

Endodontic
Lab 724
Jan 13, 2022



Mandibular Premolar Access





Today's Plan

- **8:00-8:15** Quiz
- **8:15-9:00** Intro to endodontics and access opening
- **9:00- 9:15** ?????
- **9:15-9:30** Instructor demonstration on plastic tooth
- **9:30-11:45** Access plastic tooth
 - Access 2-3 Mandibular Premolar teeth
 - Continue selection of teeth
- **11:45-12:00** Prepare for next week
 - Maxillary Central Incisor and Maxillary Premolar Access



Announcements

Dr. Wingrove's office- 5No32

Dr. Whitten's office- 10No93

Grading

Passing- 80% or better

Letter of commendation- >95% on each quiz, all lab projects on first attempt and >4 on each PCE



Small Group Rotation Signup

- Choose a partner and signup on yellow tablet (for Lab XIX, 6/09/22)



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Twitter Background by www.Hawkeyefever.com

Objectives for next 3 sessions

- Access 5 Classes of teeth
 - Maxillary anteriors, premolars, molars
 - Mandibular premolars, molars
 - Internal morphology
 - Identify pulpal floor, orifice(s), attain SLA (straight line access)
-

- Prepare coronal 1/3 of the root canal system (RCS)
- Ready for cleaning and shaping (C&S) apical 2/3 RCS



RCT tooth preparation vs Restorative tooth preparation

- Restorative Dentistry
 - Fear pulp – Conserve dentin
- Endodontic Treatment
 - Debride and disinfect pulp
 - Conserve dentin, but thoroughly C&S



Access Cavity Preparation

- Law of Centrality

The pulp chamber is always located in the center of the tooth at the level of the CEJ

- Law of Concentricity

The walls of the pulp chamber are always concentric to the external surface of the tooth at the level of the CEJ



Fig 1



Fig 2





Access Cavity Preparation

- Objective
 - Provide pathway toward apex for C&S, obturation
 - Straight as possible (straight line access)
 - Maintain tooth strength, esthetics
 - Balance convenience form – Straight, strength, esthetics

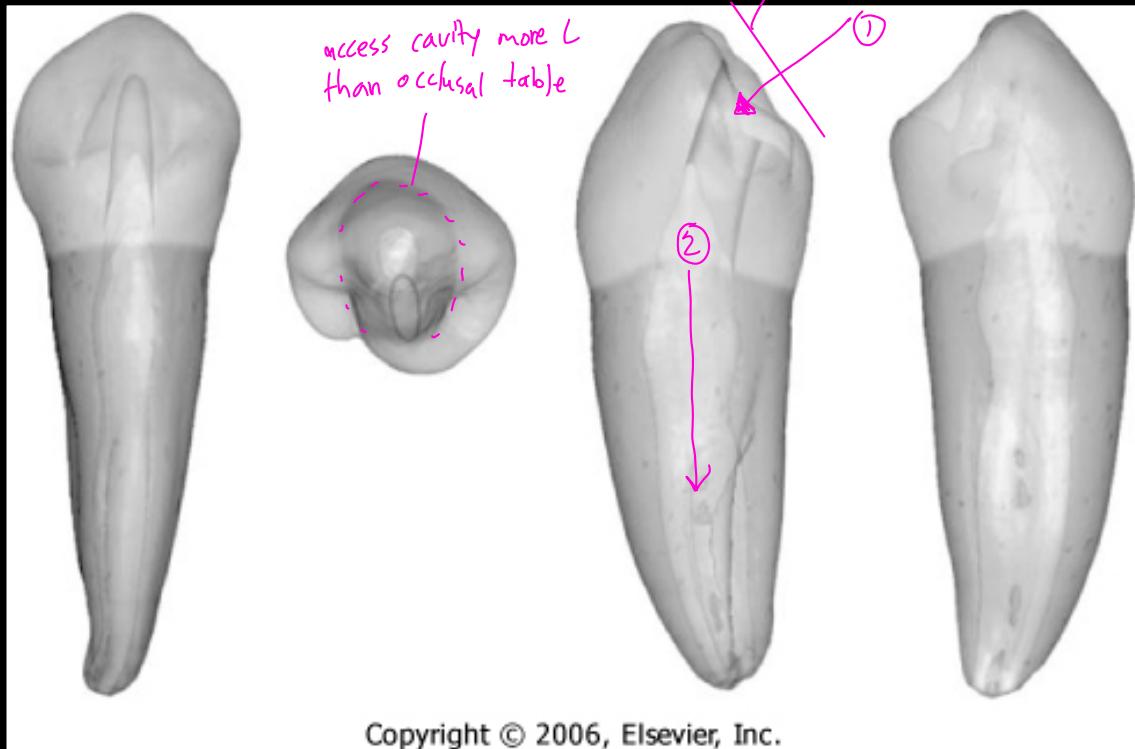
Weakest part of tooth at CEJ
When we flare the tooth, we do that at CEJ



