



Tannslitasje-pasienten

veivalg hvis årsaken er primært mekanisk eller på grunn av syreangrep

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Prosthodontics

Dental lesions

Carious etiology

Non-carious etiology

Developmental

Toxic

Hereditary

Acquired

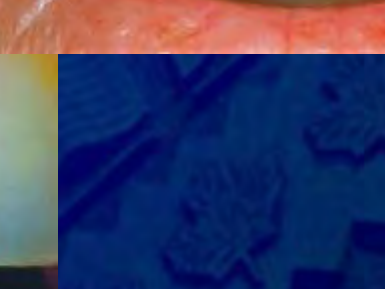
Discoloration

Fracture

(Tooth) Surface lesions



Management?





Tooth surface lesions

Erosion (clinical diagnosis)

Original Definition: Progressive loss of hard dental tissue by chemical processes not involving bacterial action



Erosion:

ASTM: American Society for Testing & Materials Committee on Standards:

"The progressive loss of a material from a solid surface due to mechanical interaction between that surface and a fluid, a multicomponent fluid, impinging liquid or solid particles"



Erosion examples:





Tooth surface lesions

~~Erosion~~ Corrosion!

“Progressive loss of hard dental tissue by chemical processes not involving bacterial action”



~~Erosion~~

Corrosion:

grade 1

grade 2

grade 3



Tooth surface lesions

~~Erosion Corrosion~~

Abrasion (clinical diagnosis)

“Loss by wear of dental tissue caused by friction of a foreign substance (dentifrice, toothbrush, objects)”





Tooth surface lesions

~~Erosion Corrosion~~

Abrasion

Attrition (clinical diagnosis)

“Loss by wear of surface of tooth or restoration caused by tooth to tooth contact during mastication or parafunction”





Tooth surface lesions

~~Erosion~~ Corrosion

Abrasion

Attrition

Abfraction (clinical diagnosis)

“Loss of tooth surface at the cervical areas of teeth believed to be caused by tensile and compressive forces during tooth flexure”





STRESS

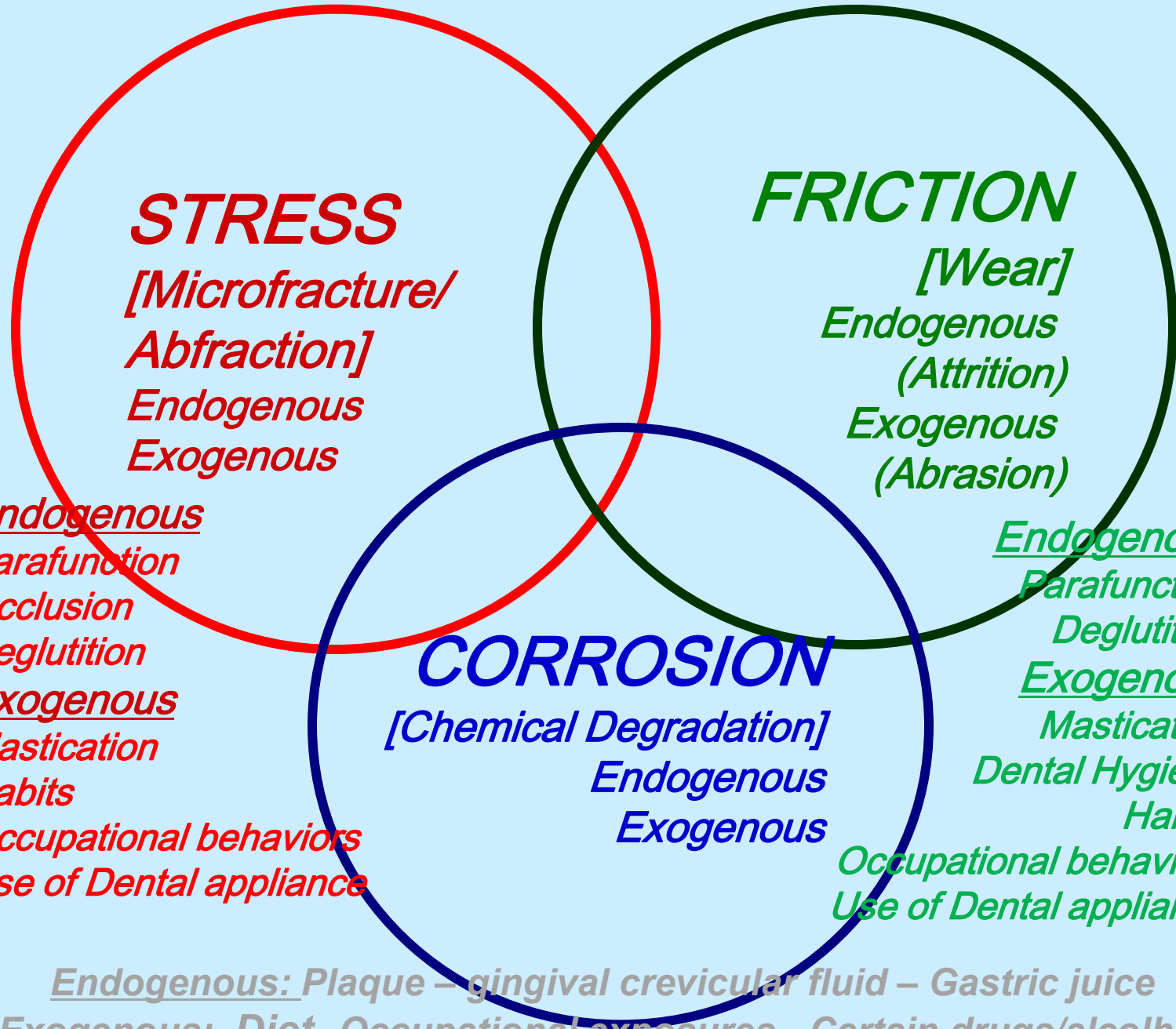
*[Microfracture/
Abfraction]
Endogenous
Exogenous*

