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Restorative management of common oral diseases in the elderly

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Abstract
Geriatric endodontics focus on differences and challenges in diagnosing and treating pulpal and periradicular disease in older patients by reviewing the signs, symptoms and treatment of root canal procedures. The growing population & #39; s needs are different than those of the general population, and this library disseration touches on how to observe various factors that can affect older adults. This review paper discuss about the restorative management of teeth in geriatric patients.

Keywords: geriatric, restoration, proportion, maintainance

Introduction
Geriatric Endodontics will gain a more significant role in complete dental care as an aging population recognizes that a complete dentition, and not complete dentures, is a part of dentistry. Geriatric endodontics focus on differences and challenges in diagnosing and treating pulpal and periradicular disease in older patients by reviewing the signs, symptoms and treatment of root canal procedures. The growing population's needs are different than those of the general population, and this library disseration touches on how to observe various factors that can affect older adults [1].

Restoration
Old dentition generally has many restorations with faulty margins. This coupled with poor oral hygiene and dry mouth increases risk of secondary caries.

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Dental caries
The prevalence of dental caries in older adults is said to be more than 50-60%. While the incidence of coronal caries in the old is more or less similar to the young, root caries incidence is much higher (40-70%). In the elderly, proportion of secondary caries predominates over primary caries and repairs and replacements make the major operative work in today practice. 93% of recurrent caries are associated with silver amalgam occurs at gingival proximal locations of class II restorations or crowns.

As a first step it is imperative to evaluate the risk factors involved as it plays a major role in treatment planning. A thorough history of medical conditions and medication has to be analyzed. Diet history with specific information on sucking candies etc. has to be elicited. Salivary volume and buffering capacity tests can also help make decisions. Taking into consideration the various determinants, treatment can be instituted in two phases.

- Restorative phase
- Maintenance phase

Restorative considerations for coronal caries
The selection of restorative techniques in older adults is more or less similar to that in younger population. However, permissible direct plastic restorative materials are preferred in the former as these restorations can be readily and inexpensively repaired or replaced. Owing to the presence of several risk factors, caries activity is quite high and therefore requires frequent maintenance which might not be easily done in an indirect restoration.

Restorative considerations for root caries
Root carious lesions are mostly situated subgingivally or gingival to the proximal surface making visibility, accessibility and isolation extremely difficult. The process of mineral loss in root caries can be twice as fast as that on enamel. Billings *et al.* in 1984 had categorized root caries into several grades and outlined the treatment plan that holds good even today [2].

Therefore caries activity will continue to remain high and unpredictable which might even increase with advancing age. So maintaining low caries activity amidst increasingrisk factors for the rest of their life is challenging and many a times frustrating. With the mechanism of caries being the same in the young and the old, preventive strategy also remains the same with minor modifications to suit the elderly. Daily use of fluoride dentifrices and fluoride rinses along with periodic topical fluoride application regime is advisable. Fluoride varnishes may be preferred over other forms, automated toothbrushes may be of some value in people with reduced dexterity [3].

Maintenance phase

In the elderly, not only are the risk factors are many and co - exist; many of them cannot be eliminated. Therefore caries activity will continue to remain high and unpredictable which might even increase with advancing age. So maintaining low caries activity amidst increasing risk factors for the rest of their life is challenging and many a times frustrating. With the mechanism of caries being the same in the young and the old, preventive strategy also remains the same with minor modifications to suit the elderly. Daily use of fluoride dentifrices and fluoride rinses along with periodic topical fluoride application regime is advisable. Fluoride varnishes may be preferred over other forms. Automated toothbrushes may be of some value in people with reduced dexterity.

Chlorhexidine gel/mouth rinses/varnishes are advised. 10 % varnish is preferred over rinse/gel once a week for four weeks. New remineralization products containing casein phosphopeptide-amorphous calcium phosphate (CPP-ACP), casein phosphopeptide-amorphous calcium phosphate fluoride (CPP-ACPF), may also be of some benefit. Xylitol containing candies help not only in getting over the dryness but also prevents caries. All possible measures should be taken to prevent further loss of gingival tissue attachment which is most crucial to prevent root caries [4].

