair might be improved if the dressing is not used, because of the accumulation of plaque that irritates the healing tissue. Studies says that periodontal dressing do not improve post-operative healing and do contribute to plaque retention and promote bacterial proliferation at the surgical site.

Heaney 1976 stated the dressing functions primarily by assisting healing indirectly through protection of the wound from further injury and secondarily by providing patient comfort,[17] Baer et al in 1961 reported that dressings provoked reactions in the bone. Los in 1996- even in the absence of dressing healing took place and concluded that a dressing has little influence on healing provided the surgical area is kept clean.- No pack hypothesis.

No pack philosophy

Stahl et al in 1969 compared the effects of periodontal dressing in gingivectomy procedures and found that there is no advantage in the use of periodontal pack, evidences now available dictating that from the stand point of healing alone, no benefits are derived from the periodontal dressings. They speculated that repair might be impaired if dressing is not used, since it accumulate plaque and irritates the healing of the tissue. It was concluded that the dressing should be removed within 1 week of surgery to prevent alterations in the healing patterns due to bacterial growth. In fact the presence of periodontal pack may impair the repair process. They allow seepage of bacteria and fluid into the wound area into the closed spaces or the dead spaces created in the pack. Clinical observations are missed but the concern is that from healing point of view, it really does not matter whether a surgical site is dressed or not. After several weeks dressed and undressed areas look similar.

A number of reports have indicated that it may not be necessary or desirable to use a periodontal dressing on post -surgical area. Loe and sillness noted that in the absence of a dressing complete healing still took place ad concluded that a dressing has little influence on healing provided that the surgical area is kept clean. Jones reported more personal discomfort when the dressing was used and generally expressed a preference for no dressing.

Based on recent studies, it appears that the periodontal dressings do not improve post-operative healing and do not provide a significantly greater degree of patient comfort. They do contribute to plaque retention and may promote bacterial proliferation at the surgical site.

DISCUSSION

Effects of periodontal dressings on tissues undergoing is still not known clearly. Kaplan et al concluded that the use of dressing following periodontal surgery facilitates healing, but majority of the studies says it does not influence the healing process.

Dressing functions primarily by assisting healing indirectly through protection of the wound from further injury and secondarily by providing patient comfort.

Periodontal dressings provoke reactions in the bone and eugenol dressing elicited the strongest reaction with less evidence of repair than non eugenol dressing. Protection of denuded bone is important and this can be done by using an inert separating medium as a Teflon foil.[18] The gap between periodontal dressing and bone is very important for the degree of reaction because any separating medium protects the osteocytes from damage.

SUMMARY AND CONCLUSION

Use of periodontal dressing in routine use may not be necessary because of better surgical technique and the use of antibacterial mouth rinses. Proper adaptation of the pack considerably reduces seepage of saliva and formation of plaque between the wound surface and the dressing material. Periodontal dressing indirectly protects the wound from infection. Post-surgical pain and discomfort are based on patient's responses.

The use of periodontal dressing has been widespread for many years and number of factors weighs against the use of the dressing. Usefulness and their effect on periodontal wound healing are still under the debate.

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