

# Principles of Periodontal Instrumentation

Periodontology I - 4th year

23/2/2012

Dr. Murad Shaqman

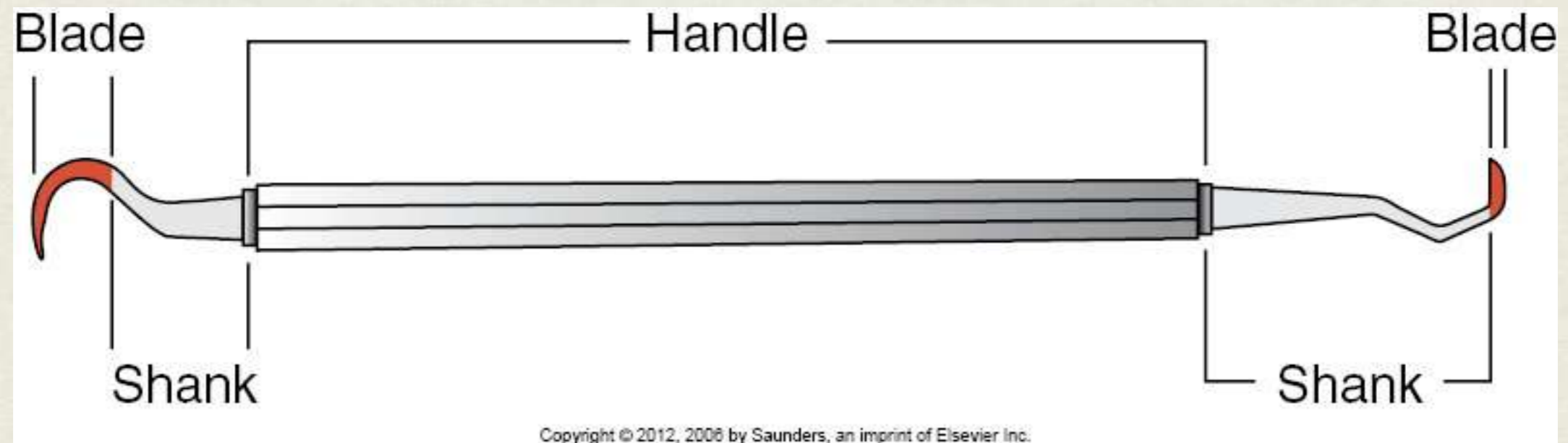
# Outline

- Classification of periodontal instruments
- General principles of instrumentation
- Principles of scaling and root planing
- Ultrasonic and sonic instruments
- Instrument sharpening

# Classification of periodontal Instruments

1. Periodontal probes.
2. Explorers
3. Scaling, root planing and curettage instruments
4. The Periodontal Endoscope.
5. Cleaning and polishing instruments

# Parts of Periodontal Instruments

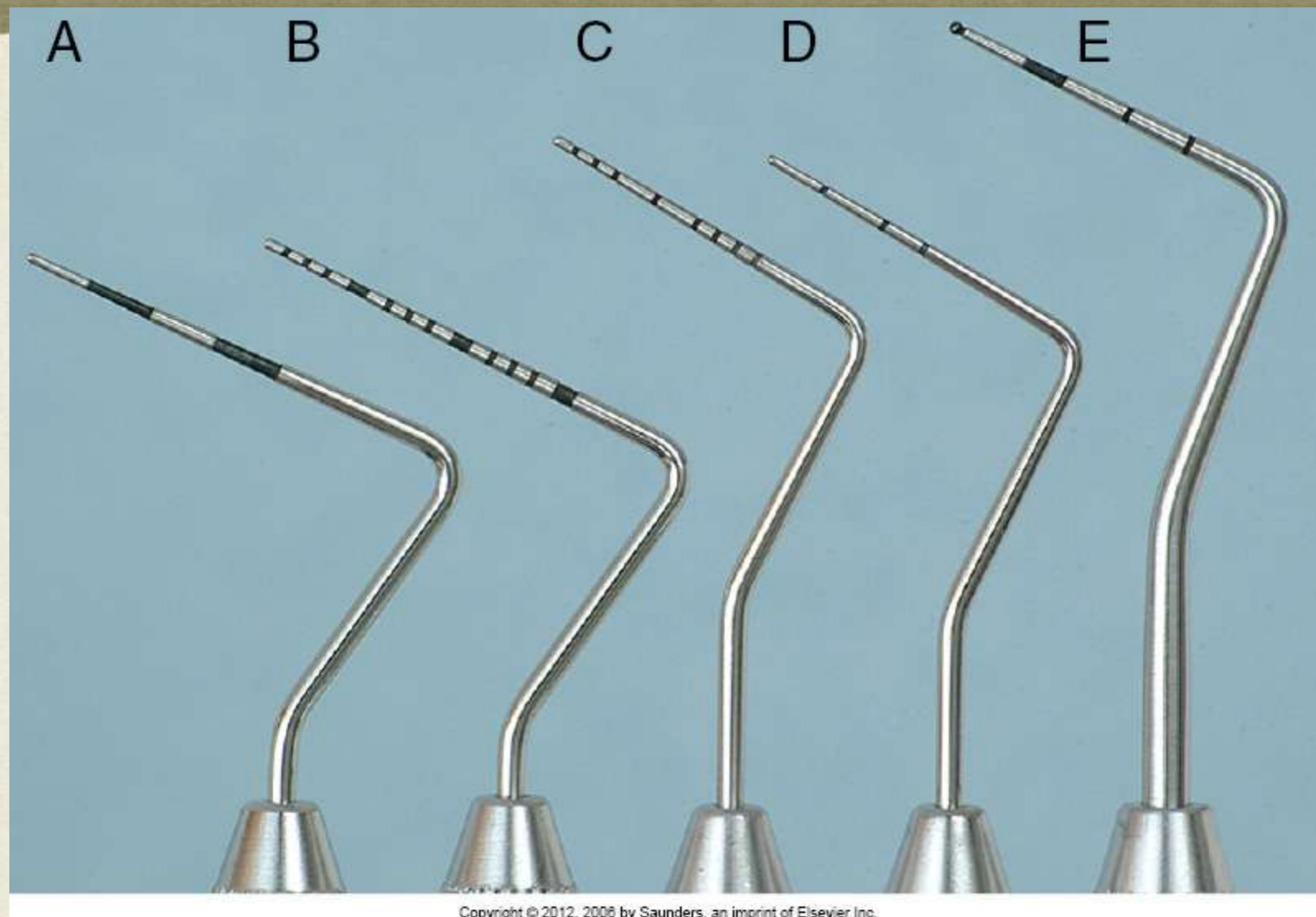


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# Periodontal Probes

- Used to locate and measure the periodontal pocket and determine its configuration.
- Typically tapered, rodlike instrument calibrated in millimeters, with a blunt, rounded tip
- Furcation areas ==> Nabers probe

# Periodontal Probes



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# Periodontal Probes



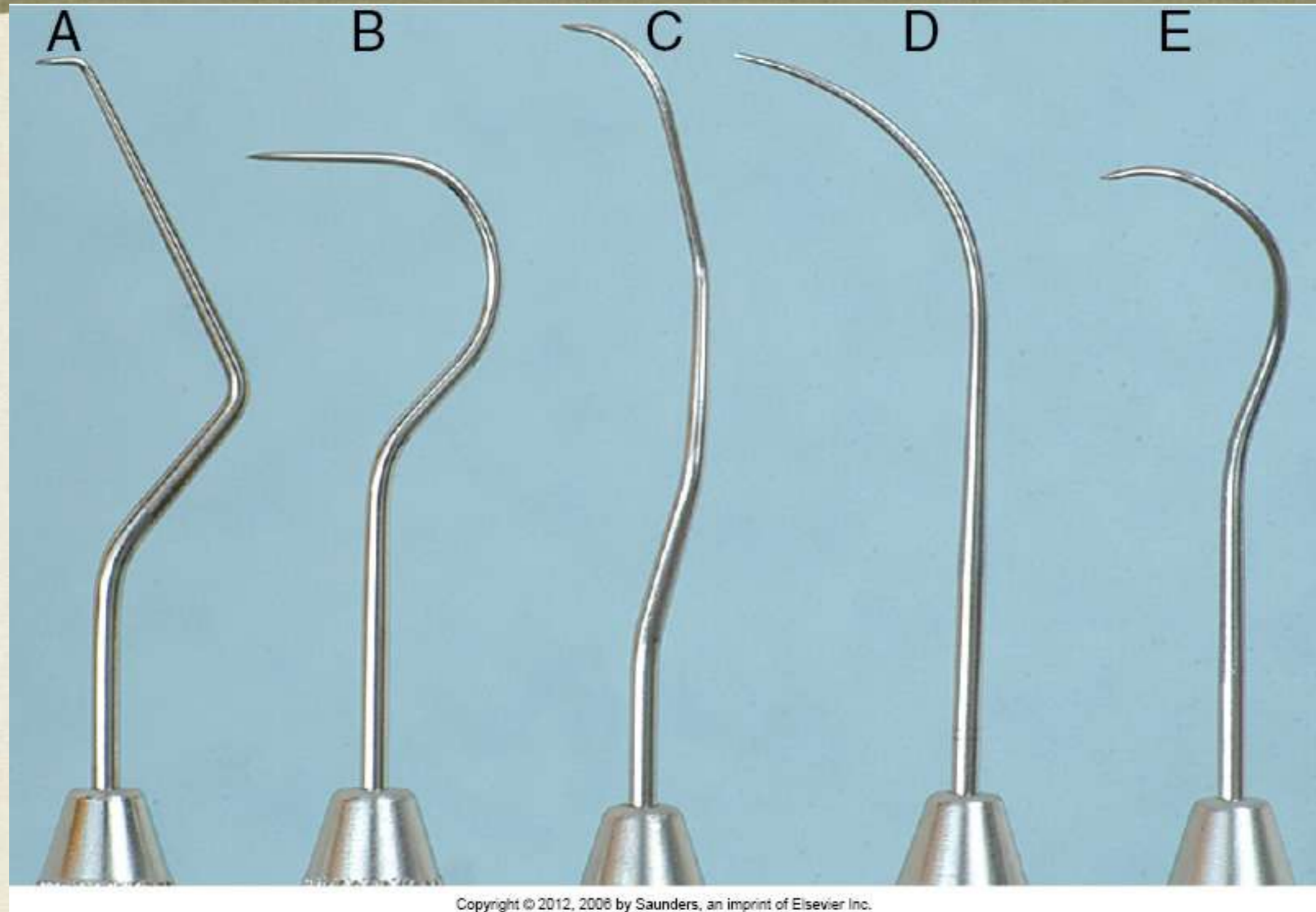
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- Nabers probe

# Explorers

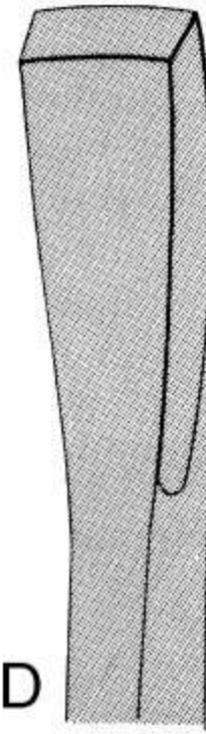
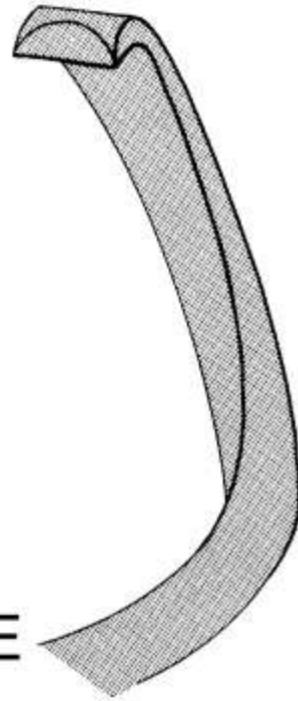
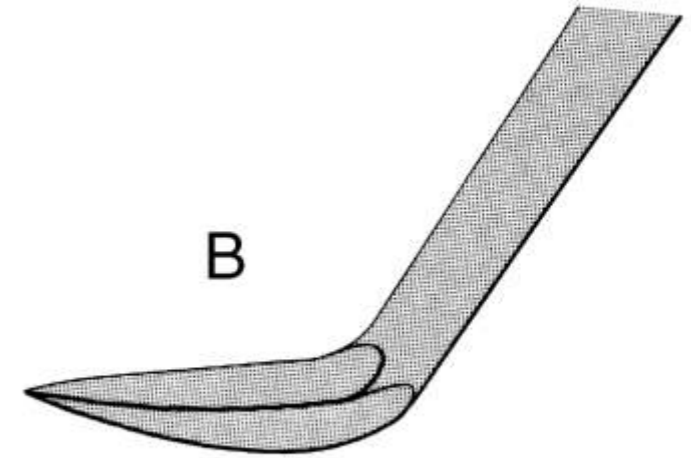
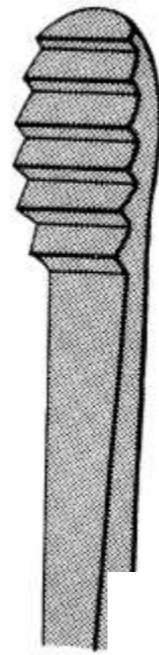
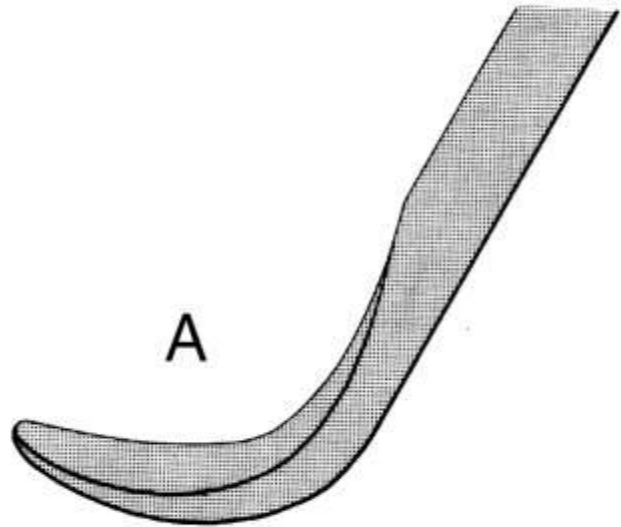
- Used to locate subgingival deposits and carious areas and to check the smoothness of the root surfaces after root planing.
- Designed with different shapes and angles