Restorative material in adult

Glass Ionomer Cement (GIC) is the choice of restorative material due to the it's adhesive property allowing minimum preparation, fluoride release, reasonable esthetics, biocompatibility and less technique sensitivity as compared to composites. New and alternative caries management strategies have been suggested by many.

Holmes demonstrated reversal of leathery root caries (grade I and II – non cavitated sites) on exposure to ozone. Exposure of the lesion to ozone for 10-40 seconds is said to be anti-microbial, eliminates the ecological niche, and removes acidity allowing remineralization. Use of carisolve and lasers for caries excavation has also been suggested especially for those who don't tolerate local anesthetics.

Currently, glass ionomer cements are the preferred restorative materials for carious root lesions because they provide a long-term seal against micro-leakage, continuous fluoride release, require minimal cavity preparation and are well tolerated by the pulp and gingival tissue. A sandwich technique involving the use of glass ionomer cements as a liner under resin composite restorations optimizes the benefits of both materials. The concomitant use of dentin bonding agents allows for more conservative tooth preparation and improved marginal integrity. Acid etching of enamel is more effective in the older tooth, requiring a shorter time for a retentive bond, and should be used with all types of restorative materials. Research states that there is little need to place a base under a restoration in the older patient other than to create an environment toxic to remaining bacteria when, to avoid an exposure, the clinician has made a decision to leave behind infected dentin. Most bonding agents work well as liners and therefore there is little need for application of a separate product [3].

Composite

Composites have excellent esthetic properties and are applied most frequently in anterior tooth cavities. In the 1980's, the mechanical and physical properties of composite resins, fillers, coupling agents, and bonding agents were improved, and a number of brands have been approved by the American Dental Association for posterior restorations in nonstress-bearing situations. When used in large restorations, including virtually all posterior situations, an incremental filling technique must be utilized to ensure complete polymerization and to minimize the effects of shrinkage of the resin on the final size of the restoration. Compared with amalgam restorations, the longer time necessary to properly complete this procedure has implications relative to moisture contamination and financial cost to the patient.

Exacting techniques are necessary for the successful placement of a composite resin. Composite restorations rely upon mechanical and chemical adhesion of the material to the tooth surface to seal margin areas and, thus, are sensitive to moisture contamination during placement. The difficulties presented in controlling saliva and the moisture normally present on tissues of the tooth create an unfavorable surface for adhesion. This is a major consideration in clinical decision making, because moisture control is difficult in many patients and in the most posterior areas of the dentition. Marginal leakage and the formation of recurrent caries are likely consequences of moisture contamination [5].

Increasingly, individuals desire attractive, as well as functionally satisfactory, teeth. Composite resin currently has limited, but important, applications as a posterior restorative material. Its use in treating incipient lesions in conjunction with sealants is an important step in the long-term conservation of tooth structure. Unfortunately, as a recent worldwide survey has shown, the teaching of placement techniques for posterior composites is limited. Professional dental education rarely includes significant opportunities for students to gain clinical experience in the use of composite resins as posterior restorative materials (Wilson and Setcos, 1989) [3]

Advantages

- Esthetic
- Low thermal conductivity
- No galvanic reactions
- Direct material (one-appointment placement)
- Easily repaired
- Bonded resin may enhance tooth strength
- Conservative preparation technique minimizes removal of sound tooth structure.

Disadvantages

- No self-sealing quality like amalgam, nor fluoride release like glass ionomers; once the bond is broken between the adhesive and tooth, leakage occurs with a high rate of secondary caries
- Excessive wear under stress
- Low fracture strength

Indications

- In small-to-moderate cavities in posterior teeth in no- to minimal-stress-bearing situations
- For all small-to-moderate anterior restorations
- For repair of porcelain crowns
- As a preventive resin.

Contraindications
- For stress-bearing posterior restorations; the more posterior the restoration, the greater the wear (molars wear twice as fast as premolars); the larger the surface area covered, the greater the wear.
- When moisture control is poor [5].

