

Endodontic Lab 724

LABORATORY SESSION
VII

FEBRUARY 10, 2022

REMEMBER THE FISH!





Plan for the day

- ▶ 8:00-8:15 Quiz
- ▶ 8:15-8:45 Introduction to Continuous Wave Compaction (warm vertical compaction)
- ▶ 8:45-9:15 Introduction to System B and Obtura units
- ▶ 9:15-11:45 Projects:
 - ▶ Obturation demonstration
 - ▶ Mandibular Premolar: Continuous Wave compaction
 - ▶ Mount maxillary central incisor for next week (preop radiograph mounted)
- ▶ 11:45-12:00 Review/prepare for next week

Next Week

Theme: Crazy Socks Day

Maxillary central incisor access, C&S,
obturate (mounted with pre op B-L
radiograph)

Mount maxillary premolar for Feb 24
(preop radiograph mounted)

Catch up





Some random things

- ▶ Assessments: Faculty and self! What does it mean?
 - ▶ Transfer to page 82
- ▶ Irrigate, irrigate, irrigate!!
 - ▶ Patency file (#10, or #15) after each irrigation
 - ▶ Irrigate after each file or WaveOne use
 - ▶ Inspect files
 - ▶ Use 10cc syringe and irrigation needle (side slotted)

Some Confusion

Crown-Down - Basics

- Access to pulp chamber with HS round bur
- Smooth walls with HS safe-ended bur
- Initial canal negotiation with .02 Hand Files
- Establish EAL working length with .02 Hand Files (clinic)
- Blend canal with access prep with Gates Glidden drills – Remove cervical bulge
- Determine first file to bind (FFB) .02 Files - Record on form
- **Take radiograph with first file to bind (FFB) to verify WL**
- Enlarge canal to WL with WaveOne Gold file
- Apical Gauging
- ?Enlarge apical 1-3mm with .04 ProFiles™?



Introduction to Continuous Wave Compaction

pg 64-69

Before Even Thinking of Obturation

- ▶ Do do:
 - ▶ Apical gauging
 - ▶ Plugger pre-fitting



Prefitting Pluggers



- ▶ With irrigant still in the canal and apical gauging done:
 - ▶ Prefit System B plugger (.06 and .08)
 - ▶ Use the largest plugger that can get to within 5mm of working length **without binding**. Adjust stopper at binding point.
 - ▶ Prefit Buchanan hand pluggers and set stopper at binding points. Do not use to this binding point. Initially, use the largest plugger that will get to same length as the System B plugger (without binding)

Gutta Percha Master Cone Fit

Laboratory Manual pg 62

► After apical gauging and prefitting pluggers:

- With the canal still wet with irrigant, fit the appropriate size .04 or WaveOne Gold cone (Small, Primary, Medium, Large)
- Measure the point by grasping it with the cotton pliers, not your fingers. Use ruler on mirror, etc to adjust your grasp to the WL
- Place into the canal and seat the cone to working length, (try to push it beyond the working length)
- Hopefully the GP will stop at working length and you will experience “tug back”
- Tug back indicates binding of the master cone in the apical matrix
- **REMEASURE!!!!**



Master Cone Fit (cont'd)



▶ What if:

▶ The cone fits short?

▶ Reconfirm the apical size (apical gauge), remove apical debris with .04 files (and irrigation) and re fit, or try smaller cone

▶ The cone fits long?

▶ Reconfirm apical size with apical gauging, cut tip of the cone back in 0.5 mm increments until proper fit obtained (tug back and can't be pushed long), or try next size larger master cone

Master Cone Fit (cont'd)



- ▶ Once the master cone is fit:
 - ▶ Take a radiograph to verify its length
 - ▶ Remeasure to be sure it is indeed the length you thought it was
 - ▶ Adjust and re-verify with radiograph as needed (if adjustment of no more than 1 mm is needed, you do not need to re-verify with new radiograph)



Final Irrigation

- ▶ Once the pluggers have been prefit and the master cone has been fit and radiographed it is time for the final irrigation
- ▶ Irrigate with at least 1ml of EDTA and agitate with a patency file to remove smear layer (get "E" syringe)
- ▶ Irrigate with at least 1ml of 2% NaOCl and agitate with a patency file
- ▶ Irrigate with NaOCl one last time, this time aspirating out as much fluid as possible.

Dry the Canals

- ▶ Dry the canal(s) with the largest paper points that will go to working length.
- ▶ Measure the paper points before introducing into the canal
- ▶ When paper points are completely dry you are ready!!!
- ▶ Don't obturate if cannot dry



Sealer

- ▶ Sealer is mixed so as to pass the “string” test
- ▶ Coat the walls of the canal with sealer by :
 - ▶ using a **clean** .02 file one size smaller than the final apical size, **or** coating the master cone
 - ▶ Do not use a pumping motion-tendency to push sealer out the apical foramen



Continuous Wave Compaction or Warm Vertical Compaction

- ▶ System B Unit
 - ▶ Switch to use
 - ▶ Set temp to 200 C
 - ▶ Power set to 10
 - ▶ Mode on “touch” (not “continuous”)
 - ▶ Never activate for more than 4 seconds