# Explorers



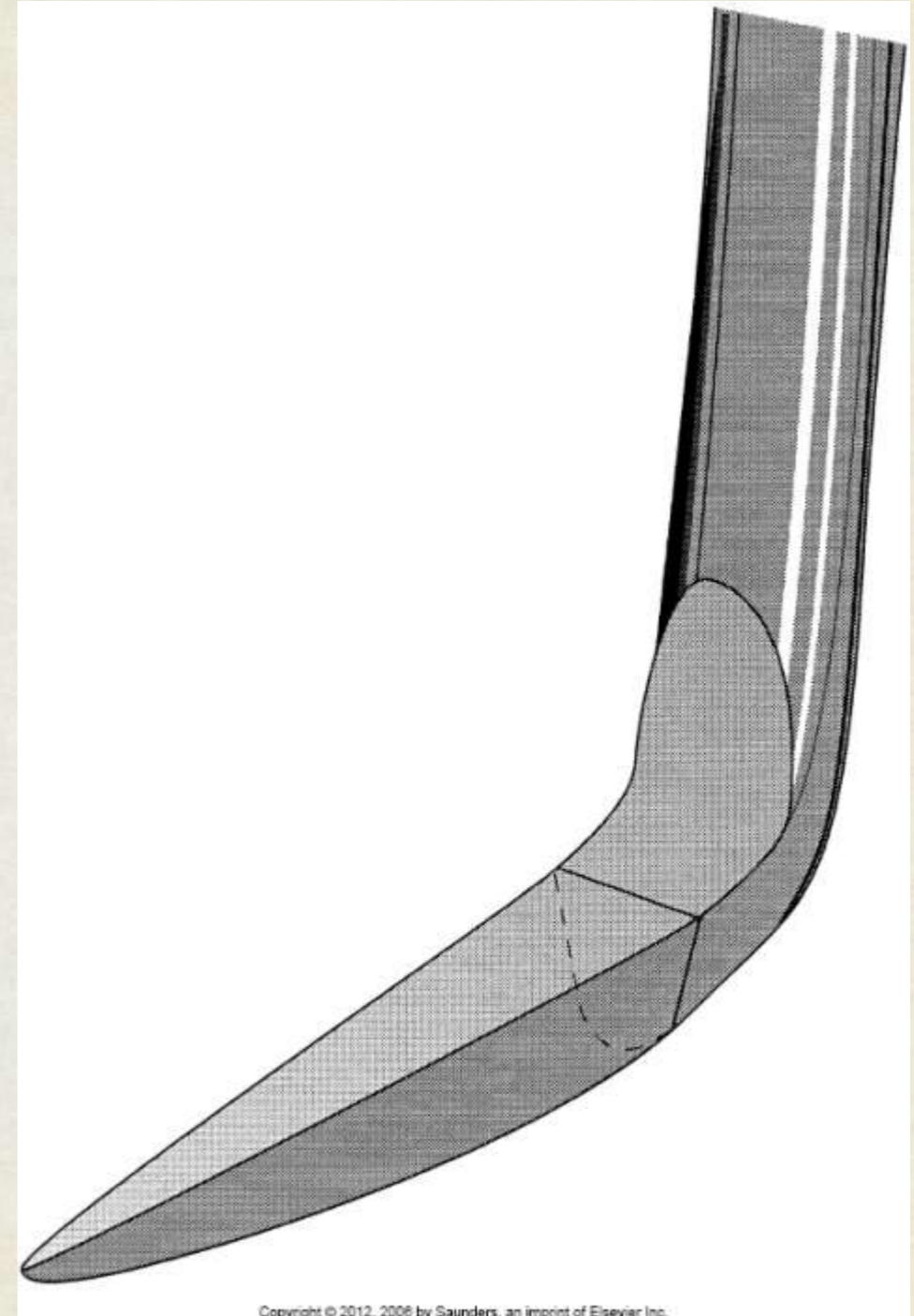
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# Scaling and curettage Instruments



# Scaling and curettage Instruments

- Sickle scalers:
  - flat surface
  - 2 cutting edges
  - pointed tip
  - triangular cross section



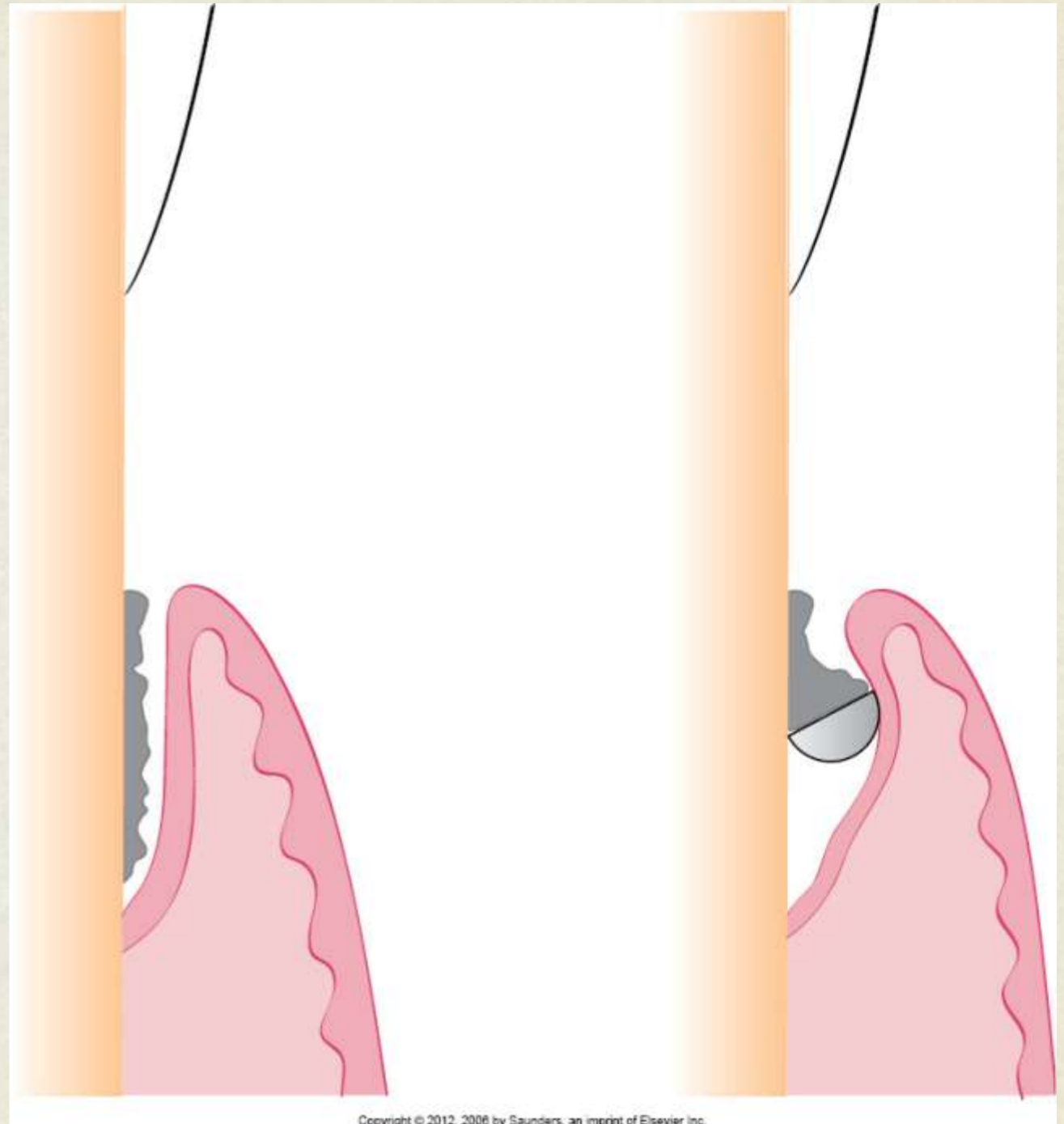
# Scaling and curettage Instruments

- Sickle scalers:
  - supra-gingival scaling
  - available in different sizes and shank types
  - straight and curved shanks



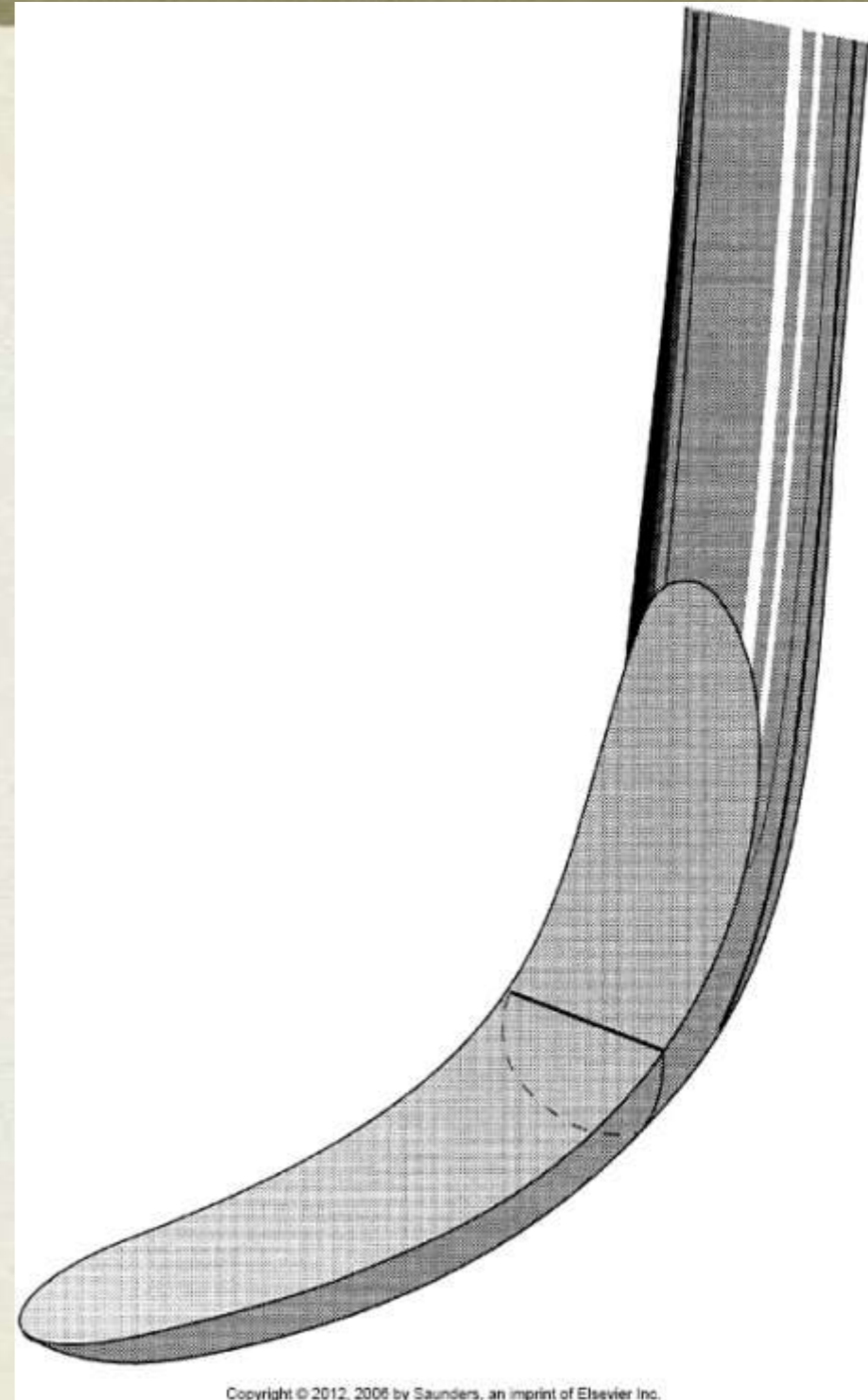
# Scaling and curettage Instruments

- Currettes:
  - removes:
    - sub G calculus
    - root planing
    - gingival curettage



