**Choices of materials you have for restoring primary teeth**

**A.materials for restoring anterior primary teeth:**

What's the ideal restorative material??

Ideally, the best is the tooth itself , that's why we always do the best thing when preserving tooth structure

\*\* The material I want to use:

\* durable \* simple to us \* last life time of the tooth

\* painless while applying \* insensitive \* can tolerate the cavity you have

\* acceptable in terms of taste and during the procedure itself

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about **caries assessment** which u must do for every patient, also to help u decide which type of restoration to use. What does this involve?

Monitoring the pt, see if the lesion will be active (put a restoration)

 or to be arrested (manage it biologically, this is the preventive method).

what are the factors u have to consider in relation to our restoration?

\* developmental stage of dentition (roughly the age of the patient)

\* history of caries

\* Caries risk assessment

\*Cooperation of child(v. Imp and this will take time to deal with, and sometimes u have to change ur treatment plan if ur child isn't cooperative so it's v. Imp)

\* Parental compliance

Chronological age and dental age are not always the same. U can use that as a guide , that important because I'm going to replace a filling and I want to know how much that filling will stay in the mouth.

D exfoliates around 9-10

E exfoliates around 10-12

6 is a permanent tooth, so when placing a restoration, it should last a life time.

Another thing to consider is the natural history of caries. We talked about bacteria and the most common route is transmission which is the vertical transmission (from the mother)

The earlier the child is colonized with cariogenic bacteria, the greater the caries risk.

The white chalky spots on enamel around the gingival margin (incipient caries) of demineralized areas, it's an early caries and doesn't need restoration. Only to be managed to prevent further damage to tooth.

 Buccal and lingual surfaces are smooth surfaces and managed by prevention.

If u have cavitated fissure or proximal lesion, usually u will need a restoration.

Although cavitated fissure can be managed by sealing.

So without dentinal involvement, seal the caries to not be in risk.

One of the difference between primary and permanent teeth is the thickness of enamel. It's thinner proximally in the permanent so you will expect faster progression “Recall: it's slower in primary and faster in permanent.”

How to know if a lesion is active or arrested?

From color (arrested: dark/ black, while active: brown), texture (hard in arrested, soft in active).

Arrested caries is more demineralized than a tooth without caries, so more resistant to caries, so don't have to be restored. If I remove it I will destroy the tooth, so leave it and monitor to make sure no problems there.

In exposed dentine, it's brown and soft and need to be restored

Most important part is past caries experience, if he has caries and E is erupted, the first thing comes into mind is to use fissure sealant on 6 because it's in risk.

Other things to look for in caries risk assessment: demineralization, mother’s caries activity, sibling caries activity, bacterial level, whether getting fluoride from water or not, sugary consumption, diet, dental home.

The AAPD encourages parents and other care providers to help every child establish a dental home by 12 months of age

High caries risk→ the pt needs fluoride

Fluoride in tooth paste, varnish.

In terms of materials:

* GI is a good option (easy to use)
* Composite is useless (cooperation & isolation) it doesn't give cooperation in relation to etching and bonding it takes time.
* Amalgam needs retention but it's less sensitive than composite.
* RMGI is less sensitive too.
* Compomer u don't need to etch neither wash it dry , only place a primer, so it's a one-step less.

SSC: we like it because it covers the whole tooth so best seal and protection, when having MO caries then covering it by SSC, less chance to have DO with time.

According to AAPD…. If the child need 8 pulputomys & 8 SSCs, it might just best to go for extraction.

If we are under GA, extract the Ds and try to maintain the Es, because the Ds in term of occlusion are not that important like Es.