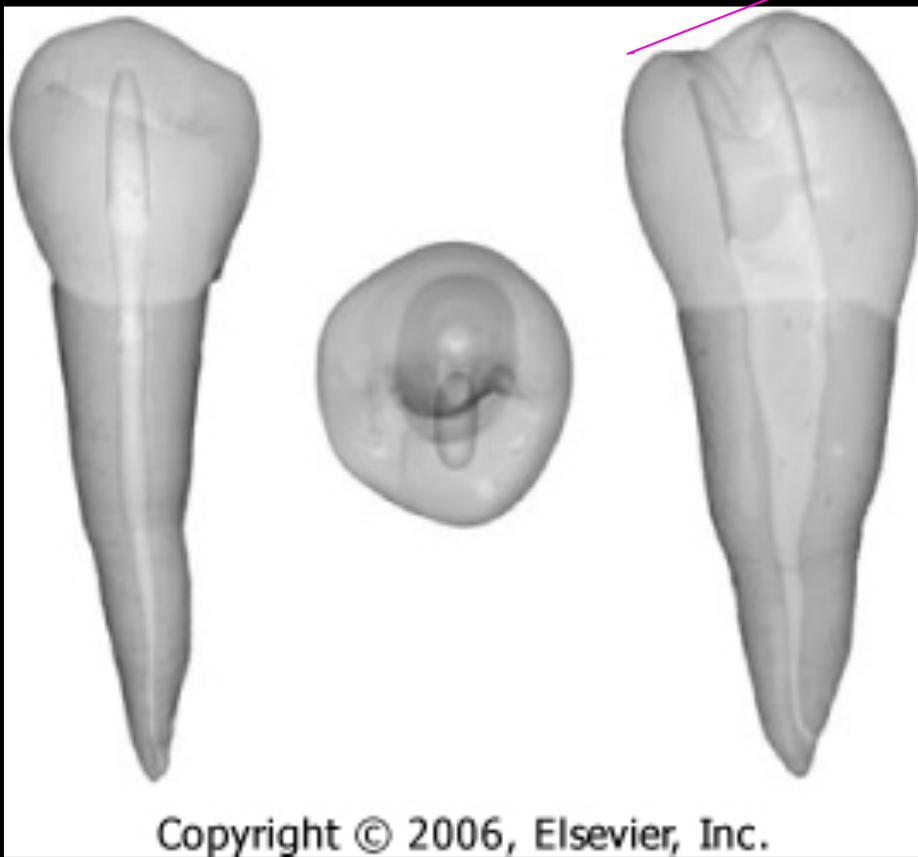
Twitter Background by www.Hawkeyefever.com

Mandibular Premolars

- Relatively easy or very difficult
- Don't be fooled – “Wolf in Sheep's Clothes!”
- 3 access challenges
 - Crown angulation
 - Narrow at CEJ
 - Complex root canal systems
 - All more so in 1st vs 2nd premolars