# Scaling and curettage Instruments

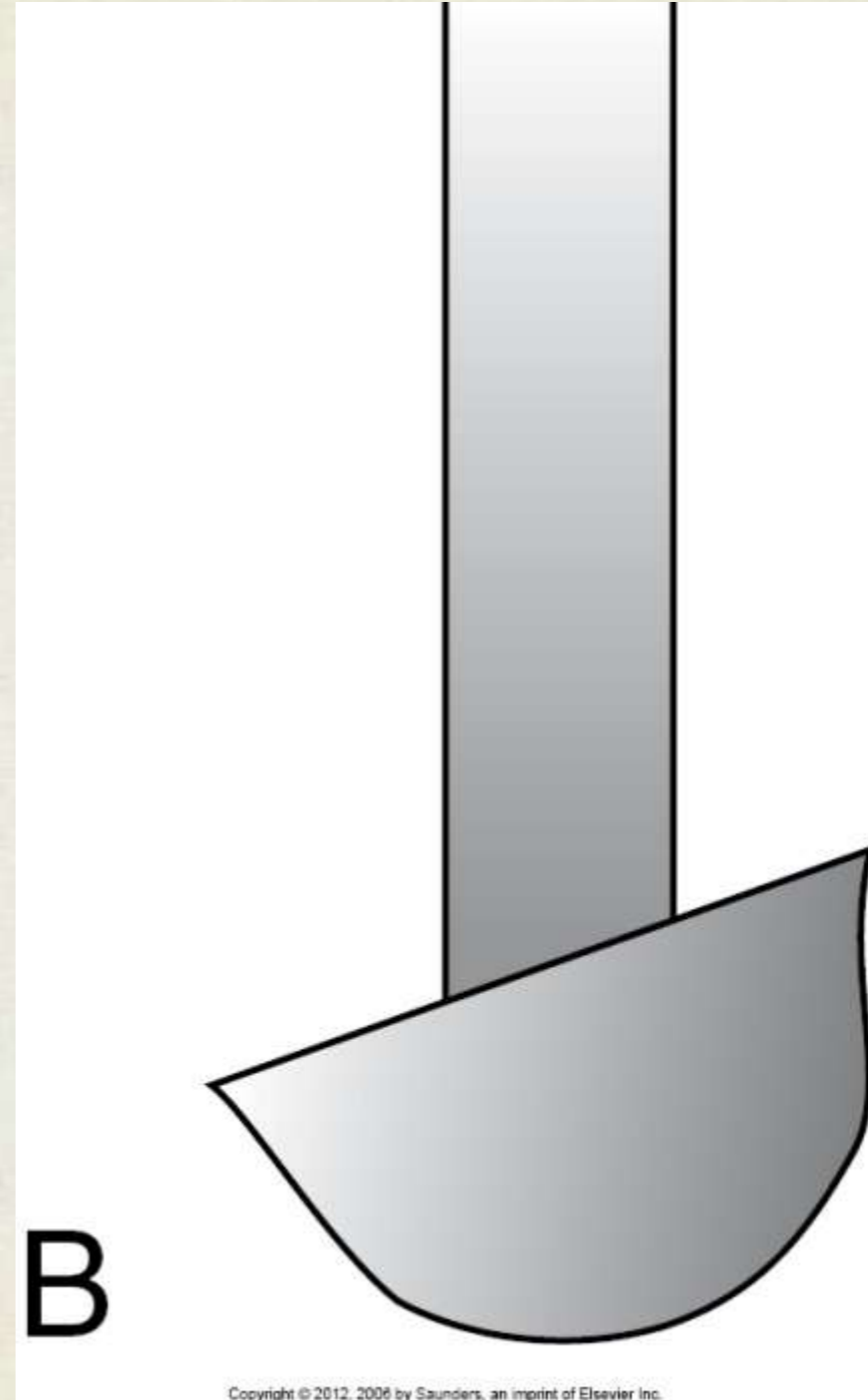
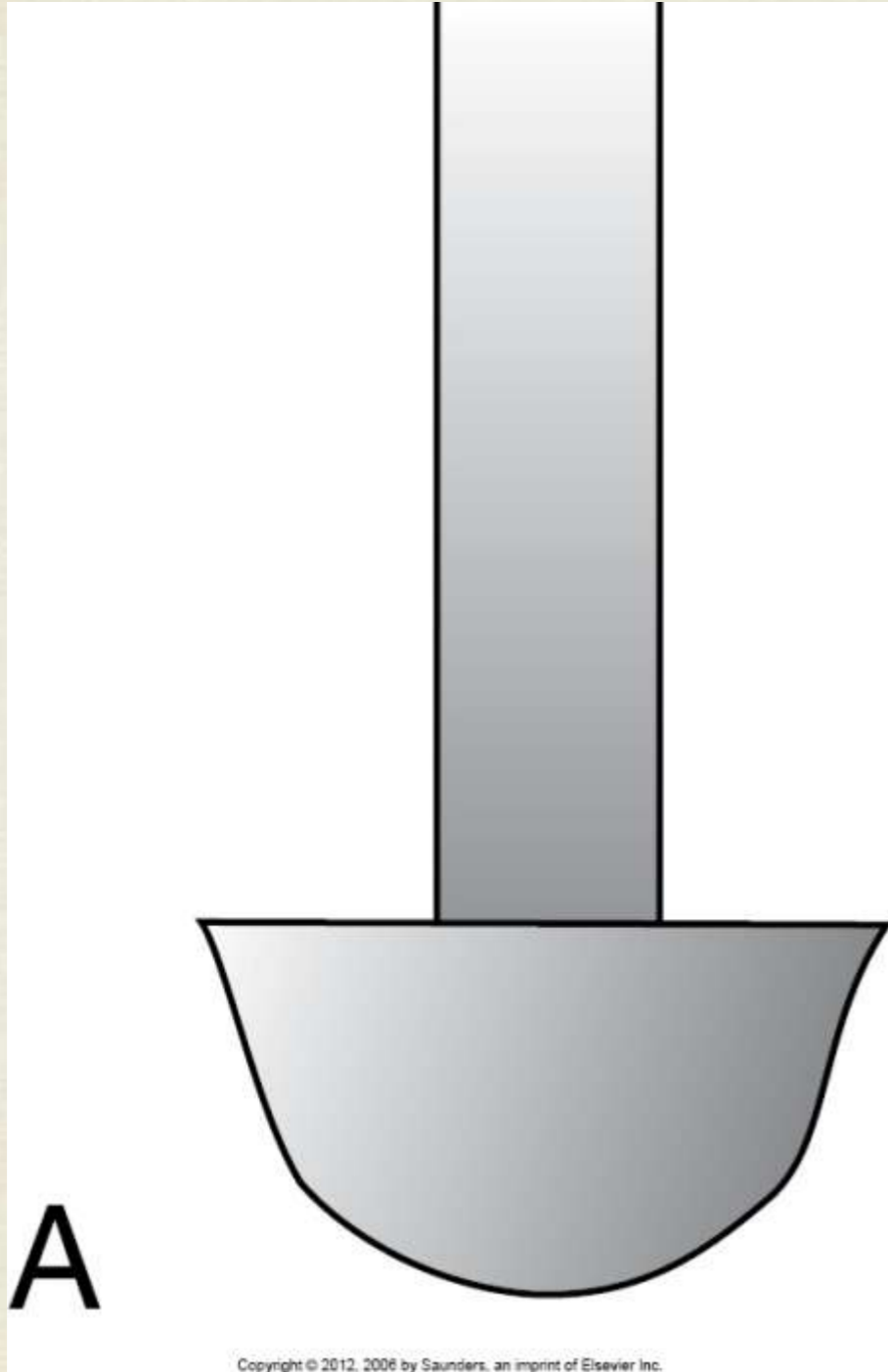
- Cures:
  - universal or site-specific
  - round tip
  - semicircular cross section



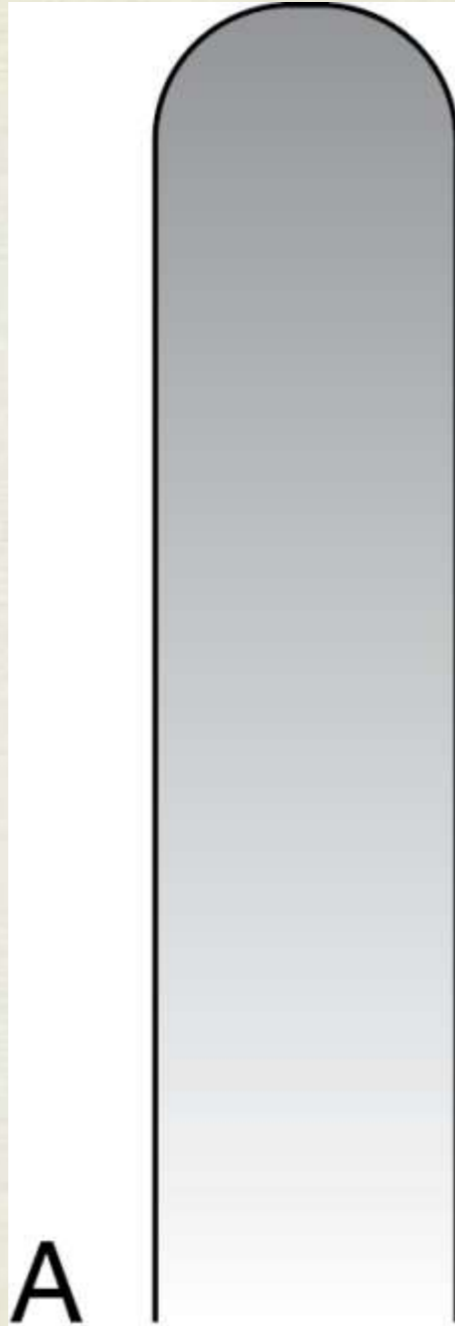
# Scaling and curettage Instruments

- Currettes:
  - Universal:
    - 2 cutting edges
    - used on any tooth surface
    - blade curves in one plane only
  - Area-specific (Gracey)
    - site-specific
    - single cutting edge
    - blade curves in 2 planes
    - blade is offset/ beveled 60 to the terminal shank

