

Occlusal Surface Management

- ◆ Sealant
 - With Fluoride?
- ◆ Preventive Class I Resin Restoration
- ◆ Class I Glass Ionomer
 - Primary Teeth
- ◆ Class I Composite
- ◆ Class I Amalgam

Caries

- ◆ Incipient > Remineralize
- ◆ Pit and Fissure Sealants
- ◆ Preventive Resin Restorations
- ◆ Class I Composites
- ◆ Class I Amalgams
- ◆ CL II, SSC, Strip Crown Ant's


Reasons for
initial caries
in the occlusal region






OPERATIVE PRINCIPLES

1. Anesthesia
2. Isolation
3. Establish Depth
4. Outline Form
5. Ideal Preparation Completed
6. Excavation Completed



**PIT and
FISSURE
SEALANTS**



Sealants

- Excellent Long-term Prevention
- Poor Utilization – 20%

Indications

- ◆ Pits and fissures in premolars and molars
- ◆ Anterior teeth
- ◆ Adults and children

Contraindications


- ◆ Exfoliation in Six Months
- ◆ Proximal Caries
- ◆ Occlusal Caries Visible on Radiograph
- ◆ Open Fissure
- ◆ Fissure Margins Undermined





**“The results support
the safety of sealing
incipient caries...”**

Handleman et al.
JADA 1986



Sealant Application Technique

- ◆ Isolation
- ◆ Etching
- ◆ Rinse and dry
- ◆ Application
- ◆ Light-curing
- ◆ Check occlusion

Isolation

- ◆ Rubber Dam
 - Unless Gingival Clamp Required
- ◆ Cotton Rolls
- ◆ Dri-Angles
- ◆ Saliva Ejector Always


ACID CONDITIONING





Evaluate Retention

- ◆Immediately Post Curing
- ◆Use Explorer at ALL Margins
- ◆Most Failures in First 24 Hours
- ◆Evaluate at EVERY RECALL
 - As with ALL Restorations





ADVANTAGES
VISIBLE LIGHT *VS* CHEMICALLY CURED

- "DEMAND CURE "
- DECREASED CURE TIME
- HOMOGENOUS MIX
- DECREASED STRESS - BONDING SITE
- USE MULTIPLE SHADES

COST-EFFECTIVENESS

Most private patients and parents
accepted recommendations for sealants

Romberg et al
J. Dent Child 1988

LISTEN TO ME!
THIS IS IMPORTANT!!!



...in practice, sealants are not made to be applied only once.

Ripa, 1985

**Preventive Resin
Class I
Restorations**

**Biological
Considerations**



Average dimensions for Primary Molars from Exterior Surface to Periphery of Pulp Chamber:

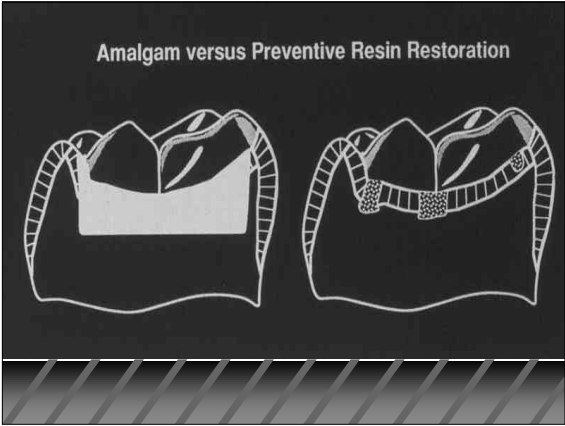
TOOTH	SURFACE	DISTANCE (mm)
FIRST MOLAR	OCC	2 1/4
FIRST MOLAR	PROX	1 3/4
SECOND MOLAR	OCC	2 3/4
SECOND MOLAR	PROX	2 1/4