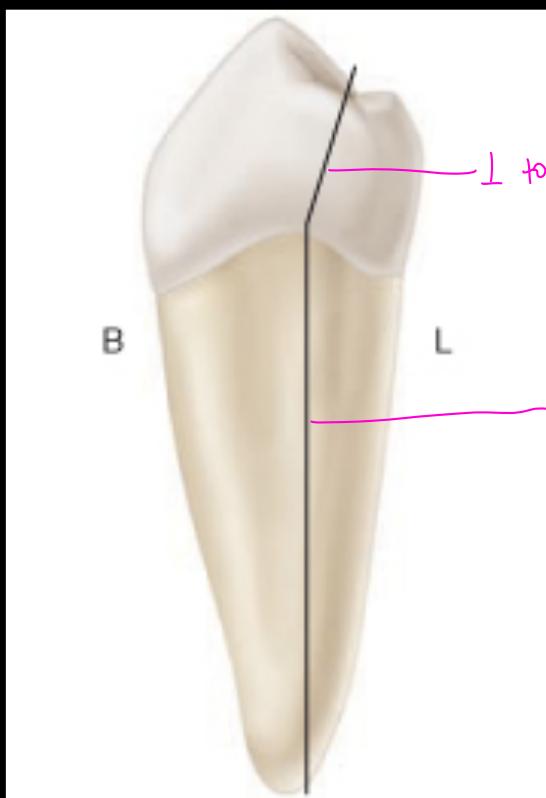


Mandibular first premolar



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Mandibular second premolar



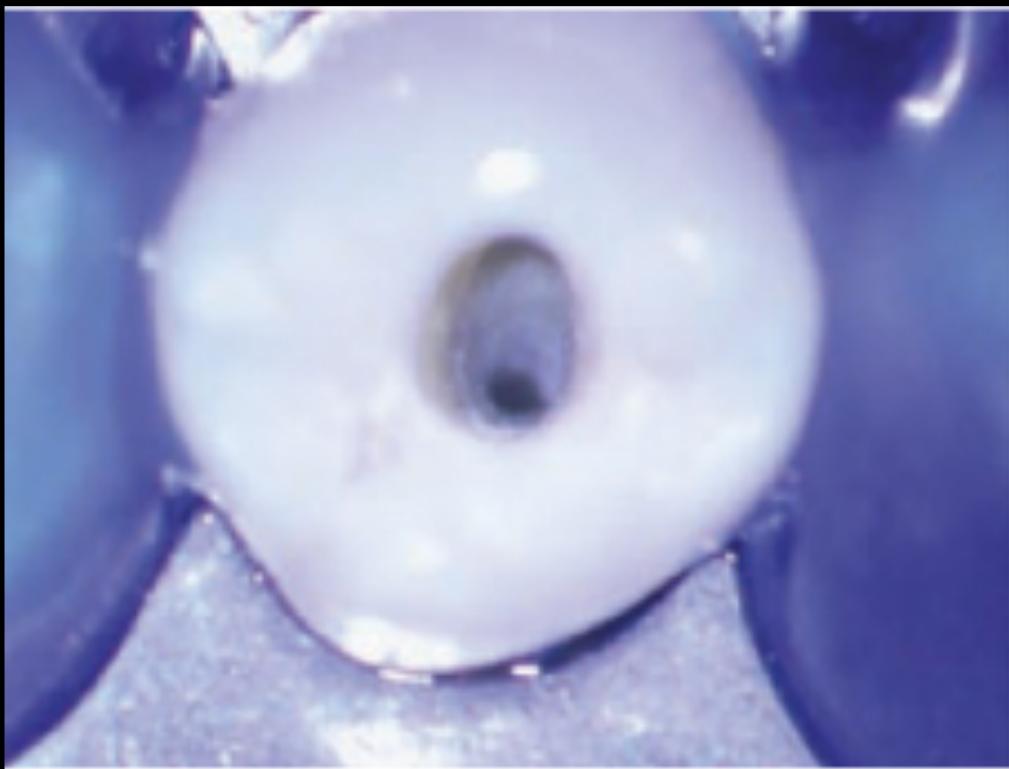
-usually 1 root/canal

I to occlusal table

then Δ direction to long axis
of tooth

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Lingual inclination of the crown in mandibular premolars



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Mandibular first premolar access

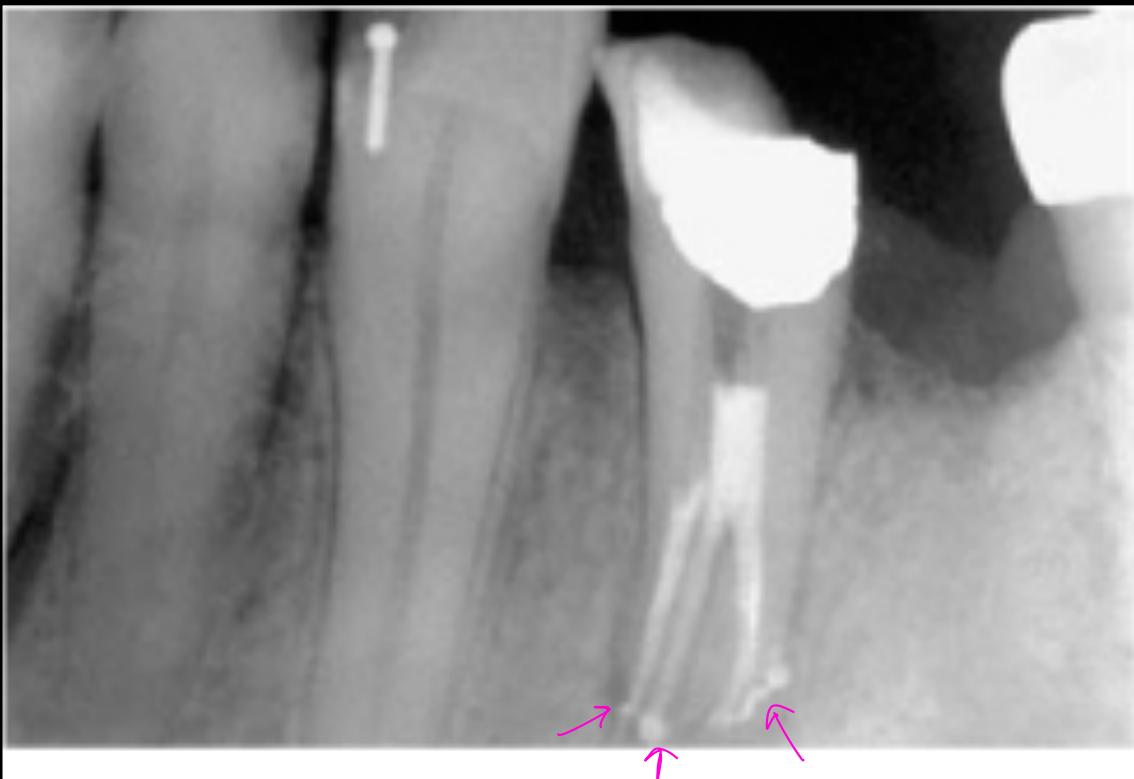


Complex Root Canal Anatomy

- Mandibular First Premolar
 - 25% 2 Canals – Deep Split
- Mandibular Second Premolar
 - 10% 2 Canals