# Scaling and curettage Instruments

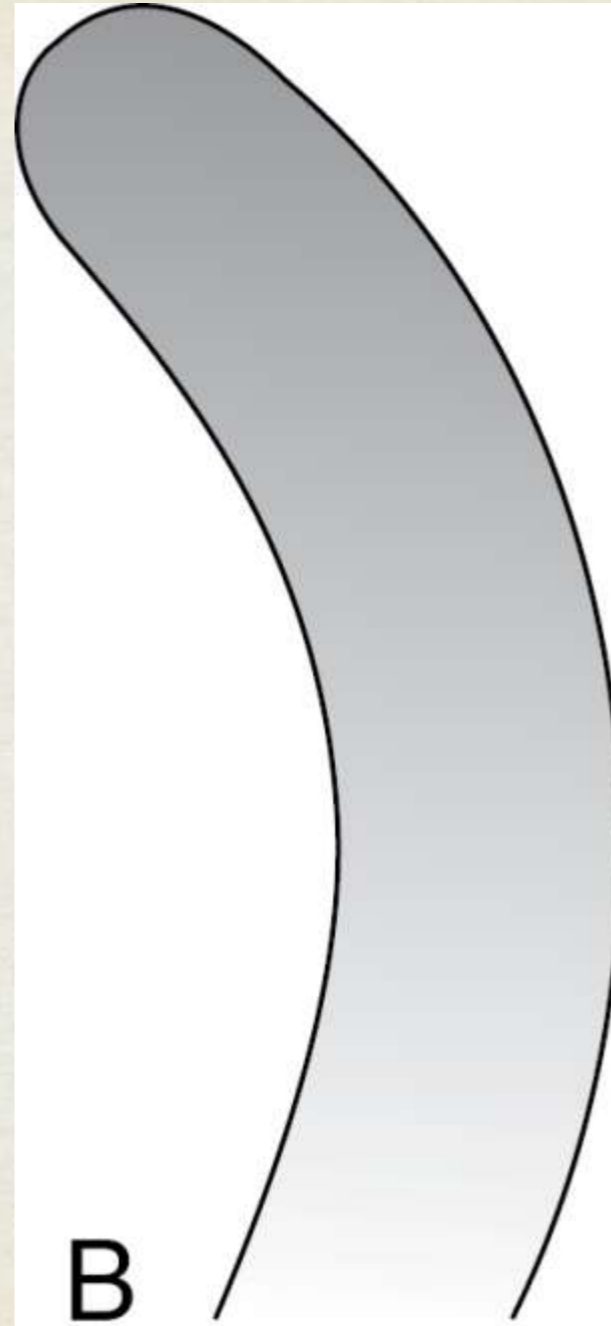


# Scaling and curettage Instruments



**A**

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**B**

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# Scaling and curettage Instruments

- Universal cures:



# Scaling and curettage Instruments

- Gracey curettes:
  - #1-2 (anterior teeth)
  - #3-4 (anterior teeth)
  - #5-6 (anterior and PM teeth)



# Scaling and curettage Instruments

- Gracey curettes:
  - #7-8 (posterior teeth; facial and lingual)
  - #9-10 (posterior teeth; facial and lingual)
  - #11-12 (posterior teeth; mesial)
  - #13-14 (posterior teeth; distal)



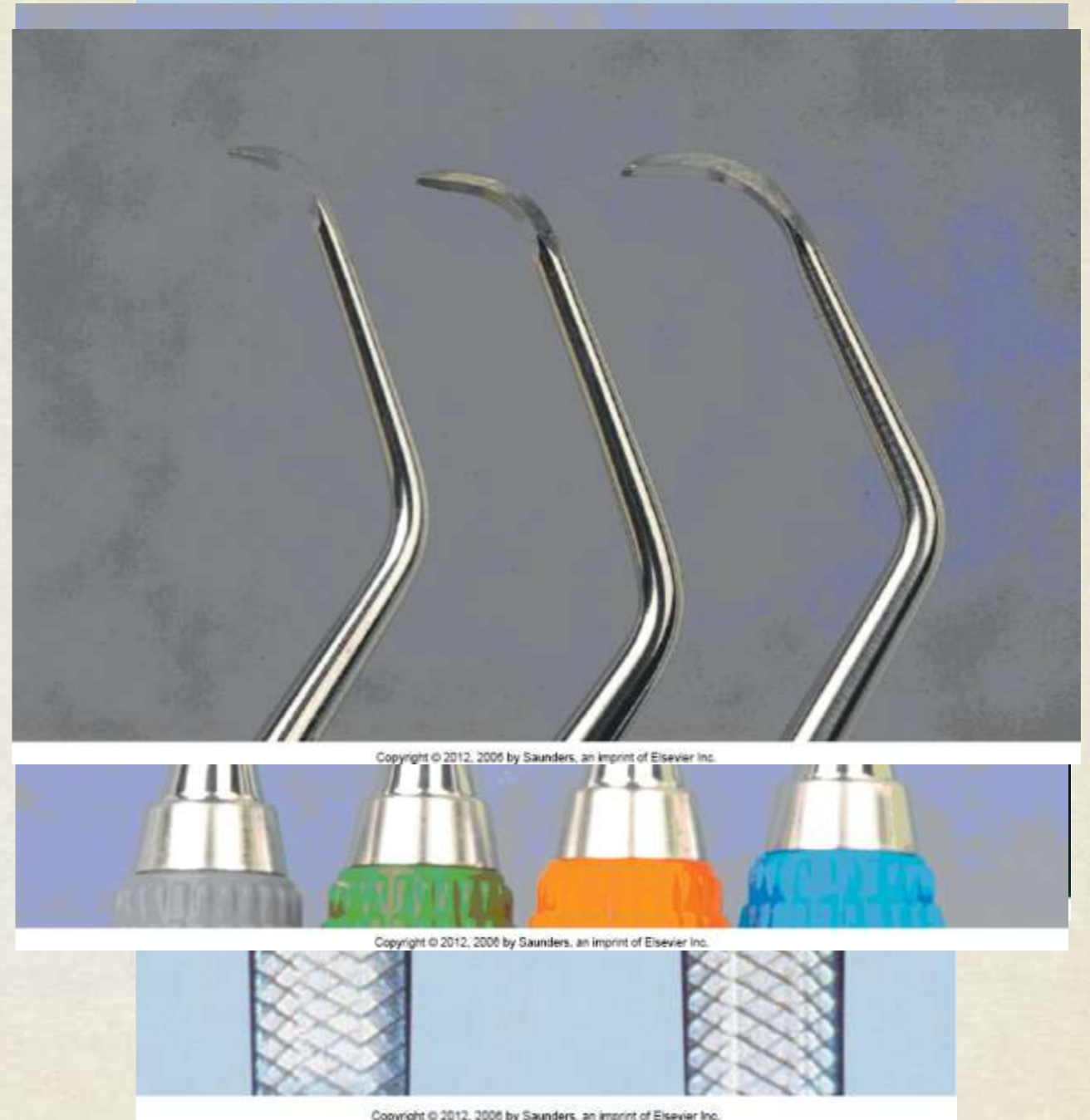
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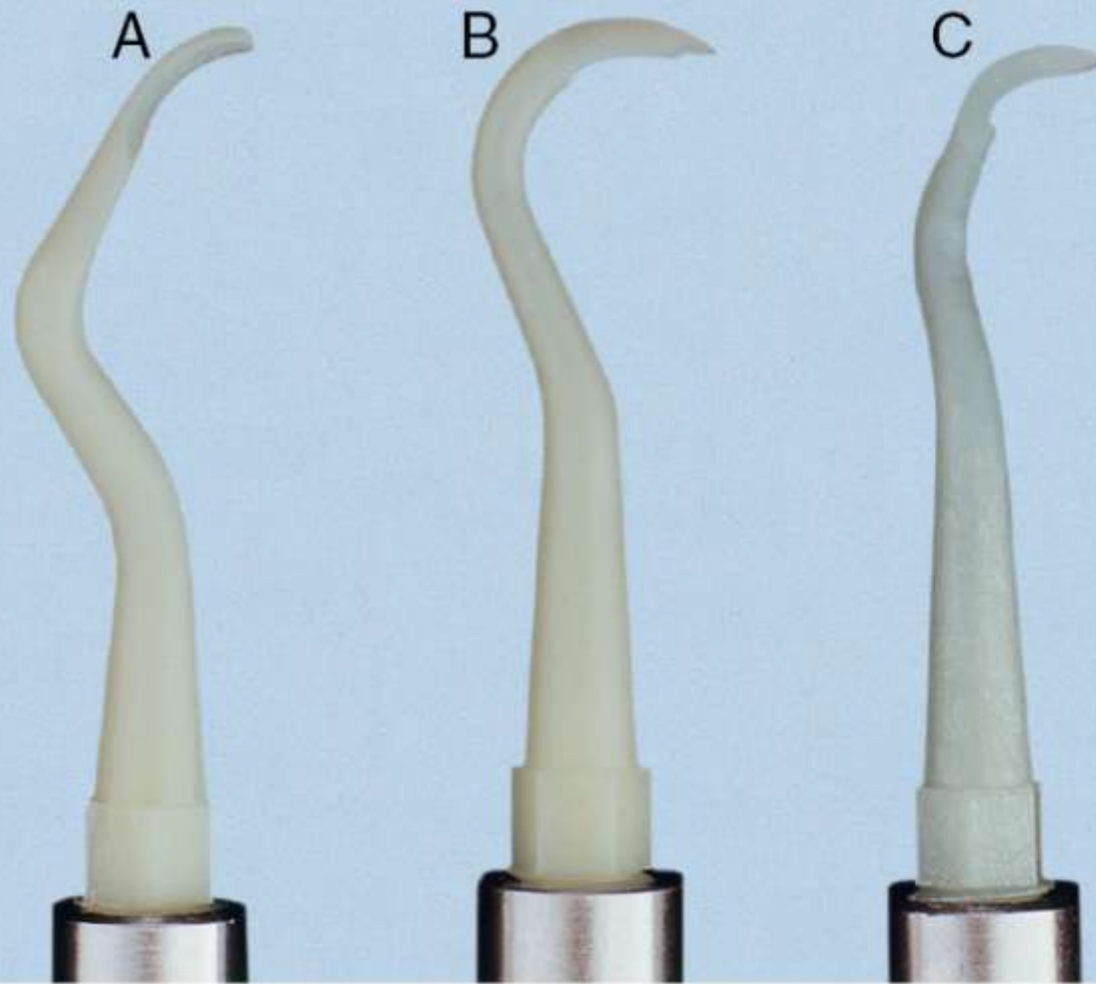
# Scaling and curettage Instruments

- Gracey curettes:
  - Modifications:
    - Rigid/Finishing shank
    - After-five curettes
    - Mini-five
    - Micro Mini five





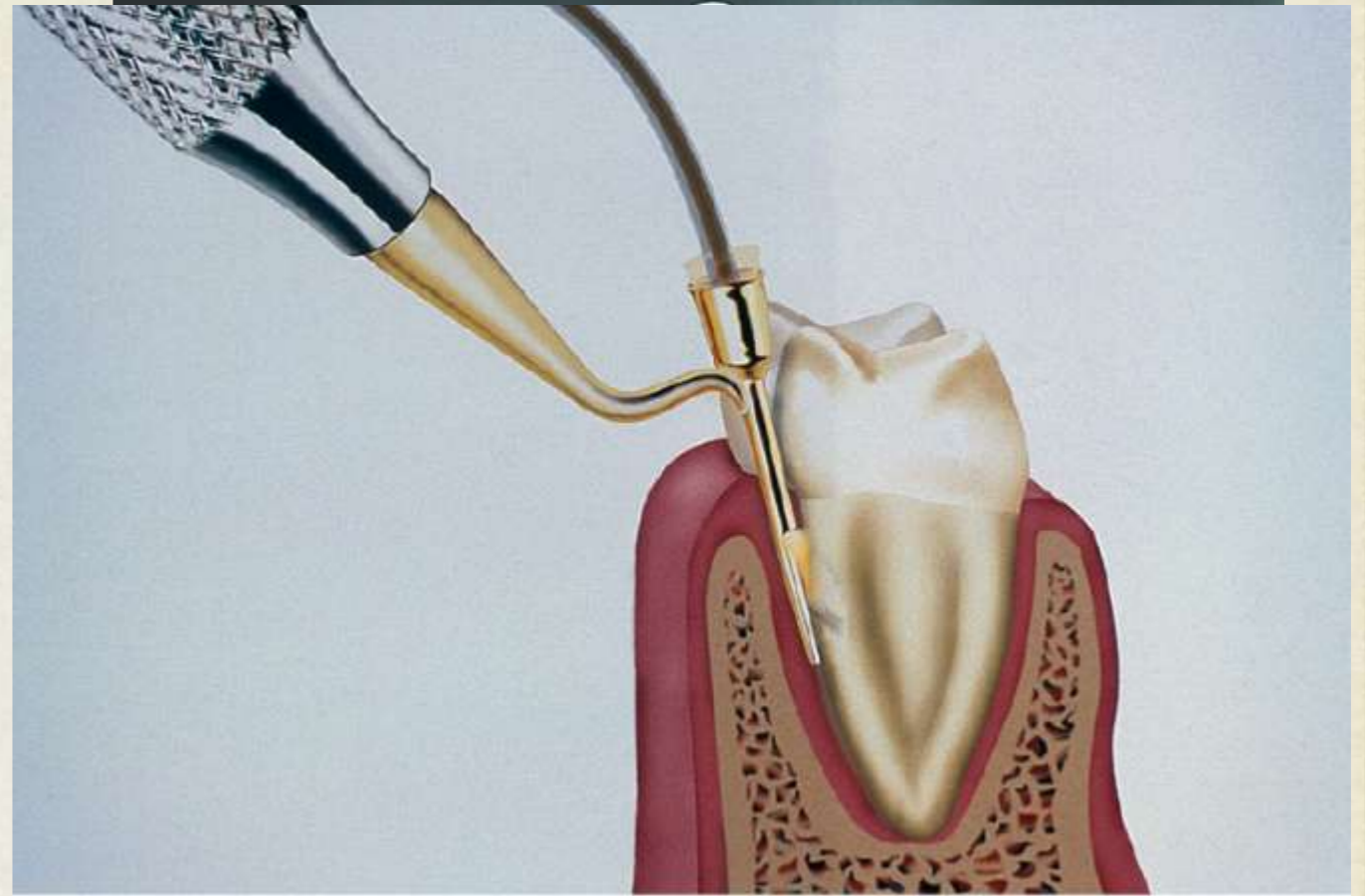
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# Dental Endoscope

- Perioscope
  - identify:
    - deep subgingival deposits,
    - open margins
    - caries, ...