Pit and Fissure Sealants and Preventive Resin Restorations

Some of the pits and fissures of teeth largely are fused during tooth development, while others may remain microscopically open and impossible to clean. The latter fissures are potential sites for the colonization of caries forming bacteria, despite the best oral hygiene efforts. Sealants are resin materials that flow easily and, when applied to the acid-etched surfaces of pits and fissures of posterior teeth, bond to the enamel and seal the pits and/or fissures from bacterial invasion and debris [6].

The decline in caries rates experienced over the past 30 yeas in the United States has resulted largely from the addition of fluoride the drinkng water and to dentrifices (PHS, DHHS, 1991). Fluoride, however, has its greatest effect on the smooth surfaces of the teeth and lesser benefit protecting pits and fissures. Graves and Burt (1975) found that more than 91 percent of the callous surfaces in permanent first moles of children up to grade 6 were in pits and fissures. The National Children's Oral Health Survey of 1979-80 reported that 84 percent of the cases experience of 5- to 17-year-old children occurred in pit and fissure surfaces (NIDR, 1981).

The 1983 National Institutes of Health Consensus Development Conference on Dental Sealants in the Prevention of Tooth Decay concluded that pit and fissure sealants were a safe and effective means for preventing pit and fissure cases. "Expanding the use of sealants would substantially reduce the occurrence of dental cases... and improve the health of the public and reduce expenditures for the treatment of dental disease" (NIH, 1984).

Investigators are examining other uses for sealants, such as sealing over the surface of amalgam restorations to reduce or eliminate the release of mercury vapor from the surface. Promising results also have been reported in improving wear rate and marginal integrity and in reducing bacterial leakage for both posterior composites and amalgams by applying sealants over the surface (Mertz-Faithurst and Ergle, 1991; Dickinson *et al*., 1990) [6].

Advantages
- Esthetic
- Low thermal conductivity
- No galvanic reactions
- Direct material (one appointment placement)
- Easy to repair
- Bonded resin may enhance tooth strength
- Conservative preparation technique results in minimal loss of healthy tooth structure.

Disadvantages
- No self-sealing quality like amalgam or fluoride release like glass ionomers; once the bond is broken between the adhesive and tooth, leakage occurs with a high rate of secondary caries
- Excessive wear under stress
- Low fracture strength
- High technique sensitivity
- Harder to manipulate for dentist in Class II preparations
- Generation and subsequent inhalation of dust during finishing procedures represent potential hazard for the patient and especially for dental staff.

Indications
- For small pit or fissure cavities in posterior teeth in nonstress-bearing areas.

Contraindications
- For stress-bearing posterior restorations
- When moisture control is poor [7]

Amalgam

Amalgam is a restorative material that requires mechanical undercuts and adequate condensation, two factors that may be difficult to meet when restoring carious root lesions. Due to the lack of fluoride release and esthetics, and the need for conventional retention form, amalgam is not always the material of choice for root area restorations. However, amalgam works remarkably on surfaces that act as anchor teeth for removable partial dentures [7].

References

1. Geriatric Endodontic- chapter 23: Endodontic principles and practice walton and torabinejad.
2. Hodge HC. The concentration of fluoride in drinking water to give the point of minimum caries with maximum safety. J Am Dent Assoc. 1950; 40:436-439.
3. Natalie Kaweckyj- Geriatric Dentistry: Reviewing for the Present, Preparing for the Future January 21, 2015
4. Roopa R Nadig, G Usha, Vinod K, Raghoothama Rao. Anupriya B-Geriatric restorative care-the need, the demand and the challenges- Journal of conservative dentistry. 2011; 14(3):208-213.
5. Wilson and Setcos- Mechnical and Physical properties of composite resin. 1989.
6. Mertz-Faithurst, Ergle Dickinson. *et al*. Restorative material. J Am dent assoc. 1990.
7. Nomann NA, Polan MAA, Jan CM, Rashid F, Taleb A. Amalgam and composite restoration in posterior teeth-Bangladesh Journal of Dental Research and Education. 2013; 3(1):30-35.