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- more control @ occlusal table
- access oval shape
 - ~ more oval

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Mandibular second premolar access

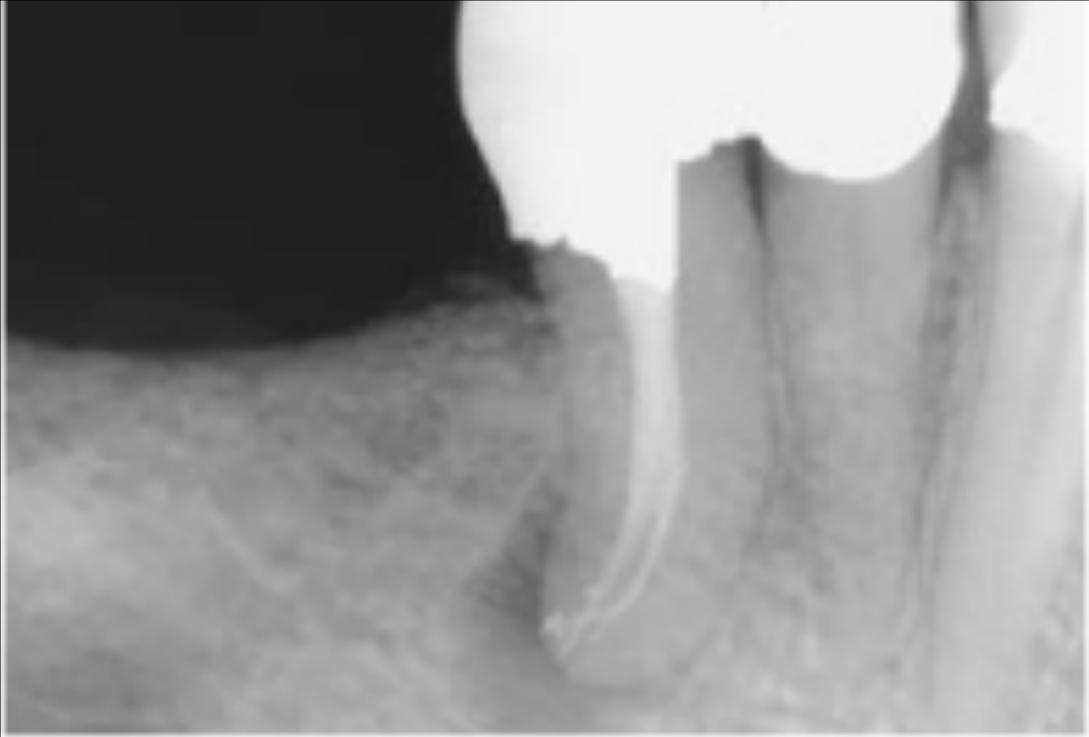


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deep split

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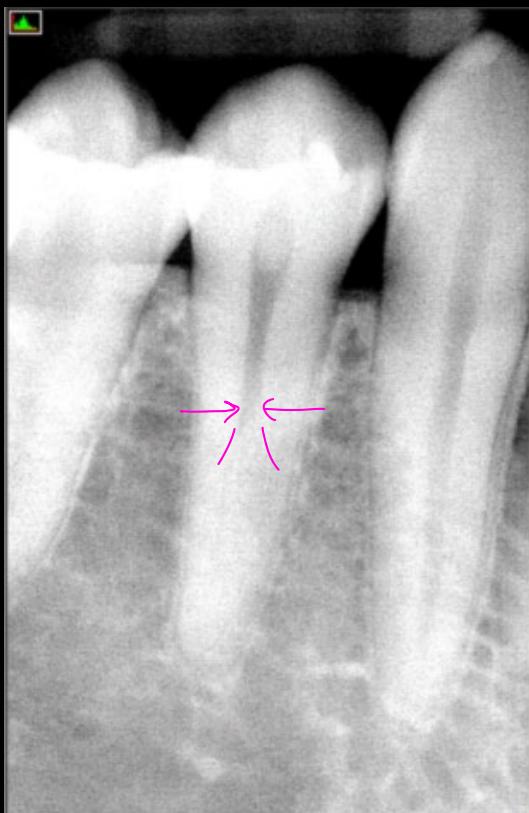