(Courtesy Perioscopy Incorporated, Oakland, CA.)



(Courtesy Perioscopy Incorporated, Oakland, CA.)

# Cleaning & Polishing Instruments

- Rubber cups
- Bristle brushes
- Polishing tape
- Air-powder polishing



[Courtesy Dentsply International, York, PA.]

# General principles of Instrumentation

- Proper position of the patient and the operator
- Visibility, illumination and retraction
- Condition and sharpness of instrument

# General principles of Instrumentation

- Proper position of the patient and the operator:
  - feet flat on the floor
  - thighs parallel to the floor
  - back and neck straight
  - resting elbows close to the patient's mouth
  - Patient in supine position

# General principles of Instrumentation

- Visibility, Illumination & Retraction
  - direct or indirect vision
  - direct or indirect lighting
  - retraction with mirror or index or both.





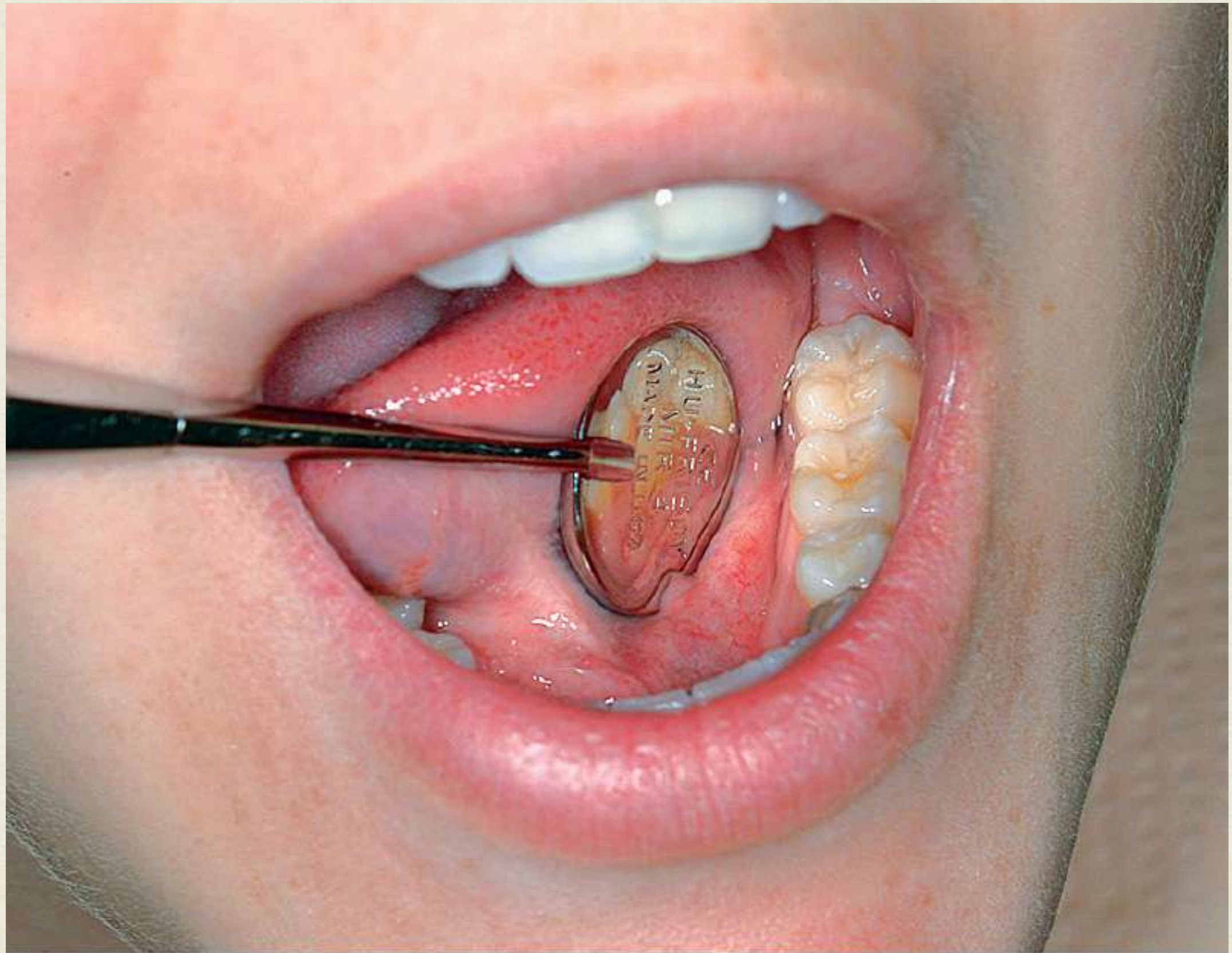


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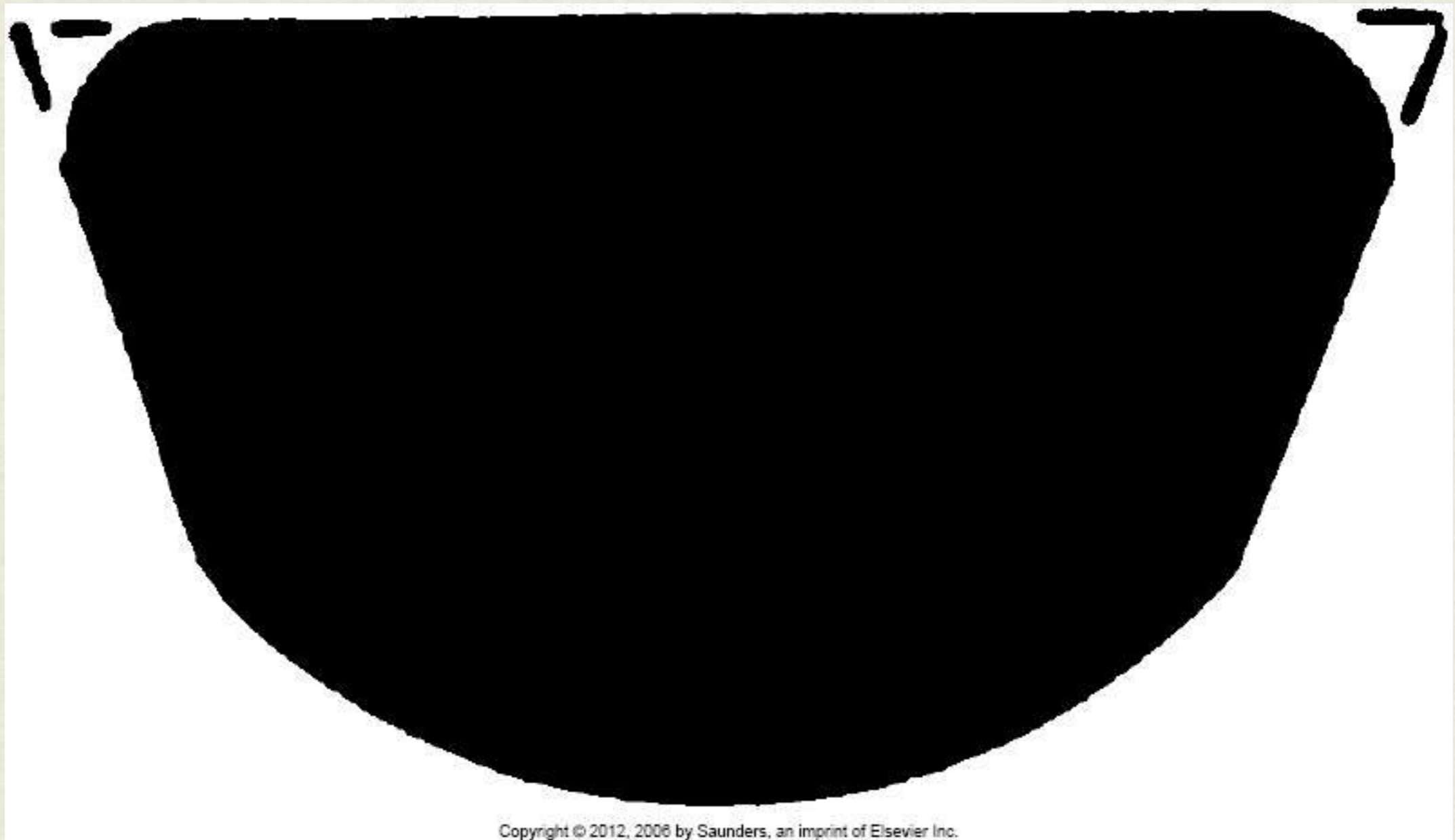






# General principles of Instrumentation

- Condition & Sharpness of the Instruments
  - dull instruments:
    - fatigue
    - burnishing of calculus



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# General principles of Instrumentation

- Other aspects...:
  - Maintain a clean field
    - effective suction
    - gauze, cotton rolls

# General principles of Instrumentation

- Other aspects...:
  - Instrument stabilization:
    - instrument grasp
    - finger rest



