Root canal treatment procedure Quick Guide

D. de Groot – Kuin, R. van der Horst, A. Bouwman

Radboudumc

Endodontic treatment

- Diagnosis •

Preconditions: caries-free/good restoration/

DETI

- Endodontic opening
- Rubberdam

Coronal phase

Length determination

Preparation

Channel filling

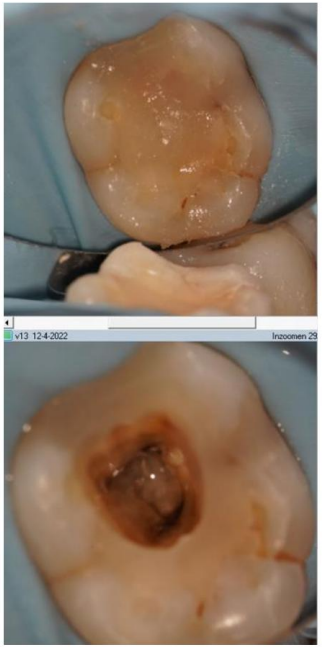
- Definitive coronal closure
- Control

Starting photo

- Initial photo of course already taken at diagnosis.
- No endostart without initial photo

- Initial photo
  - Visibility of pulp chamber • Visibility of canals • Root curvatures • Inclinations
  - Resorpties

Open, rubber dam and rinse

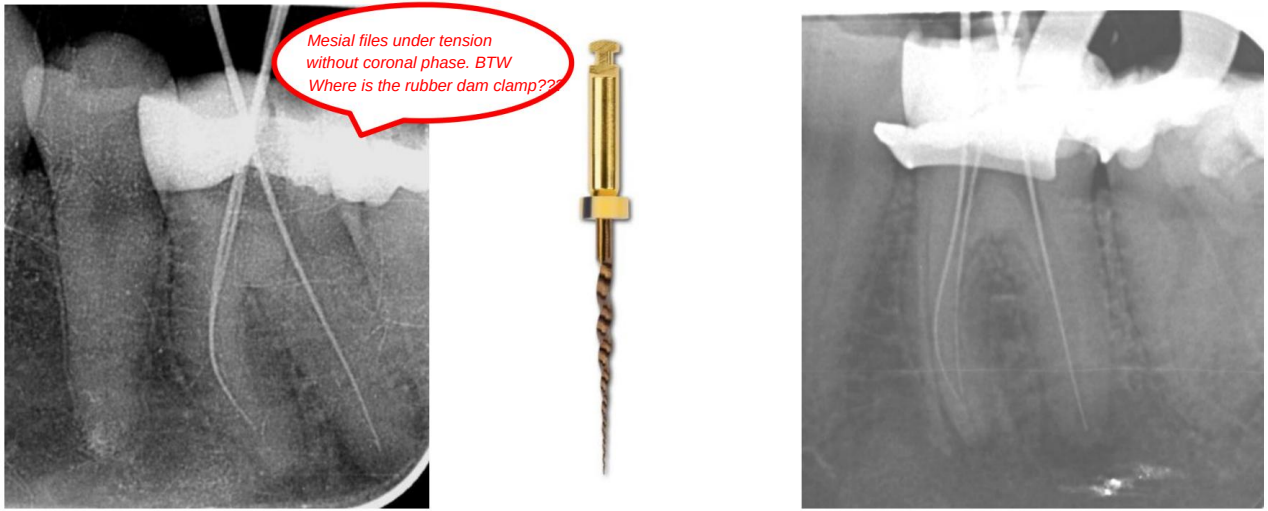


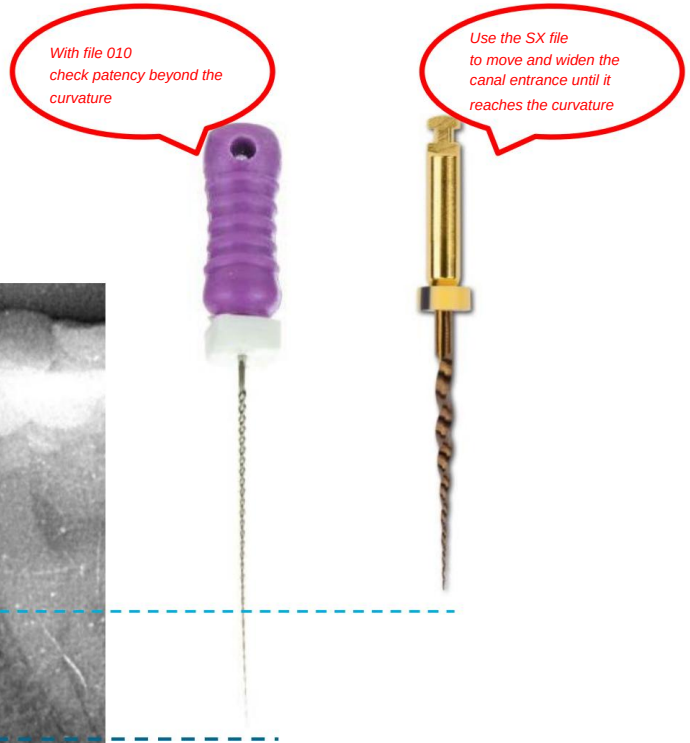
Open = remove pulp roof
The pulp roof is not located on or coronal to the cementoenamel border