Evaluating RCS Complexity

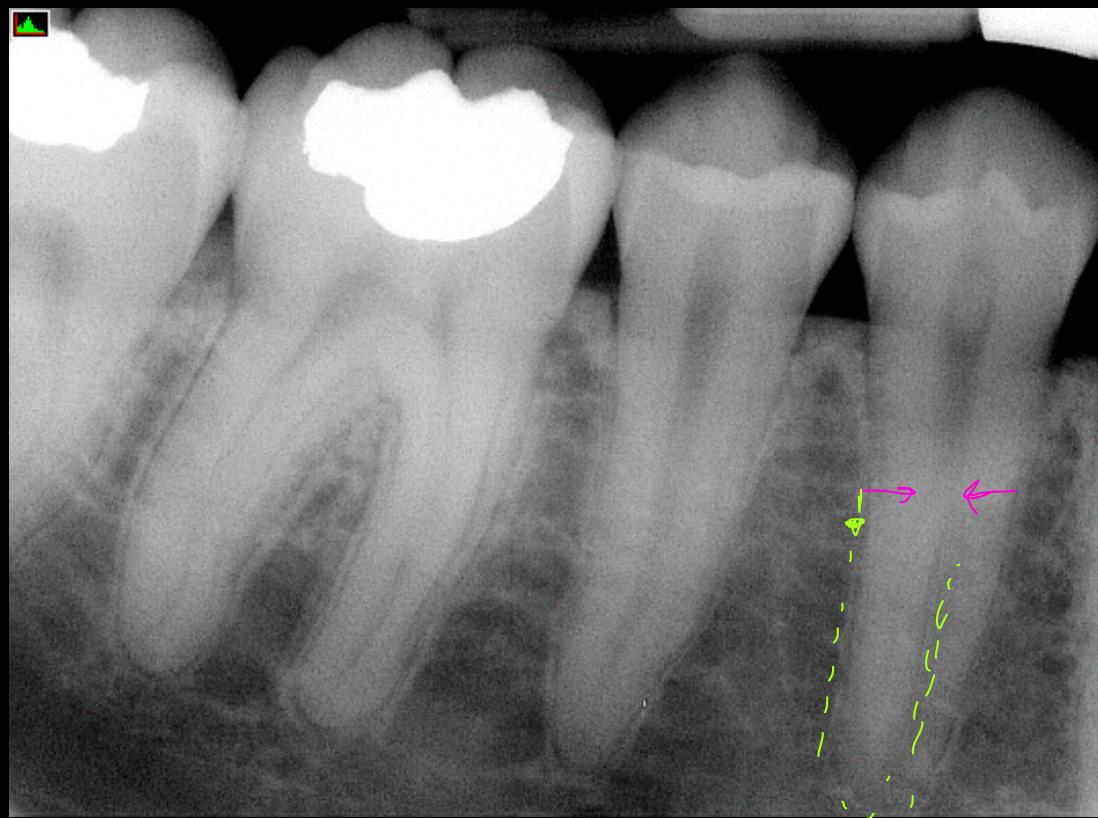
- Radiograph *pre-op planning*
 - Multiple root canals
 - Deep split - indistinct root canals ("fast break")
 - Multiple PDL's *multiple lamina dura → trace it all around root*
 - Adjacent and contralateral premolars
 - ✓ if one splits, likelihood of contralateral split ↗
 - want H or L to tooth
 - SLOB rule
 - BL for upper more likely
 - Off-angle images