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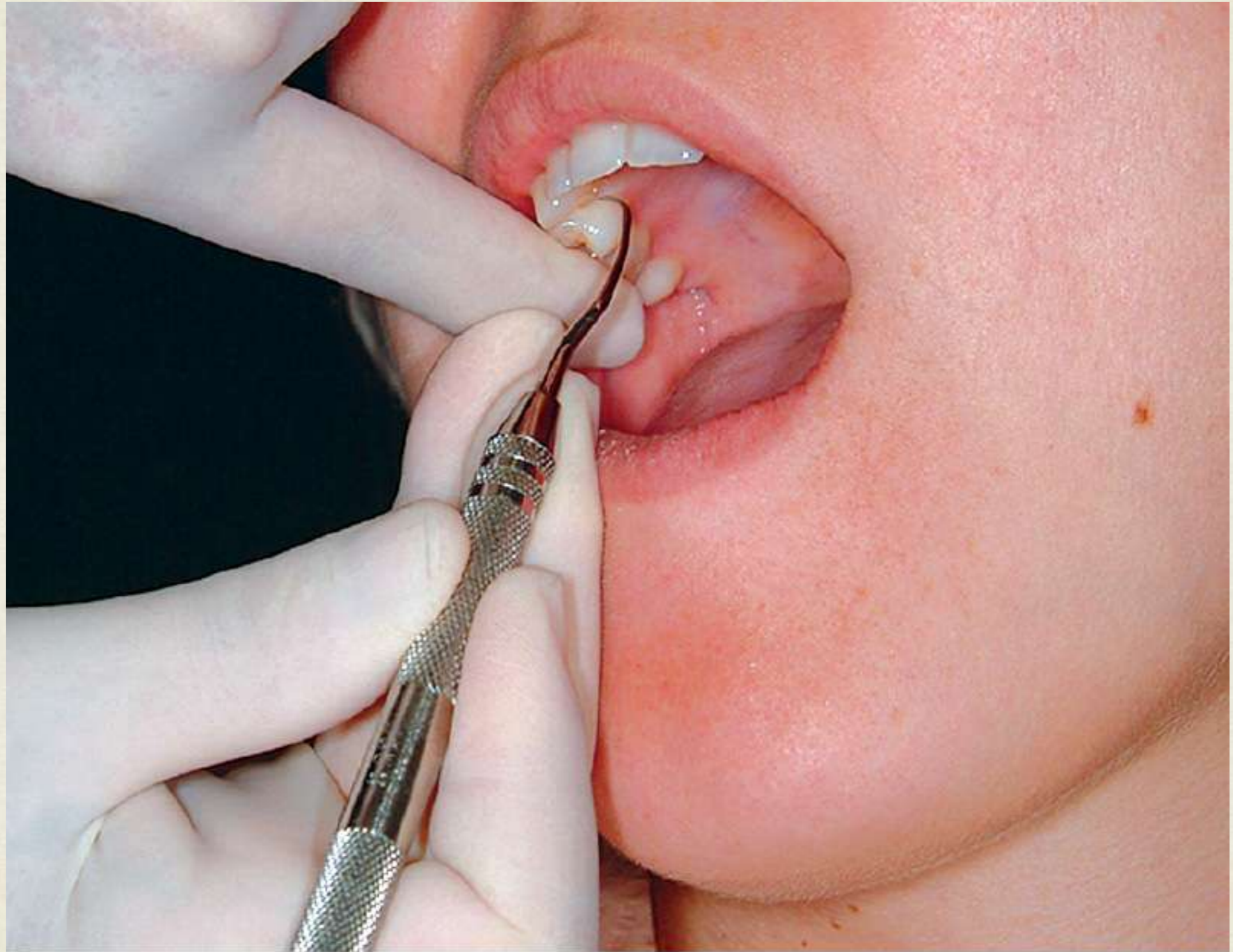
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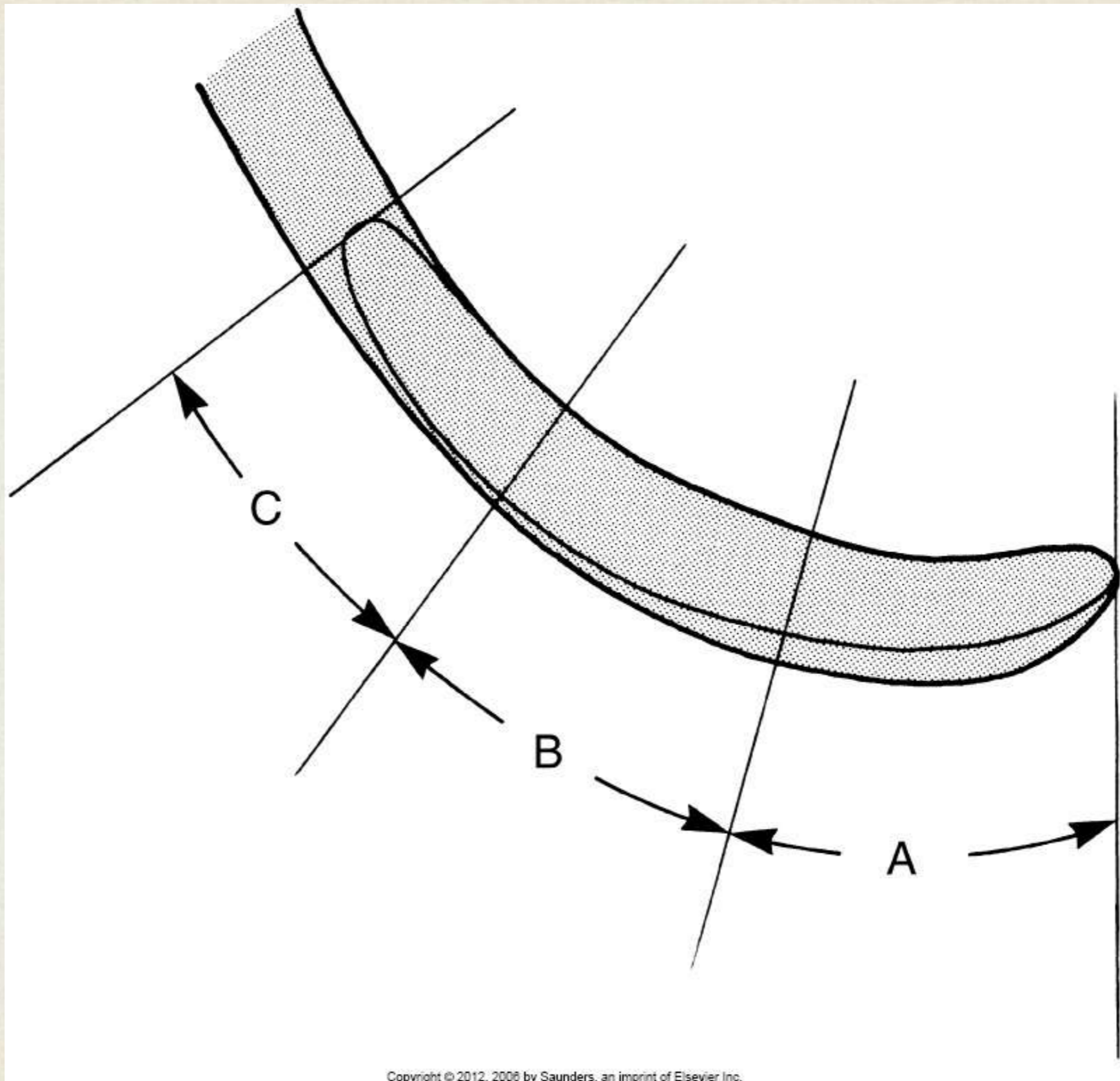


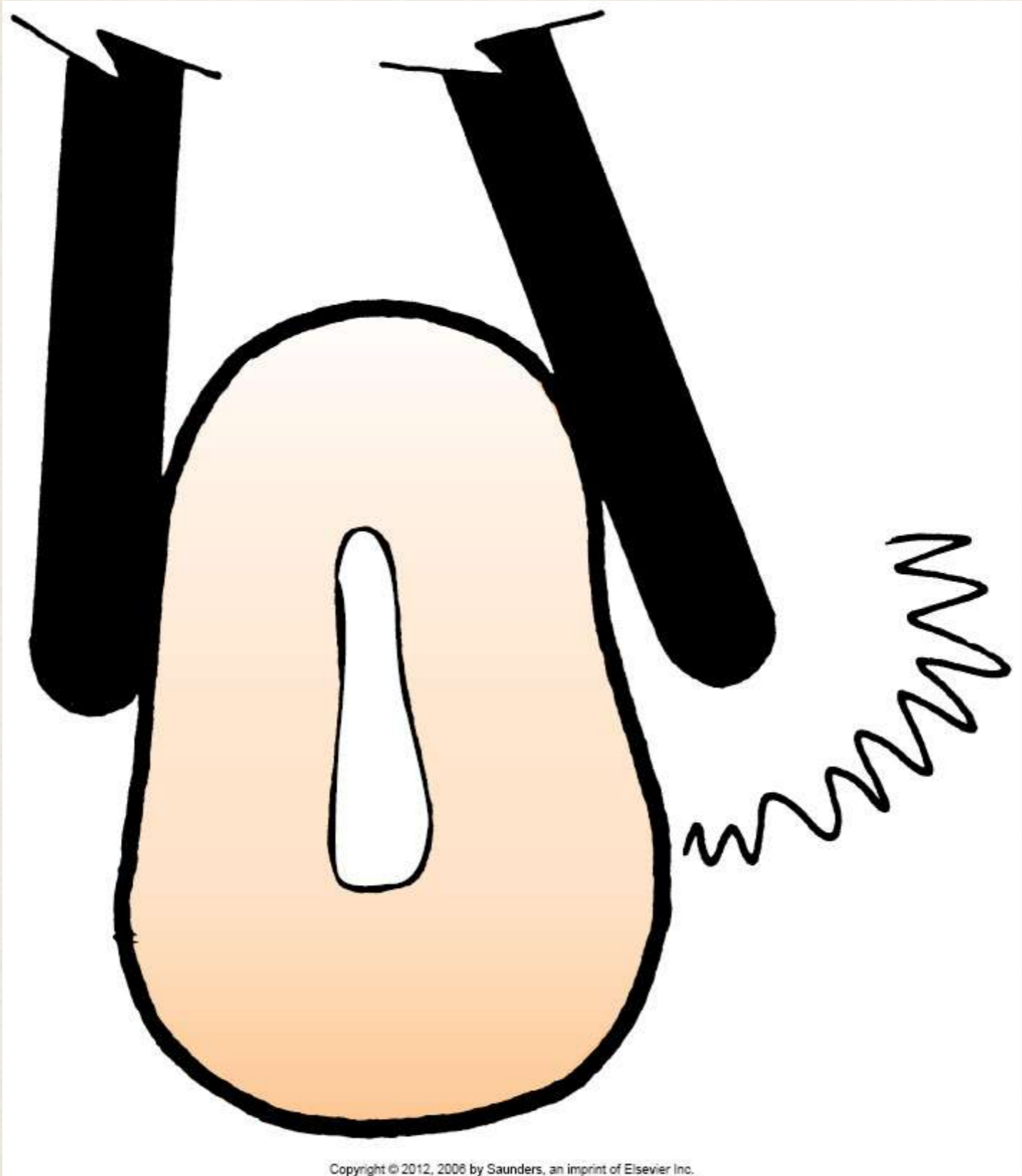




# General principles of Instrumentation

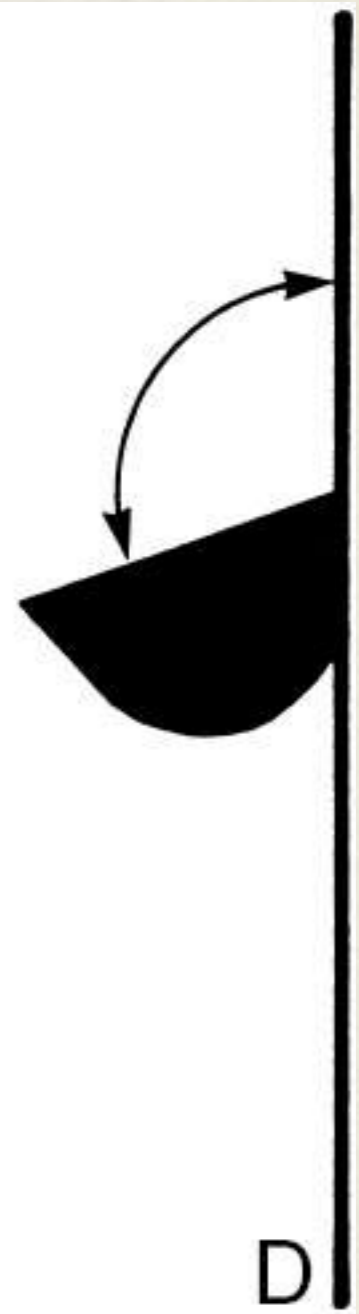
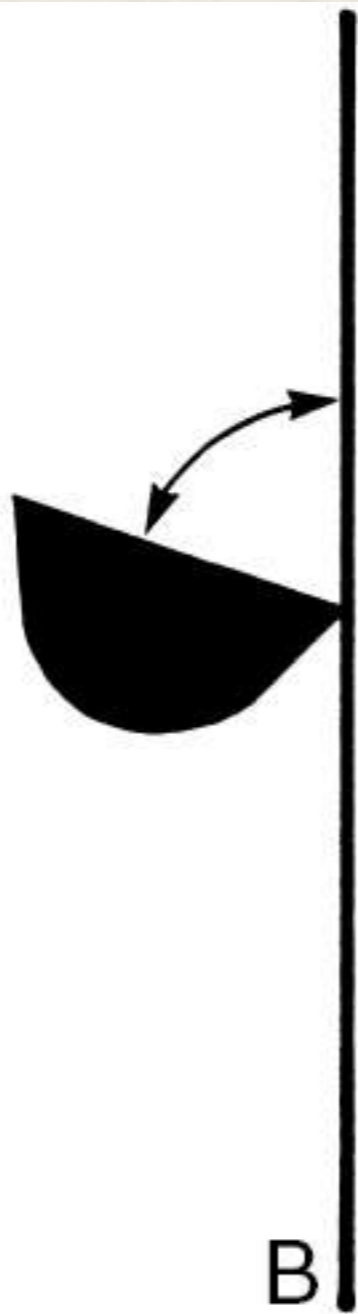
- Other aspects...:
  - Instrument activation:
    - adaptation
    - angulation
    - lateral pressure
    - strokes