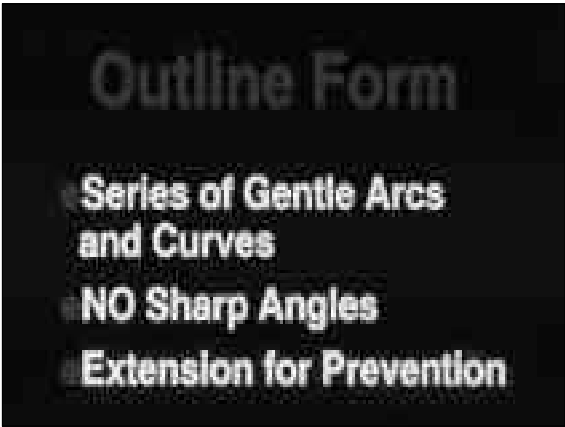


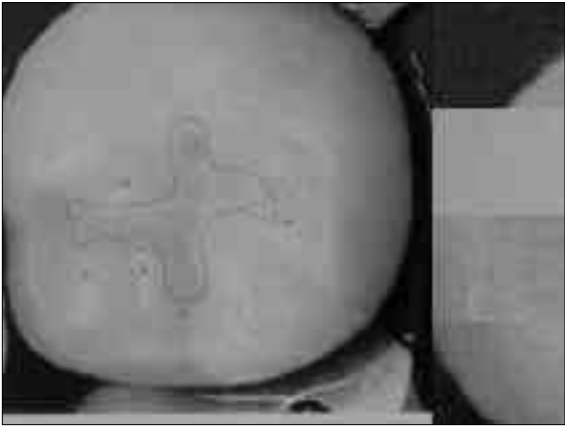


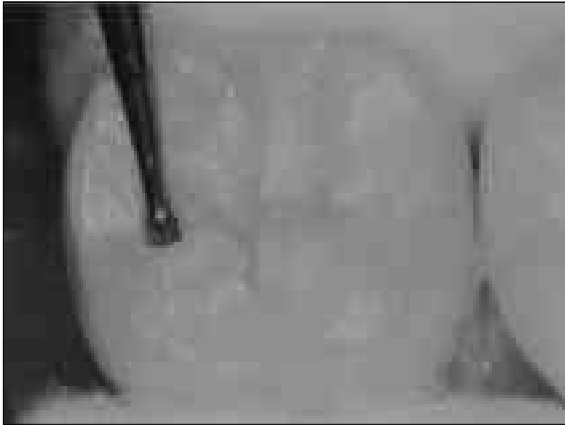


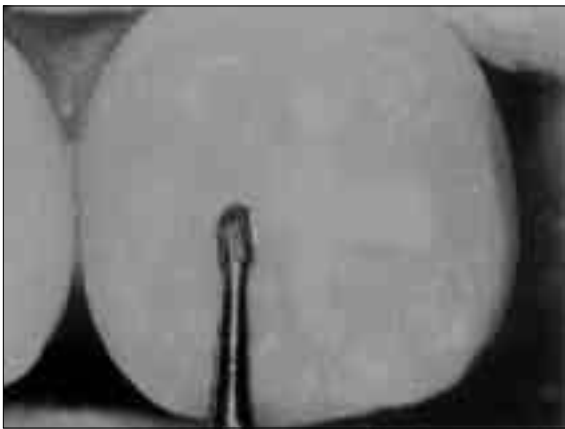


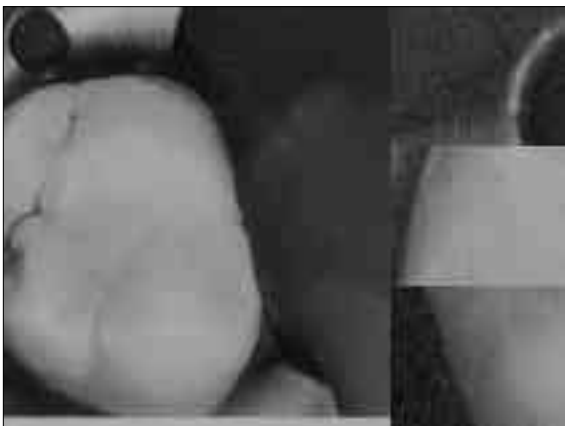


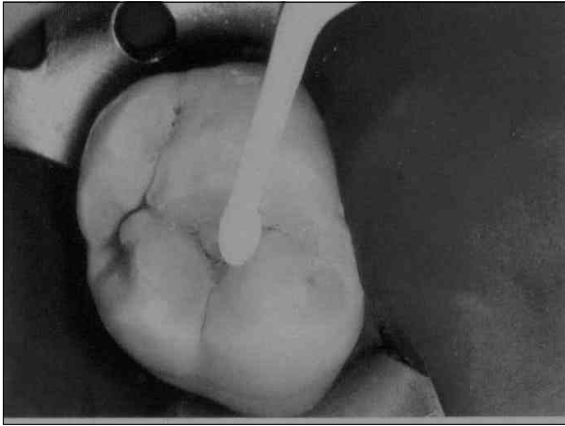


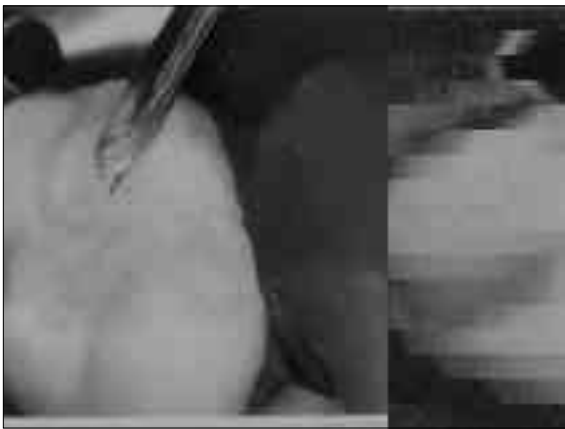






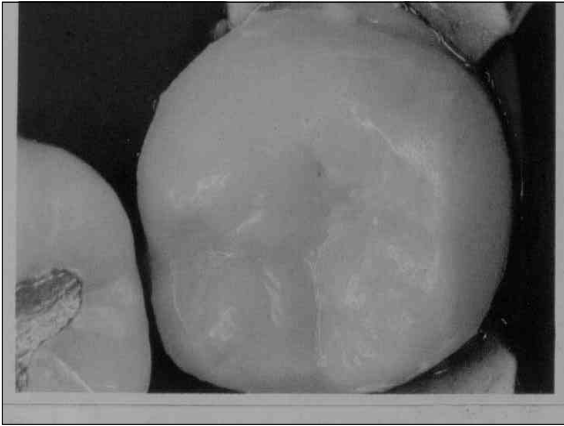


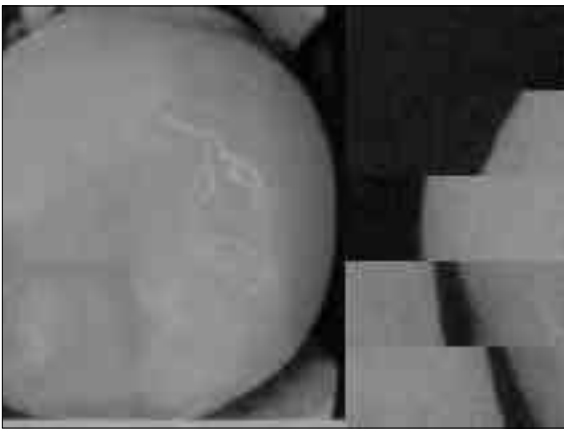




Simple Occlusal Anatomy

- **No Secondary Grooves**
- **More Rounded**





**Waggoner, William F.:
Pit and Fissure
Application: Updating
the Technique,
JADA, V 127, '96, pp
351-61.**

Isolation

- ◆ One Second Salivary Exposure: No Bond
- ◆ Operculum Caused 50% Failure Rate at 36 Months
 - Wait for complete eruption
- ◆ Rubber Dam and Cotton Rolls Done Correctly Give Equal Results
 - Clamp Discomfort, Local Anesthesia for Soft Tissue, More Time and Infection Control Cost
- ◆ DriAngles, VacEjector (Bite Block & Hi-Speed Evac)



Prophylaxis???

- ◆ Tooth Surface Must Be Clean
- ◆ Toothbrush Adequate; Explorer Through Fissures
- ◆ Prophy Did Not Increase Retention Rates vs. TB
- ◆ Fluoride in Prophy Paste Not a Problem



Attempts to Increase Retention

- ◆ Prophy-Jet or Cavi-Jet: No Difference
- ◆ Hydrogen Peroxide Wash: No Difference
- ◆ Air Abrasion Systems: No Difference
- ◆ Widening Fissure with Bur (Prophylactic Odontotomy): No Difference
 - Also MUST be performed by Doctor, not RDH



Etching

- ◆ 37% Orthophosphoric Acid
- ◆ Gel vs. Liquid: No Difference in Penetration, Bond Strength, Retention
- ◆ 20 Second Etch Time vs. 60 Seconds: No Difference
- ◆ Primary Teeth Do *NOT* Require Extended Etch or Roughening