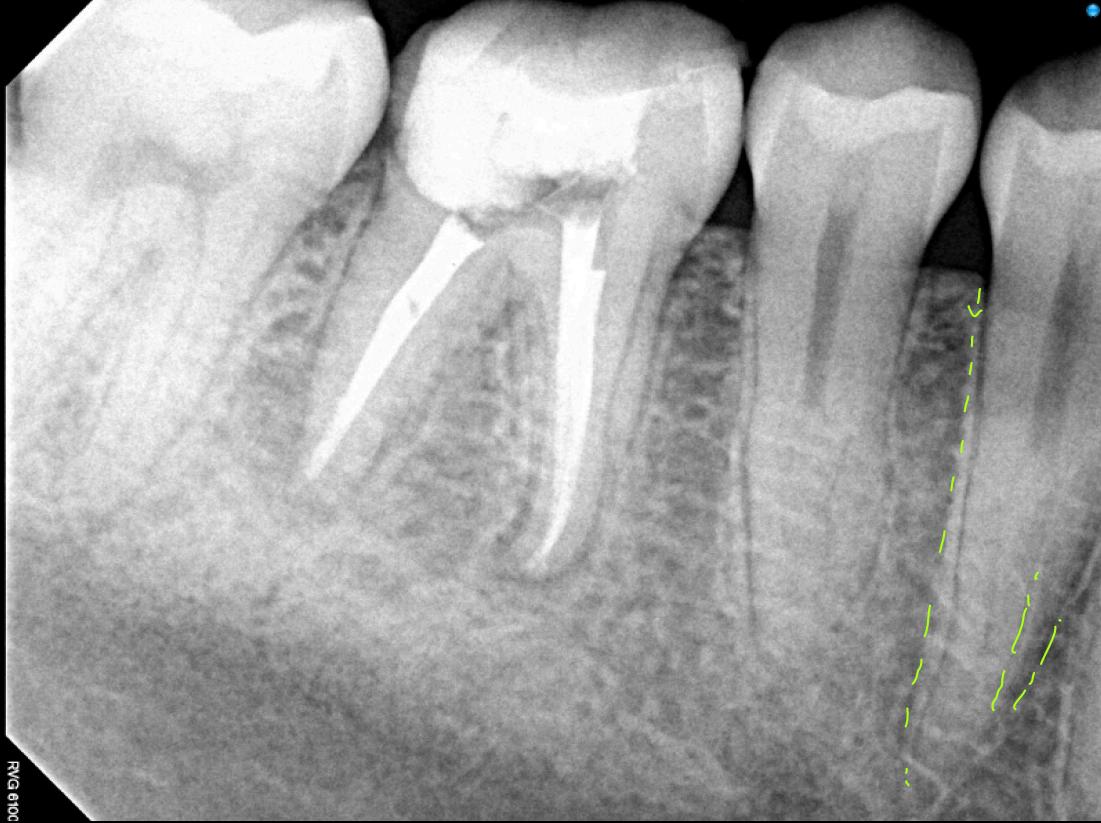


Radiographic “fast break”



‘canal space disappears = break
into 2 or more





RGA 610C



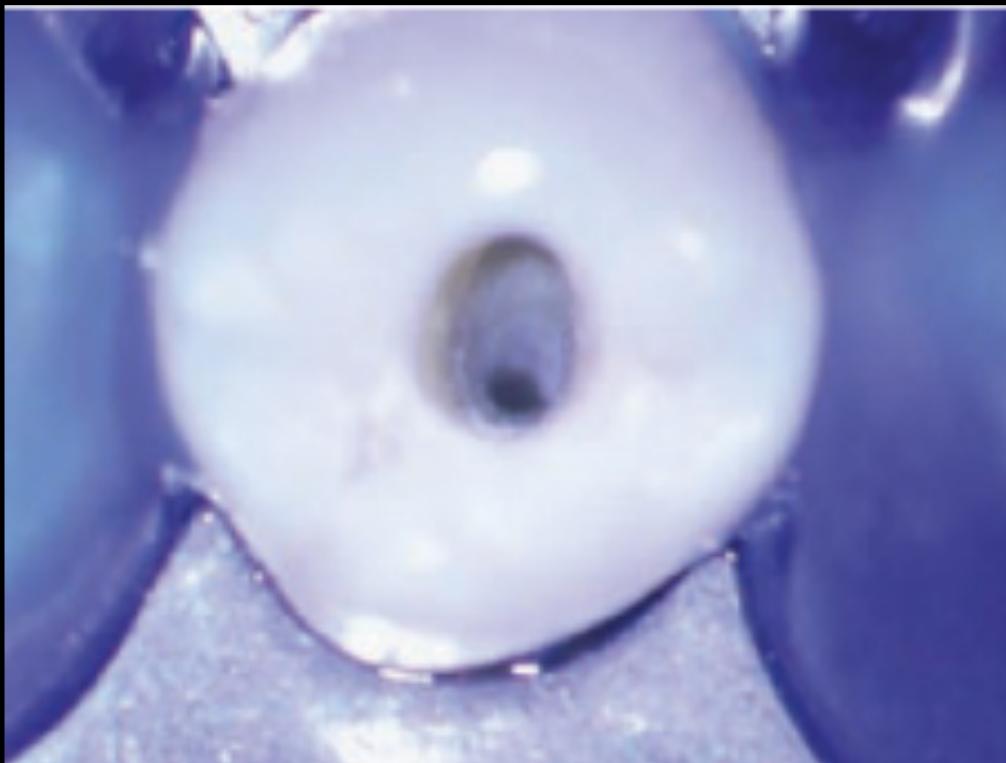
Access Cavity Preparation

- **MEASURE!!!**
 - cusp tip → pulpal floor
 - cusp tip → top of chamber
- #2 Round Bur, FG, short shank, can shift to long shank at halfway check
- Initial Access
 - Basically the middle of the occlusal surface
 - Start perpendicular to occlusal surface then re-orient axially
 - Oval access cavity