For anterior teeth you can use:

1. Composite
2. glass ionomer
3. RMGI ( good option) : is more GI than composite
4. Polyacid modified glass ionomer : is more composite than GI
5. SSC
6. Strip crowns
7. Zirconia crown

**Composite**

Advantages:

1. Aesthetic
2. Adhesive
3. Good wear resistance

Disadvantages:

1. Technique sensitive
2. Chance of secondary caries
3. intolerant to moisture

**Glass ionomer**

Advantages:

1. Chemical binding to enamel and dentine, so sometimes if we don’t have an enamel, GI is a good option
2. Thermal expansion is similar to the tooth
3. It takes up and release fluoride (major advantage)
4. Decrease moisture sensitivity

Disadvantages:

1. Poor wear resistance (major disadvantage)
2. Poor tensile strength
3. Long setting time (so we put bond or varnish or Vaseline) … need to be protected while its setting

To overcome this disadvantages they modified glass ionomer to polyacid modified composite resin

**Polyacid modified composite resin**

It’s a composite resin with glass ionomer characteristics

Advantages:

1. East to use
2. Better mechanical properties than GI

Disadvantages:

1. Doesn’t release fluoride as much as GI (only 10% … which is very little)
2. Can’t be recharged by fluoride
3. Less wear resistance than composite ( because it has a little GI so it decreases the strength)

**Resin modified glass ionomer**

* There is a lots of studies on this material that shown that it has a good results in term of restoration of primary teeth.
* Conventional GI + Bi-GMA + photo initiator
* Commercial examples: Vitremer (3M) & Fuji 2 LC
* Available forms: Powder or capsule

Advantages: (combine both composite and GI)

1. Better aesthetic
2. Better strength (adhere to both enamel and dentine)
3. Less more sensitive

\*\*\*they found that success of RMGI for class III & V in primary teeth is quite high… so it’s a very good material to have.

>>> the previous materials are for intracoronal restoration

>>> the full coronal restoration … SSC, strip crown , preveneered crowns, …

**Class V**

Very common and very simple

Outline the form of the cavity > remove the caries and the decalcified areas to make sure that you have sound enamel.

To increase the retention you can have a small undercuts or retention grooves.

Class V is an ideal restoration to start the treatment with it because it’s simple and u don’t need to give LA… so you can use all behavior management like tell-show-do.

\*\*\* What the procedure that we don’t use Tell-Show-Do technique? In local anesthesia
**Class III**

The commonest restoration to fail …. Because of small crown, large pulp space and retention is a problem in this restoration.

To increase the retention:

1. Do a very small slot preparation
2. Do dove tail (as in class II) lingually or palatally or labially
3. Do a labial preparation (as veneer) , don’t prepare the whole tooth , just around the margin of the cavity so we will increase the surface area (less destructive technique than #1 and 2)

One of the challenging restoration in achieving good isolation and increasing retention.

**Full coronal restorations**

Indications of full coronal restorations:

1. Used when the child have multiple caries or multisurface caries
2. Incisal edge is involved
3. Extensive cervical decalcification
4. Following pulp therapy like primary molars because the tooth will be weaker and doesn’t have enough tooth structure.

Types:

1. Preformed that held on the tooth by luting cements
2. Bonded to the tooth (as a strip crown, which is basically composite and it’s very esthetic).

**Strip crown**

A celluloid crown which is made especially for primary anterior teeth

All what you do is like permanent teeth; you put composite inside the crown, place it, cure, remove the celluloid sheet & finish the composite

Very aesthetic

Sensitive technique because you are using composite

**Pedo jacket**

It’s a tooth colored copolyester material which is filled with composite resin and left on tooth after polymerization instead of removing it.

Disadvantages:

1. comes in one shade only …. Not aesthetic
2. You can’t trim or reshape or finish the crown

**SS crown**

A preformed crown

It’s held to the tooth by mechanical cervical creep of the tooth and held by luting cement

Disadvantage: not aesthetic ….. to solve this problem they made what’s called Open faced SSC ….

Place the SSC on the tooth, then remove the labial metal and then they add composite instead.

**Pre veneered SSC**

A SSC that come already with aesthetic facing

Bonded in facial surface

Attach mechanically with aesthetic facing

Very aesthetic

Problem with fitting it

Ex.: NuSmile, Kinder Krowns and Cheng Crowns

**Pedo perals**

Aluminum crown covered by epoxy resin

Not very aesthetic in terms of color

**Zirconia crown**

Very aesthetic

Difficult technique (need preparation of tooth with finish line that is subgingival)

a lot of tooth structure needs to be removed

sometimes you have to do pulp therapy because you will expose the pulp

more expensive than SSC

* Composite >>> good for class III, IV, V

(need good cooperation and isolation)

* GI & RMGI >>>> class III & V
* Full coverage >>> when I don’t have enough tooth structure