# PIT AND FISSURE SEALANTS

## AND

# ATRUMATIC RESTORATIVE TECHNIQUE

LECTURE BY,
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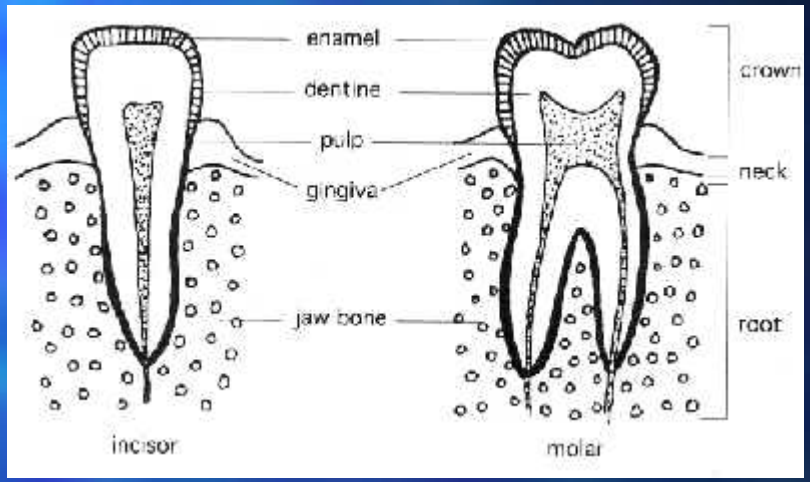
# INTRODUCTION

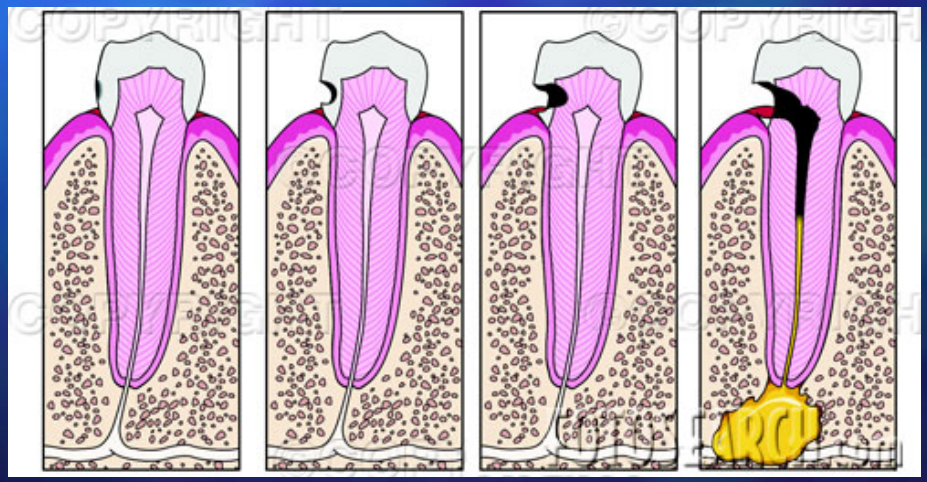

CARIES:- Dental caries simply define as Destruction of tooth surface caused by bacteria.

most of the caries begins with accumulation of food debris , bacteria And other micro particles in deep pit and narrow grooves present on occlusal surface of the teeth, and letter on

Causes tooth destruction.

so if we obliterate this grooves , deep pit, fossa and fissure then we can prevent the accumulation of food particles in that . And also prevent caries. For this we need some type of material which and be safely placed on that grooves, pit, foosa and fissure.

This requirement and new experimental studies give us the material called as “PIT AND FISSURE SEALANTAS”



- Overview
- Types of pit and fissure sealant
- How do they work?
- Criteria for Sealant Placement
- Indications for sealants:
- Contra-indications for sealants
- Potential Problems, and Possible Solutions with Sealants:

# Overview

- Sealants are a safe and effective hard material which is placed in the grooves on a tooth surface.
- They obliterate the grooves, deep pits, fossa and fissures on the upper (occlusal) surface of the molars (the upper portion of the molars where the food gets chewed).

# Types of pit and fissure sealant

| BASED ON | TYPE | CHARACTERISTICS |
|---|---|---|
| GENERATIONS | 1. First generation sealants | Activated by ultra violet light<br>no more used, as a u-v is harmful |
| | 2.Seceond generation sealants | chemical curing resins eg. concise |
| | 3.Third generation sealants | activated by visible light. eg. fissurit |
| | 4.Flouride containing sealants | Double protection |
| Fillers | 1. free of fillers | flow is better |
| | 2. semi filled | more resistant to wear |
| | | Esthetic but difficult |
| Colour of the sealants | 1. clear | to detect at recall examination |
| | 2.tinted | can be easily identified |
| | 3.opaque | can be easily identified |

# How do they work?

## They work in two ways to prevent caries development:

I.Keeps substrate (i.e. food and bacteria) out of deep pits, grooves and fissures on the teeth

II.Create an oxygen free environment which eliminate the aerobic bacteria(which require oxygen for their growth) and other decaying matter residing in this area of the tooth.