1st PM – ovoid outline

2nd PM – ovoid but slightly more elliptical





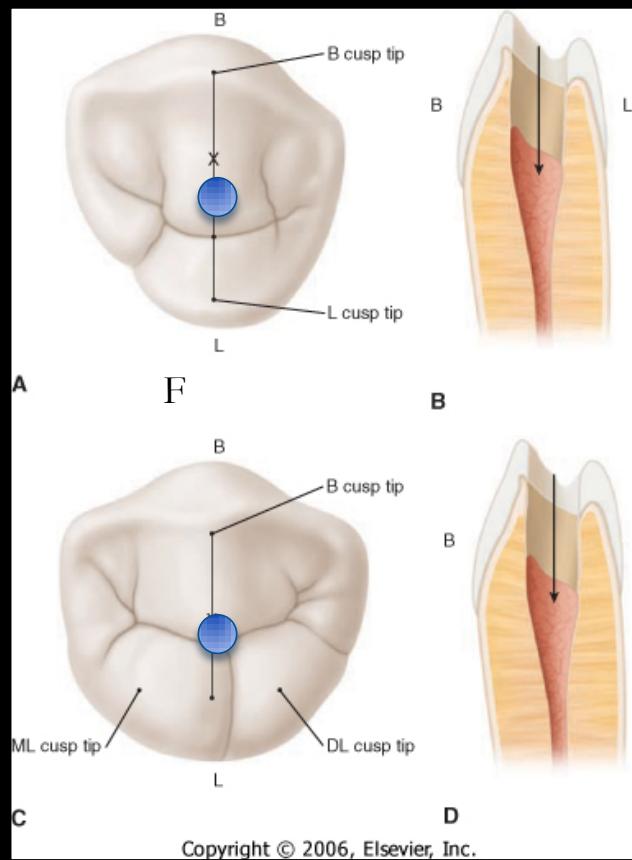
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Mandibular first premolar access



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Mandibular second premolar access





Access Cavity Preparation

- Locate pulp horn using endo explorer, #16 *, catch w/ explorer*
- Pulp chamber roof, depth 6.5 – 7mm
- Locate root canal orifice using endo explorer, #16
- Smooth walls with 269 GK, create tapering access opening
- Glide path, 10 and 15 K files
- Gates-Glidden drills to remove cervical bulge



Filing Motions

(page 45)

- Filing
 - Vertical motion
 - Useful for smoothing ledges and irregularities
- Reciprocal reaming
 - Watch winding motion (90-180 degrees)
 - Slight apical pressure (break a pencil lead)
 - Remove on clockwise motion to clean flutes and inspect file
 - Useful for creating glide path and apical preparation



Pulp Horns

Pulp horns can be removed

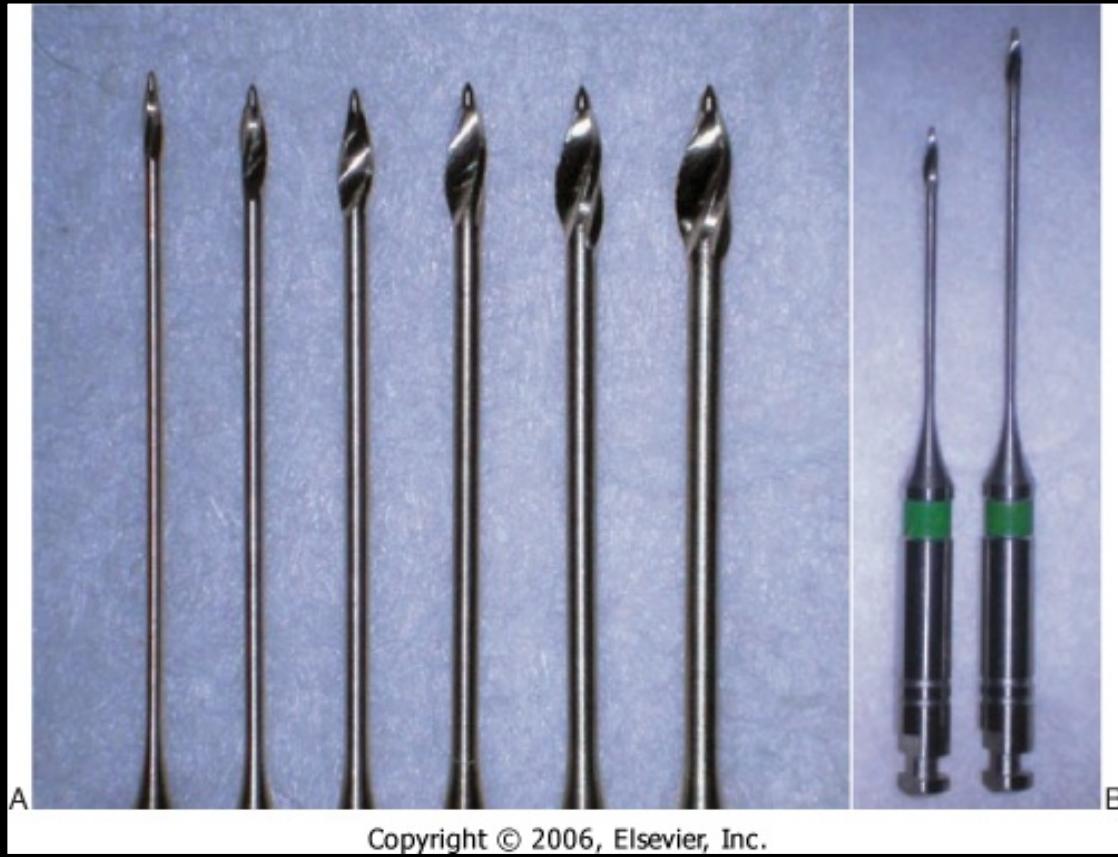
- with #4 round bur in a pull stroke
- #269GK bur