Continuous Wave Compaction

DOWNPACK

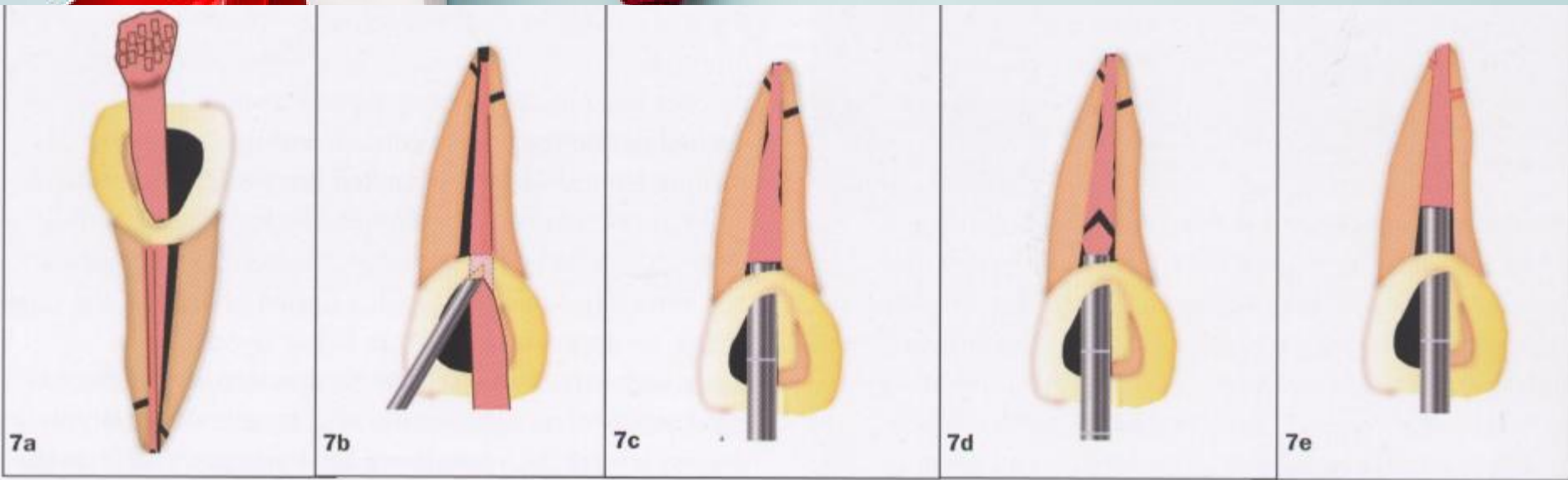
- ▶ **Remove GP to orifice of canal:** (System B).
- ▶ **Form “Cork”:** (flatten gutta-percha at orifice with a cold pre-fit hand plugger)
- ▶ **Downpack:** Place the System B plugger on top of the gutta-percha and activate while applying moderate apical pressure for 1-2 seconds. When within 2-3mm of the silicone stop, deactivate the heat and continue apical pressure until just short of the stop (remember, do not take to binding point)

Continuous Wave Compaction

- ▶ **Hold:** with apical pressure for ten seconds with heat off.
- ▶ **Remove:** “Separation burst”
Activate heat again (1 second), wiggle and remove plugger from canal with surrounding gutta-percha. Observe end of plugger.
- ▶ **Compact:** With largest pre-fit hand plugger that will go to the appropriate length, compact for 5 seconds



Continuous Wave Compaction





Continuous Wave Compaction

BACKFILL

- ▶ Turn Obtura unit on just before starting downpack so it can get to 200 C
- ▶ Squeeze gp out of needle
- ▶ Place needle into canal as far as possible, hopefully to surface of downpacked gp. Hold for 5 seconds or so
- ▶ Express 1-2 mm of gp and condense with prefitted hand plugger and sustain pressure for 3-4 seconds
- ▶ Use largest hand plugger that will go to desired length (without binding) to avoid voids

Continuous Wave Compaction

BACKFILL (CONT'D)

- ▶ Repeat the process, now expressing 2-3 mm gp at a time until backfilled to CEJ or 1-2 mm below orifice level
- ▶ Do not withdraw needle as expressing, instead try to feel the gp “pushing” the needle out
- ▶ Remove excess gp with System B or spoon and condense gp with largest hand plugger or Glick
- ▶ Take a “check” radiograph (can use as “final” B-L view)
- ▶ Clean access with alcohol and cotton pellets





Check Points for Instructors

- ▶ **Cone-fit (after cone fit x-ray):**
 - ▶ Apical gauging
 - ▶ Plugger pre-fitting(hand and System B pluggers)
 - ▶ Cone length and tug-back
- ▶ **Compaction Check Film**
 - ▶ Length
 - ▶ Density
 - ▶ Canal shape
 - ▶ Coronal level
- ▶ **Final Radiograph** (proximal view) rubber dam off
 - ▶ Student and faculty assessment (p 24)
 - ▶ Transfer grade to Project Score Summary (p 79)

Common Problems



- ▶ **Cone coming out with System B**
 - ▶ Cone undersized
 - ▶ Insufficient wiggling during/after separation burst
 - ▶ May need to do lateral compaction with 1-3 accessory cones
- ▶ **Void between downpack and backfill**
 - ▶ GP flash on walls after downpack (use largest plugger that will go to appropriate length without binding)
 - ▶ Extruding too much GP in first increment
 - ▶ Extruding GP too quickly
 - ▶ Not “pre heating” gp surface with needle
 - ▶ Hand plugger too small (punching holes in gp)
- ▶ **Overextension / Underfill**
 - ▶ apical gauging not done or done incorrectly



VIDEOS



Downpack Video

<https://www.youtube.com/watch?v=Ab4BiAmwGng>

Backfill Video

https://www.youtube.com/watch?v=rvB_x0A5uml



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Introduction to System B and Obtura units



Dr. Whitten



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24 (preop radiograph mounted)

Catch up



And remember...

“a day
without
endo is day
without
sunshine!!!”