# Criteria for Sealant Placement:

Generally, there are two criteria used to determine whether or not a patient is a suitable candidate for a sealant placement, namely:

- Deep occlusal fissures present in a carious tooth
- Deep occlusal fossa present in a carious tooth

# Indications for sealants:

I. Antimere (tooth on the opposite side of the mouth) with similar morphology (ie, similar deep groove pattern) has caries/decay or a filling. This is an indication because the tooth on the other side, since it looks the same, represents a similar risk. Therefore, if there is decay or a filling on the antimere tooth, there is a risk that the tooth will decay and later need a filling.

II. Shortly following tooth eruption (usually within 3 yrs). This is an indication because within the first 3 years that the tooth has been in the mouth, there is the highest risk of forming decay. Also, if a sealant is to be placed, it needs to be erupted enough so the entire top / occlusal surface of the tooth must be exposed. If this is not the case, one cannot access the surface to place the sealant.

III. Absence of proximal caries (decay **between** teeth). This is an indication because if a filling needs to be placed for this type of decay after a sealant has been placed, the sealant will break off.

IV. In conjunction with a fluoride program. This is an indication because fluoride helps reduce the risk of decay and will compliment the role of the sealant in preventing cavities.

# Contra-indications for sealants:

1. It is contraindicated in all kinds of decay (occurring on occlusal or proximal surfaces.)

2. The tooth has been in the mouth for several years and there is no decay. This is a contraindication because there is little risk of decay forming on the tooth once it has survived decay-free for so many years.

# Potential Problems, and Possible Solutions with Sealants:

| Problem | Solution |
| --- | --- |
| I.Air bubbles may be present between or under sealants | The sealant should be ground down to expose the air bubble, and the bubble should then be filled / repaired with the same sealant material |
| II.Porosities may develop in the sealant (for example, if water contaminates the tooth during sealant placement) | Reapply the sealant. If this is delayed, decay may form around the edges |

I.Sealant may fall off

Reapply the sealant. Sealants will not last forever, but they should last for many years. Even if sealants fall off, they still provide some tooth protection, as some material may still remain in the micro porosities created in the tooth by etching

I.Caries / decay left under the sealant

If lots of decay was left the sealant should be removed, and a filling or PRR should be placed. If there was an extremely tiny amount of decay left then it is usually not a problem since sealants create an environment lacking oxygen, thereby rendering bacteria unable to metabolize and form more decay

# Pit and Fissure Sealants - Procedure

## Procedure

### Steps in Applying a Sealant

# Cleansing of tooth

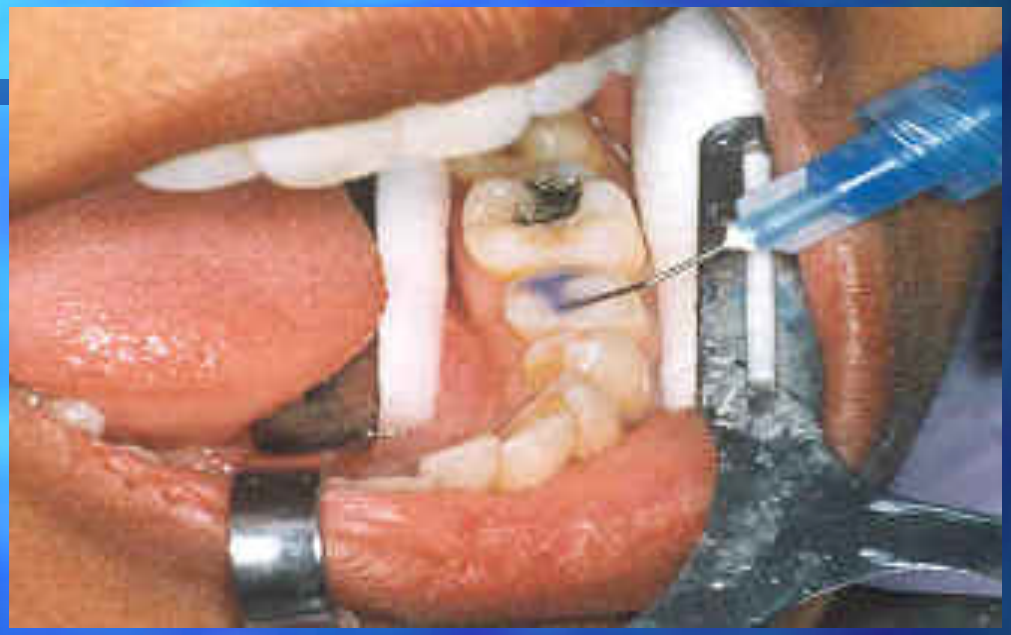
As in all dental procedures, one must begin with appropriate cleansing of the tooth. This is done using a prophy cup and pumice with water used. The explorer is run through the grooves to free untapped pumice. Following this, thoroughly wash, dry, and re-examine.