Lingual shoulder/ Cervical Bulge

Use Gates-Gliddens drills to remove the lingual shoulder or cervical bulge

- Technique, simple and quick
- Use from smallest to largest
- Yellow, Red, Blue
 - #2, #3, #4
 - ISO 70, 90, 110
- To be used after glide path file (usually #10) is used into apical 1/3



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Gates-Glidden Technique

- Slow speed handpiece 10-12000 RPM
- Yellow (2) GG, Follow Glide Path
 - Gentle Pecks
- Red (3), Blue (4) GG
 - Remove lingual shoulder
 - Use outward stroke with lingual pressure
 - Brush and flex GG
- Precautions
 - Turning clockwise
 - Make sure rotating prior to entering orifice
 - Drills Penetrate – gouge and ledge



Remove the Gates-Glidden
drill when you are done!!!

Measure twice...Cut once!!!



Projects

- Instructor demo
- Access plastic tooth
- Access mandibular premolars

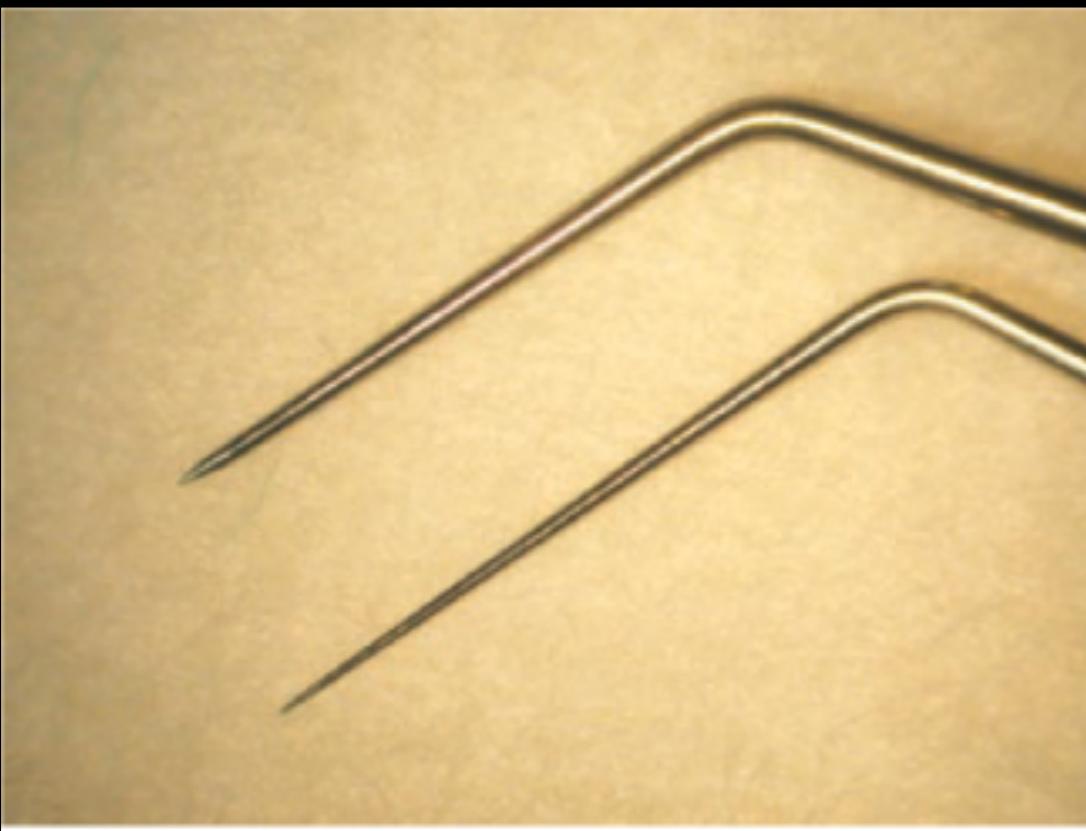


- Halfway access check
- Self assessment
- Instructor assessment



2 Common Access Errors

- Pulp horns
- Leaving the cervical bulge (aka- lingual shoulder) preventing SLA



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Review

- Objective
 - Create path toward apex for C&S, obturation
 - Straight as possible (SLA)
 - Maintain tooth strength, esthetics
 - Balance convenience form – straight, strength, esthetics



Mandibular Premolar Review

- Three Access Challenges
 - Coronal Inclination
 - Narrow M-D
 - 2 Canals 25% - Deep Split



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Fish Toss!!!!



Coach Whitten to discuss strategy



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 - Access 2-3 maxillary anterior teeth**
 - Continue selection of teeth**
- **11:45-12:00 Prepare for next week**



Next Week

- Access maxillary premolar
 - Pathways pp. 184-187
- Access maxillary central incisor
 - Pathways pp. 165-169
- Continue tooth selection process if necessary
(maxillary and mandibular molar needed for Jan 27)

Theme- Tie Dye Day



And remember....



A Day Without
Endo Is A Day
Without
Sunshine