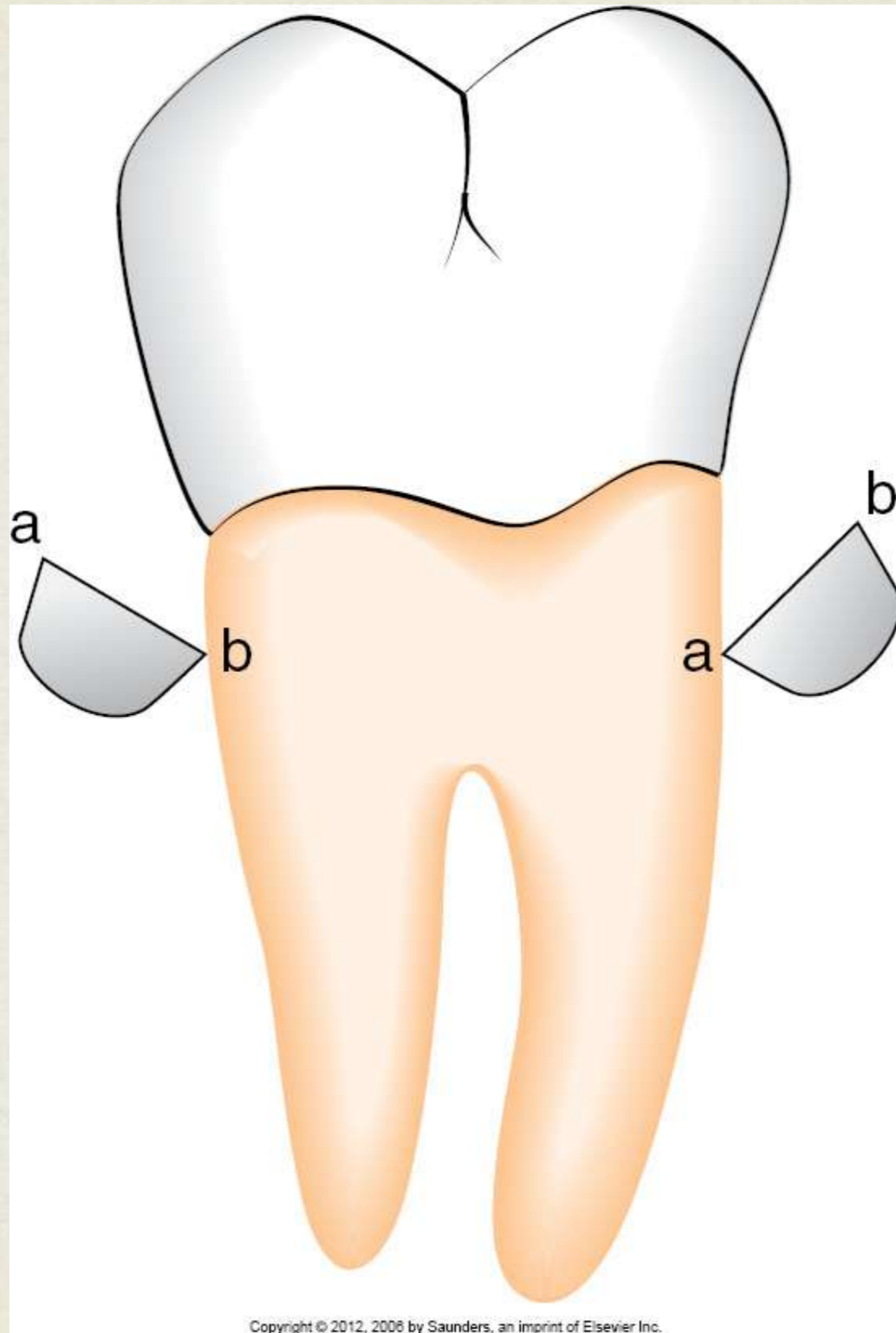




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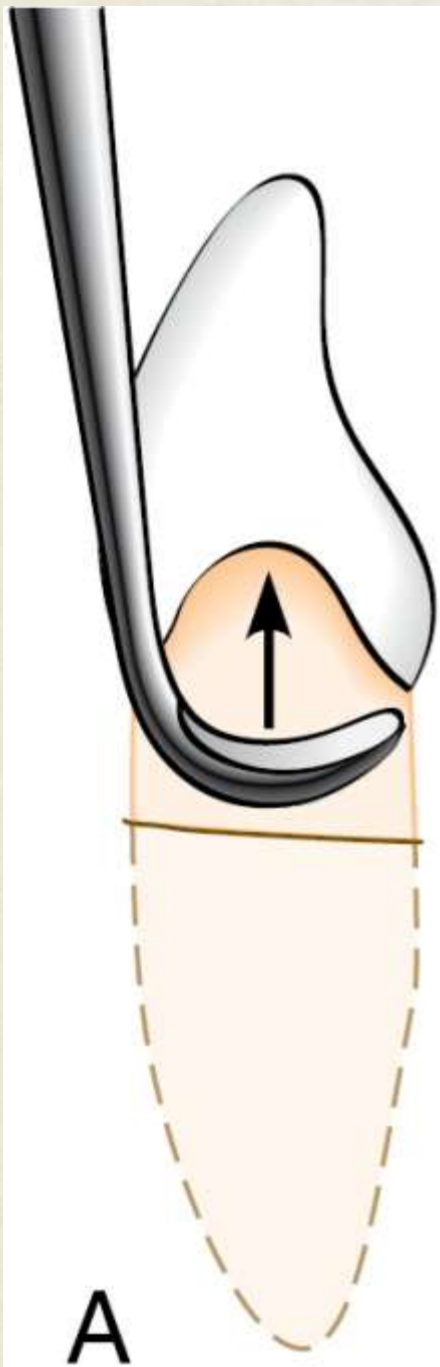
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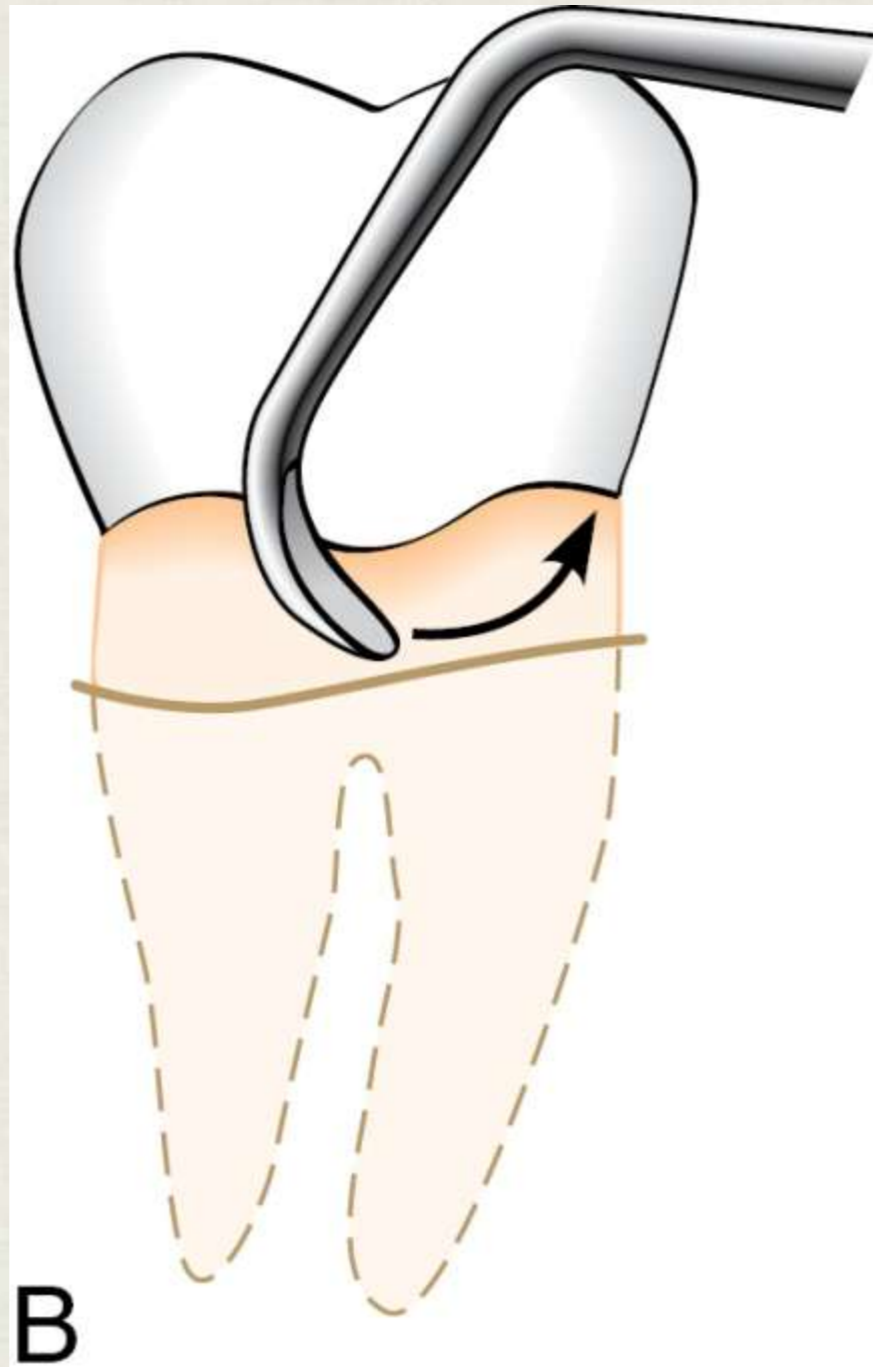


# General principles of Instrumentation

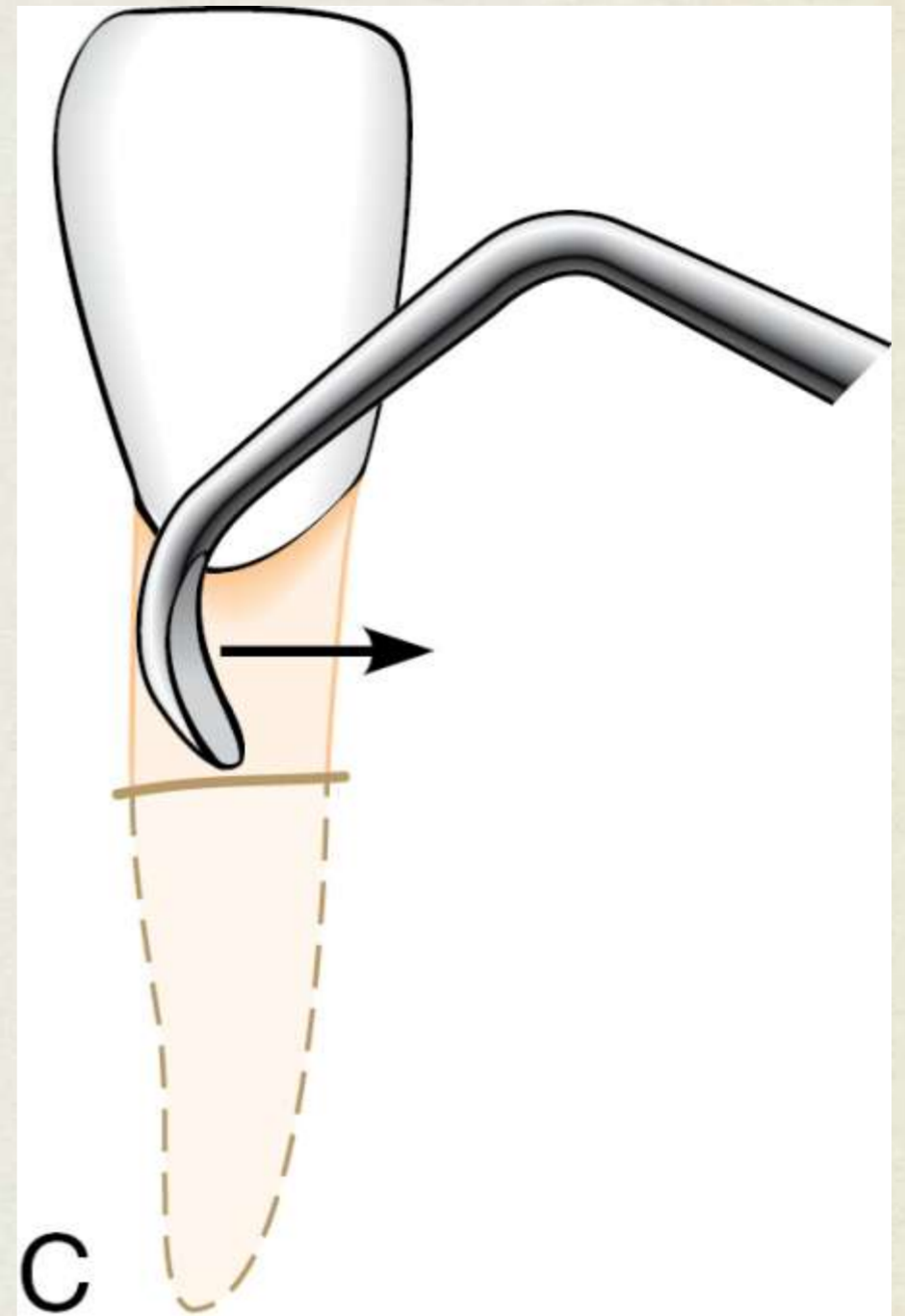
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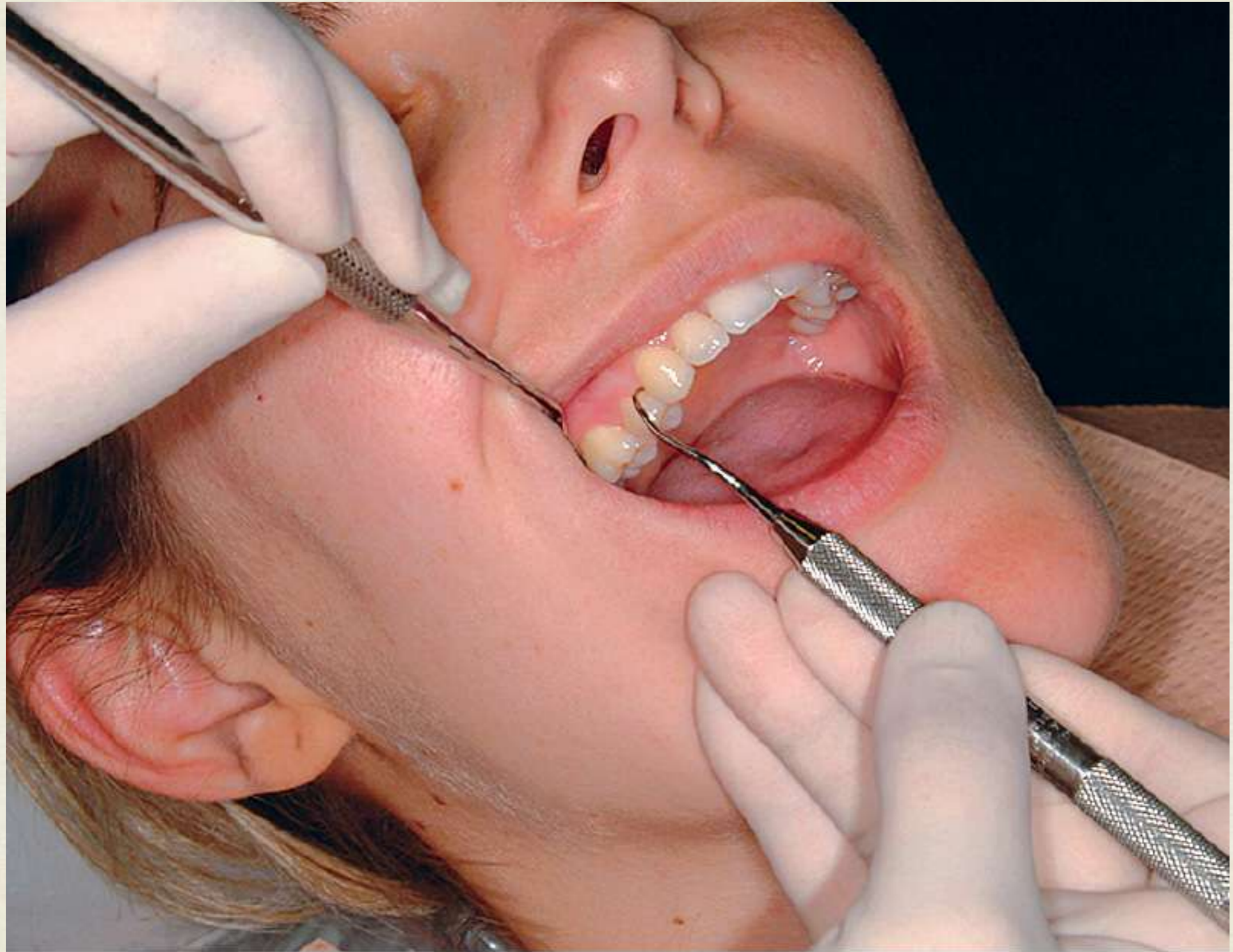
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# principles of Scaling and Root Planing