# Tooth Isolation

Note that if the tooth is moistened and contaminated with saliva, the etching must be done over again.

In order to maintain a dry field to work in, rubber dams, cotton rolls and dry angles are used.

# Enamel Etching



37% phosphoric acid is used to create microporosities within the enamel, which permits a low viscosity resin (sealant) to flow in and penetrate the roughened (etched) surface, thereby producing a mechanical lock of resin tags. The tooth is etched 20-30 seconds and then fully rinsed and dried.

# Application of Sealant Material

Now, the sealant material is applied, and a brush is used to allow it to follow the curvature of the tooth

# Curing of Sealant Material

Visible UV light is used to cure (harden) the resin/sealant materia

# Inspection & Re-evaluation of Sealant

1. A probe is used to ensure that all grooves are filled/sealed and the tooth surface is smooth.
2. also verifies that the sealant does not extend over the marginal ridge (upper sides) of the tooth.
3. The occlusal interferences are checked to ensure that the sealant was not built up too high, which would result in premature contact between the respective teeth.
4. Note that all contact points between the upper and lower teeth must be between teeth only.
5. If contact points are on sealants, the sealant must be trimmed down with a round bur.

# WHAT IS ART

**The Atraumatic Restorative Treatment (A.R.T.)** is a procedure based on excavating carious cavities in teeth using hand instruments only and restoring them with an adhesive filling material (glass ionomer).

A.R.T. offers the oral health worker a way to treat decayed teeth at an early stage, which is non-threatening, is provided at a low cost, and can prevent extractions in most cases

# INDICATION OF ART

1. This procedure was originally developed because millions of people in less industrialized countries and special groups like refugees and people living in deprived communities are unable to obtain dental care.

2. These people have not benefited from the developments that have brought about improved oral health in the industrialized world.

3. The absence of electricity and the traditional idea that restorative dental care requires electrically driven equipment are the main reasons underlying this situation.

4. In contrast the A.R.T. approach enables treatment of cavities in teeth of people residing in areas where electricity is not available, or where the community cannot afford expensive dental equipment

5. In developed countries, the ART Technique has found a place in the modern surgery. A patient with multiple carious lesions is treated with the ART Technique and the carious process stabilized before a more definitive restoration is placed.

6. Dentists have found that this technique is useful for nervous patients who are scared of the drill, and restorative procedures are accomplished using hand instrumentation only.

7. ART is also found to be useful in treating patients with medical or physical disability.

8. The procedure may be carried out in the patient's home or in the hospital.

9. **Use of the ART Technique is also useful in introducing children to dental care and helps to overcome any fears of traditional dental treatment.**

# The two main principles of ART are:

- Removing carious tooth tissue using hand instruments only
- Restoring the cavity with a glass ionomer

## The reasons for using hand instruments rather than electric driven handpieces are:

- it makes restorative care accessible to all population groups
- the use of a biological approach, which requires minimal cavity preparation that conserves sound tooth tissues and causes less trauma to the teeth
- the low cost of hand instruments compared to electrically driven dental equipment
- the limitation of pain that reduces the need for local anesthesia to a minimum and reduces psychological trauma to patients
- simplified infection control; hand instruments can be easily cleaned and sterilized after every patient

# The reasons for using glass ionomers

- As the glass ionomer chemically bonds to both enamel and dentin, the need to cut sound tooth tissue to prepare the cavity is reduced
- fluoride is released from the restoration to prevent and arrest caries
- glass ionomers are biocompatible, does not cause any irritation to pulp and gingiva and has a coefficient of thermal expansion similar to tooth structure

# *Ongoing*
# Atraumatic Restorative Treatment (ART) Programme in some rural areas of Turkey (II)

preparing, gathering around..

# recording ..

*aaaa ..*

# *you are great ..*

THANK YOU

THANK YOU