- ◆ Etch Must Extend 2 mm Beyond Fissures



Rinse and Dry

- ◆ One to Two Second Rinse Equal to 20 Second Rinse
- ◆ Drying Time Should Be Based on Chalky Appearance
- ◆ Test Air Lines for Oil or Water



Materials

- ◆ BIS-GMA
- ◆ Urethane
- ◆ Glass Ionomer
 - poor retention
- ◆ Filler Particles: Similar Retention Rates



Glass Ionomer Cements

- ◆ **Primary Molars**
- ◆ **Ease of APPLICATION**
- ◆ **Fluoride Content**
- ◆ **Wear and Crush Resistance**
- ◆ **Thermal Insulation**



Tinted or Opaque Sealants

- ◆ **Similar Bond Strength and Retention**
- ◆ **Easier to See at Recall**
- ◆ **Masks Fissure Staining; Prevents Unnecessary Removal**
- ◆ **NYS Medicaid Required 1996**



Fluoride in Sealants

- ◆ **Is Bioavailable**
- ◆ **Similar Bond Strengths**
- ◆ **No Clinical Data on Value to Patient**
- ◆ **May Have Effect on Proximal...Unknown**



Bonding Agents

- ◆ Controversial Benefit
- ◆ May Increase Retention
- ◆ Clearly Increases Time Needed and Cost

Curing

- ◆ Light (visible)
- ◆ Autopolymerizing
- ◆ No Difference in Bond Strength or Retention

Polymerization

- ◆ Wait 20 Seconds AFTER Applying: Penetrates Farther (3x)
- ◆ Monitor Light Intensity Frequently
 - Wand Tip Cleanliness
 - Damaged Fiber Optics
 - Age of Bulb
 - Use Light Meter to Monitor
- ◆ Autopolymerized: Need at Least 2 Minutes to Cure

Salivary Contamination

- ◆ Must Re-etch
- ◆ 15 to 20 Seconds, Wash, and Dry



Miscellaneous

- ◆ Remove Bubbles Before Curing
- ◆ Repair Voids By Addition
- ◆ Attempt to Dislodge; Most Failures Within 24 Hours
- ◆ Check Occlusion; Especially with Filled Resin
- ◆ Evaluate and Replace Fully or Partially at Every Recall