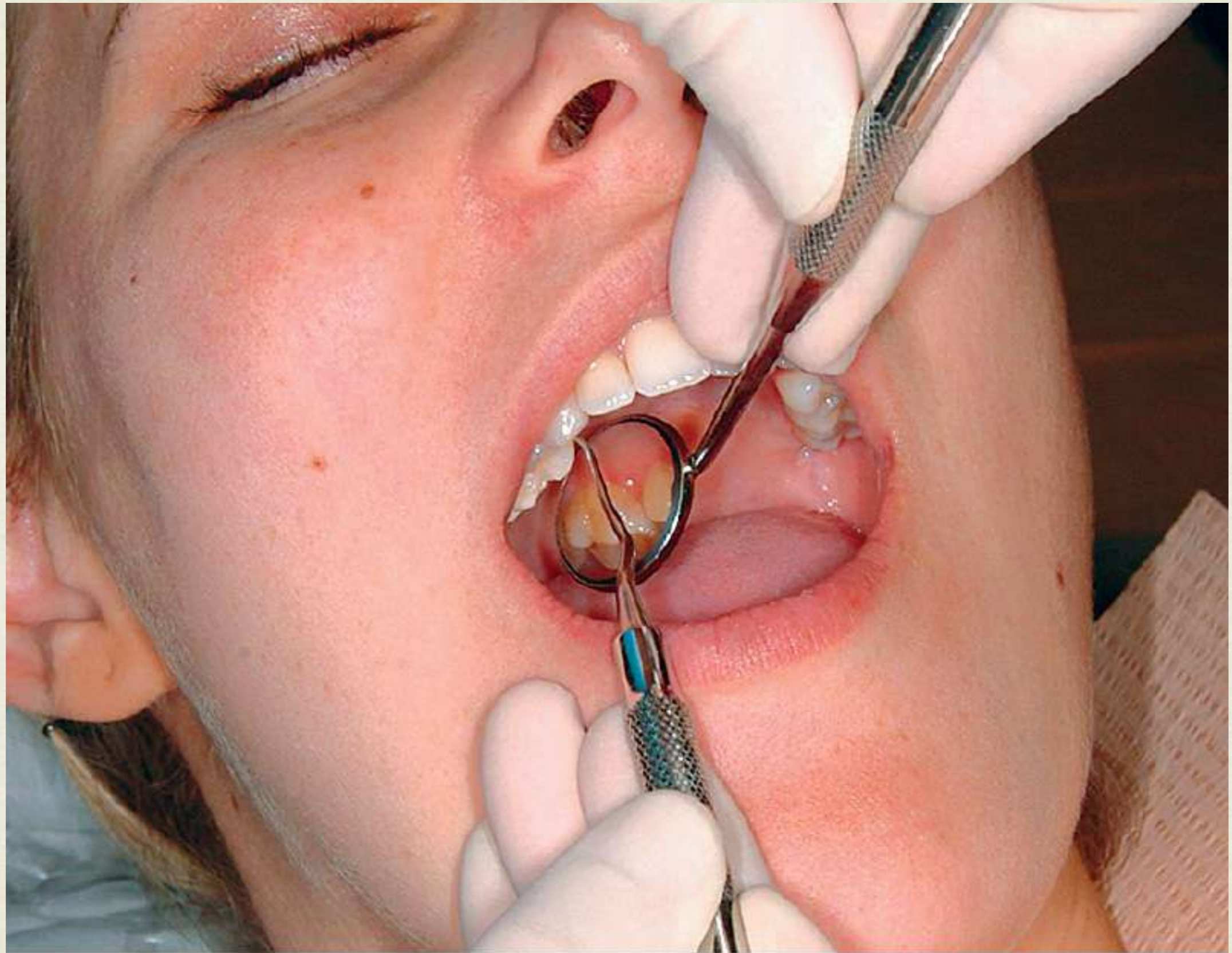
- Scaling: the process by which biofilm and calculus are removed from both supragingival and subgingival tooth surfaces. No deliberate attempt is made to remove tooth substance along with the calculus.
- Root planing: the process by which residual embedded calculus and portions of cementum are removed from the roots to produce a smooth, hard, clean surface

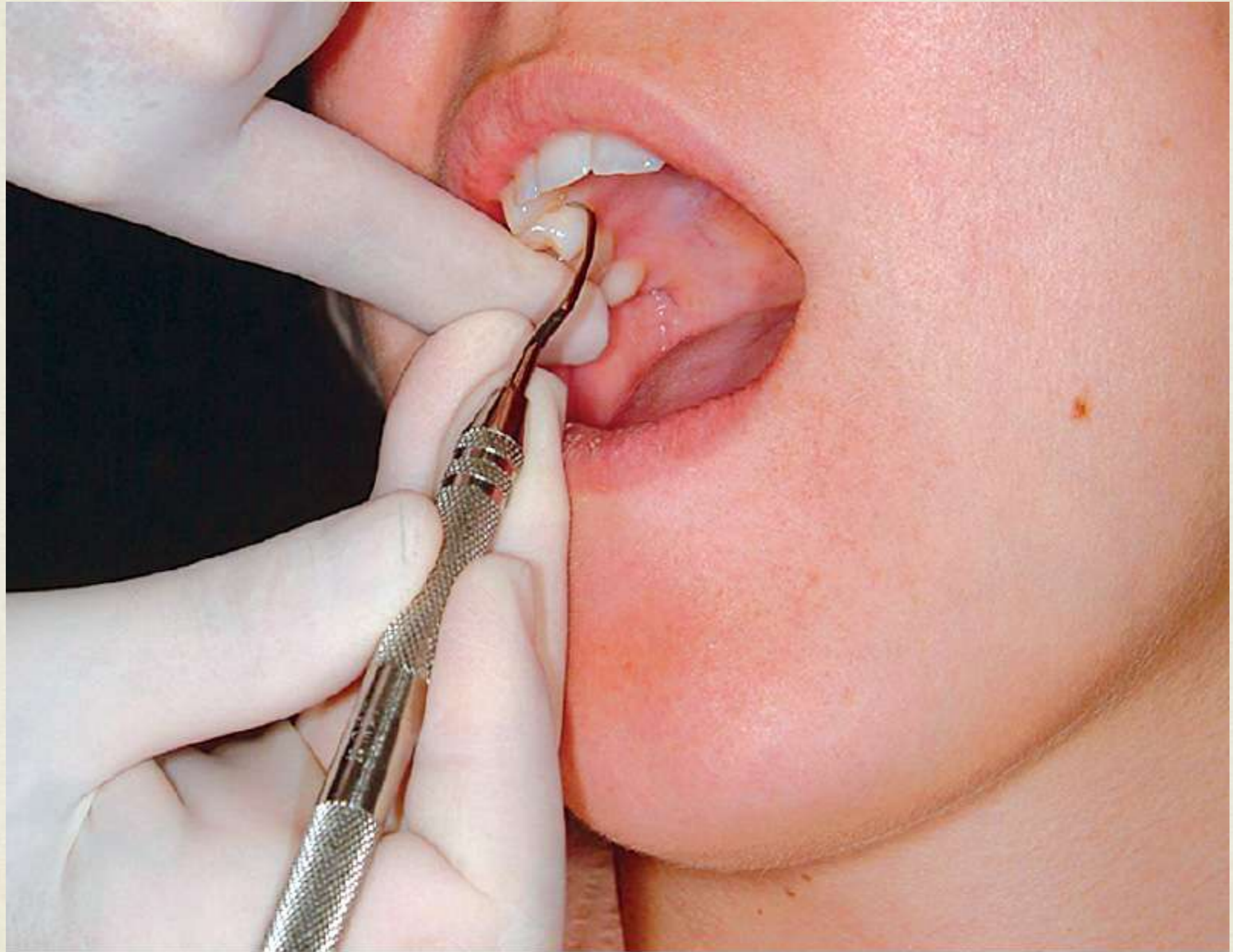
# principles of Scaling and Root Planing

- Scaling & root planing (SRP) are not 2 separate procedures.
- Proficiency in SRP is difficult and takes exercise.
- Tactile and visual detection
- left-over calculus results in persistent inflammation and BOP





























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# Ultrasonic and sonic instruments

- Sonic: consist of a handpiece that attaches to a compressed-air line and uses a variety of specially designed tips. Vibrations at the sonic tip range from 2500 to 7000 Hz
- Ultrasonic:
  - Magnetostrictive: Cavitron® (elliptical)
  - Piezoelectric: Piezon®, P5 Newtron® (linear)
- Alternating electrical current generates oscillations in materials in the handpiece that cause the scaler tip to vibrate.
- Vibrations range from 18,000 to 50,000 Hz.

# Ultrasonic and sonic instruments

- Ultrasonic SRP:
  - No difference between hand & US instruments, choice depends on clinical situation and clinician's judgement and experience.
  - US perform better in removing calculus from furcations.

# Ultrasonic and sonic instruments

- Ultrasonic SRP:
  - Contraindications:
    - Pacemakers??
    - Patients with communicable diseases
    - Respiratory disease of immunosuppressed
    - Dental implants

# Instrument Sharpening

<http://youtu.be/YRH4OJWoVCA>

**The End**