Dental Wear: Attrition & Abrasion

Tooth wear

- No pulp exposure
  - No radiographic evidence of endodontic pathology
    - Chronic gradual wear
      - Very smooth surface
      - Reparative dentin
    - Extensive wear—structural weakness
      - Smooth or rough surface
      - ± Reparative dentin
  - Radiographic evidence of endodontic pathology
    - Rapid or acute wear
      - Smooth or rough surface
      - No reparative dentin
    - Extensive wear—structural weakness
      - Smooth or rough surface
      - ± Reparative dentin

Address/correct underlying source

Orthodontic malocclusion
- Strategic extraction(s)
- Orthodontic movement

Chewing on excessively hard objects
- Eliminate access
  - Substitute with soft chew item
  - Behavior modification

Abrasion (ie, external source of wear)
- Limit or eliminate source
  - Substitute with less abrasive item

- Periodic reassessment
  - Follow-up radiographs q6-12mo

Dentin bonding agent
- ± Odontoplasty to smooth any rough surfaces
- ± Composite restoration

Composite restoration
- ± Crown placement

Extraction
- ± Follow-up radiographs q6-12mo
TOOTH WEAR TYPES

- **Abrasion** is mechanical wear of teeth from external forces (eg, brushing, dental instruments), also defined as wear from chewing on abrasive objects (eg, tennis balls, hair).

- **Attrition** is gradual physiologic wear resulting from natural mastication.

- **Pathologic attrition** is excessive wear caused by heavy chewing, biting, or grinding against other teeth (eg, orthodontic malocclusion).

**Fast Facts**

- **Dental explorers** have a sharp tip that helps determine whether a worn surface is smooth from gradual wear or rough from minor fractures; it can also probe for pulp exposure. Its use is mostly reserved for anesthetized patients; diligent caution should be used with nonanesthetized patients.

- **Reparative dentin** is denser than regular dentin, lacks organized tubules, is produced during tooth wear, and acts as a protective barrier. Pulp recedes behind the deposited mineralized layer and remains shielded from exposure.

- **Intraoral radiographs** are essential for evaluating compromised teeth.

- **Odontoplasty** is the adjustment of tooth contours. Sharp edges can be smoothed with hand or powered instrumentation. Small surface defects can be restored with dental composite.

- **Signs of endodontic pathology** may include wider-than-normal pulp canals from odontoblast death and delayed maturation, strictured or obliterated pulp canals from accelerated calcification (can occur during pulpitis), periapical radiolucency, or internal or external root resorption.