FRICTION

*[Wear]
Endogenous
(Attrition)
Exogenous
(Abrasion)*

CORROSION

*[Chemical Degradation]
Endogenous
Exogenous*



Endogenous
Parafunction
Occlusion
Deglutition
Exogenous
Mastication
Habits
Occupational behaviors
Use of Dental appliance

Endogenous
Parafunction
Deglutition
Exogenous
Mastication
Dental Hygiene
Habits
Occupational behaviors
Use of Dental appliance

Endogenous: Plaque – gingival crevicular fluid – Gastric juice
Exogenous: Diet -Occupational exposures - Certain drugs/alcohol



Patient management



Patient management - Strategy 1

1. Establish status
2. Restore

Carious & non-carious lesions



Patient management - Strategy 1

Symptomatic

1. Establish status
2. Restore
carious & non-cariious
lesions

Diagnosis and etiology
is of limited interest.
...perhaps only for the
sake of guessing
prognosis...

DANGER:
Unpredictive
treatment
outcome!



Patient management - Strategy 2

Symptomatic

1. Establish status

2. Restore

carious & non-carious lesions

Diagnosis and etiology is of limited interest.

Perhaps only for the sake of estimating prognosis.

Causal

1. Diagnose correctly

Carious vs non-carious

2. Identify etiology

a. carious

b. non-carious lesions

3. Restore

Carious & non-carious lesions

4. Reduce risk

a. carious

b. non-carious lesions



Diagnosis



Abrasion-attrition-corrosion?



Abfraction-abrasion-corrosion?



Abrasion-corrosion?



Abrasion-corrosion?



Abrasion-attrition-corrosion?



Abfraction-abrasion?



Attrition-corrosion?



???!

"demastication"



Corrosion – clinical appearance (anterior)

- Broad concavities within smooth surface enamel
- Increased incisal translucency
- Wear on non-occluding surfaces
- Loss of surface characteristics of enamel (perikymata) in young children
- Preservation of enamel "cuff" in gingival crevice is common
- Hypersensitivity





Corrosion – clinical appearance (posterior)

- Cupping of occlusal surfaces, (incisal grooving) with dentin exposure
- Wear on non-occluding surfaces
- "Raised" amalgam restorations
- Clean, non-tarnished appearance of amalgams
- Preservation of enamel "cuff" in gingival crevice is common



Abrasion – clinical appearance

- Usually located at cervical areas of teeth
- Lesions are more wide than deep
- Premolars and cuspids are commonly affected





Attrition – clinical appearance

- Matching wear on occluding surfaces
- Shiny facets on amalgam contacts
- Enamel and dentin wear at the same rate
- Possible fracture of cusps or restorations



Attrition vs corrosion





Abfraction – clinical appearance

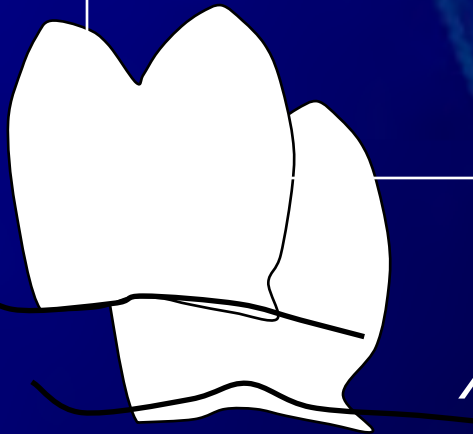
- Affects buccal / labial cervical areas of teeth
- Deep, narrow V-shaped notch
- Commonly affects single teeth with excursive interferences or eccentric occlusal loads





Cervical loss

<i>Locations: Ling./Bucc.</i>	<i>Buccal</i>	<i>Buccal</i>
<i>Form: U</i>	<i>Wedge</i>	<i>V-form</i>
<i>Edge: smooth</i>	<i>sharp</i>	<i>sharp</i> <i>(sometimes subgingival)</i>
<i>Enamel: smooth</i> <i>often slightly polished</i>	<i>smooth/rough</i>	<i>rough</i>



Probably:

Abrasion ----- *Abfraction*



Abfraction vs Abrasion





1. Diagnose correctly

1. Diagnostic Protocol
2. Types of lesions
 - Carious vs non-carious lesions

2. Identify etiology (causes)

- (a. carious) & b. non-carious lesions



1. Diagnose correctly

1. Diagnostic Protocol
2. Types of lesions
 - Carious vs non-carious lesions

2. Identify causes

- (a. carious) & b. non-carious lesions

3. Restore

- carious & non-carious lesions



When to restore: Factors to consider

Diagnostic protocol

*Tooth lesion
Etiology*

*Size of lesion
Location of lesion*



*Biomechanic (force)
Esthetic concern*



Restorative material

Alternatives

	Veneer	GIC	Composite -GIC -hybrid	Composite resin
Esthetics	++	-	-/+	+
Biological cost	-	++	+	+
Acid resistance	++	--	-/+	+
Wear resistance	++	-	-/+	+
Longevity	++	--/+	-/+	--/++



Restorative planning

- Tooth preparation
 - Minimal extension
 - Supragingival margins
 - No extra undercuts or retention lock
 - Estimated force
 - No compression versus flexure of tooth
 - Wear type
 - Esthetics on anterior teeth and premolars



1. Diagnose correctly

1. Diagnostic Protocol
2. Types of lesions
 - Carious vs non-carious lesions

2. Identify causes

- (a. carious) & b. non-carious lesions

3. Restore

- carious & non-carious lesions
 - Restoration
 - Composites & Bonding



Abfraction vs. Abrasion



*Glassionomer or
microfill composite resin*

*Hybrid microfill
composite resin*



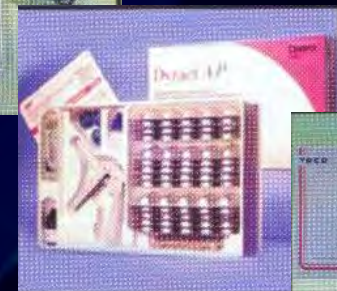
Glassionomer cement-resin hybrids

Two subgroups

a. Material polymerises without light initiation

b. Light initiation is required

Most products contains 4.5%-6% resin





Selection of restorative material? Composite resin vs. glassionomer

Cavity situation:

- Supragingival margin: moisture sensitive
- Cementum gingival margin
- Dentin substrate: sclerotic dentin(?), depth of preparation, tubule orientation

Etiology:

- High caries risk: need for F-
- Cervical abrasion: wear
- Abfraction: flexion



1. Diagnose correctly

1. Diagnostic Protocol
2. Types of lesions
 - Carious vs non-carious lesions

2. Identify causes

- (a. carious) & b. non-carious lesions

3. Restore

- carious & non-carious lesions
 - Restoration
 - Composites & Bonding

4. Reduce risk

- (a. carious) & b. non-carious lesions



Risk reduction : Corrosion

Diminish frequency & severity of acid challenges

- Decrease amount/frequency of acidic foods / drinks
- Acidic drinks should be drunk quickly rather than sipped. The use of a straw would reduce the corrosive potential of soft drinks
- If undiagnosed / poorly controlled gastroesophageal reflux is suspected, refer to a physician
- In the case of bulimia, a physician or psychologist referral is appropriate
- A patient with alcoholism should be assisted in seeking treatment in rehabilitation programs



Risk reduction : Corrosion

Enhance acid resistance, remineralization and rehardening of the tooth surfaces

- Have the patient use daily topical fluoride at home
- Fluoride can be applied in the office 2-4 times a year. A fluoride varnish is recommended

Improve chemical protection

- Neutralize acids in the mouth by dissolving sugar-free antacid tablets 5 times a day, particularly after an intrinsic or extrinsic acid challenge
- Dietary components such as hard cheese (provides calcium and phosphate) can be held in the mouth after acidic challenge (e.g., hold cheese in mouth for a few minutes after eating a fruit salad)



Risk reduction: Corrosion+Friction

Enhance the defense mechanisms of the body
(increase salivary flow and pellicle formation)

- Saliva provides buffering capacity that resists acid attacks. This buffering capacity increases with salivary flow rate. Saliva is also supersaturated with calcium and phosphorus, which inhibits demineralization of tooth structure
- Saliva reduces tooth friction
- Stimulation of salivary flow by use of a sugarless lozenge or chewing gum should be encouraged



Risk reduction : Friction

Decrease abrasive forces

- Use soft toothbrushes and dentifrices low in abrasiveness in a gentle manner
- Do not brush teeth immediately after an acidic challenge to the mouth, as the teeth will abrade easily
- Rinsing with water is better than brushing immediately after an acidic challenge



Risk reduction: friction, stress, corrosion

Decrease abrasive forces

- ▣ Gentle use of soft toothbrushes and dentifrices low in abrasiveness
- ▣ No brushing immediately acidic challenges
- ▣ Rinsing with water after an acidic challenge

Provide mechanical protection

- ▣ Consider application of composites and direct bonding where appropriate to protect exposed dentin
- ▣ Construction of an occlusal guard is recommended if a bruxism habit is present