After removing the pulp roof
place rubber dam and rinse with sodium hypochlorite

Coronal phase: Defining canal entrance

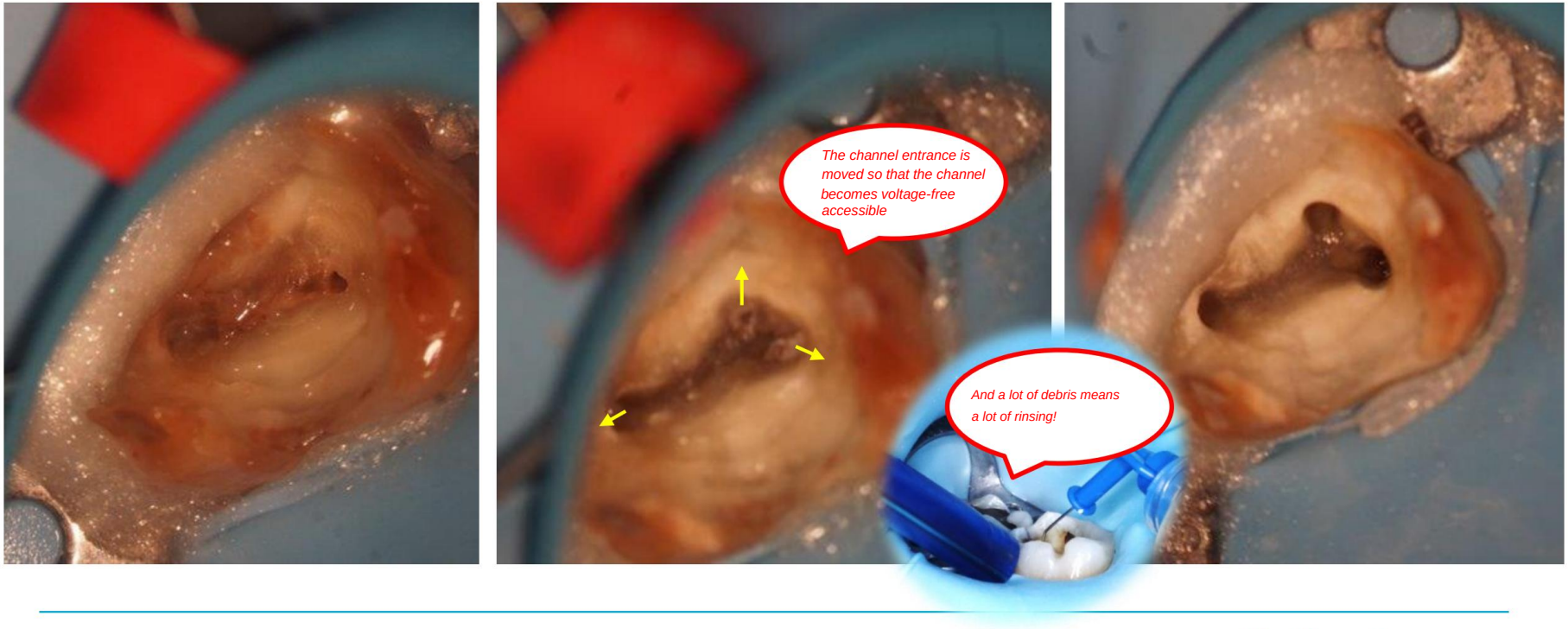
- Protaper SX
  - Define canal entrance and extract coronal curvature





Coronal phase after checking canal patency with file 010

Coronal phase: Defining canal entrance



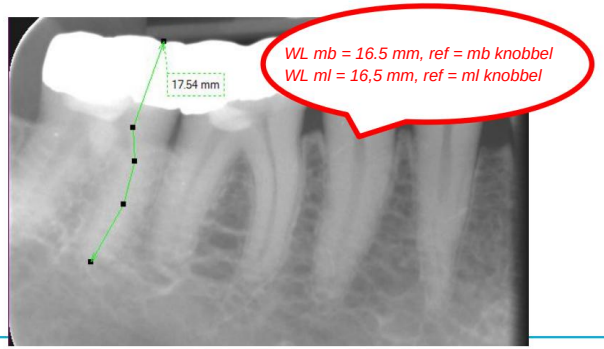
Length determination

- Length determination Clinic

- Electronic length meter
  - Final length is -1mm

- Length determination Preclinic
- X-ray •

  Measuring distance from apex to reference point (lump tip) on initial photo -1mm



Glide path

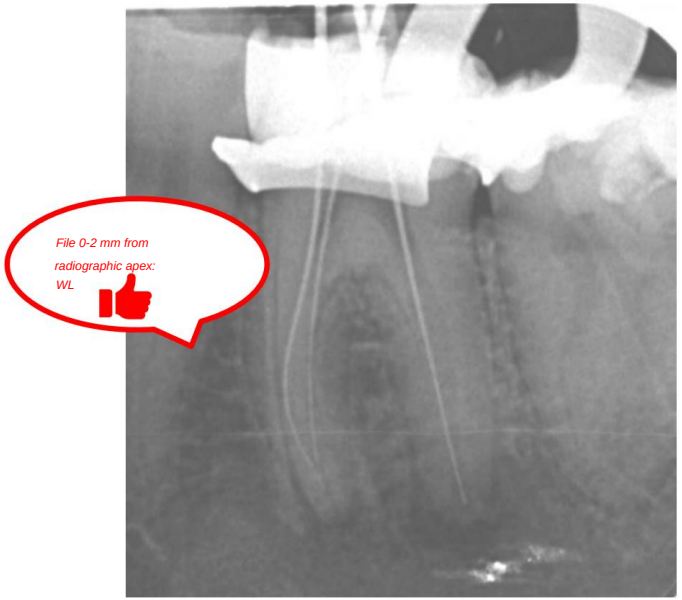
• Create a glide path with #10 to working length. • Goldglider to the same length

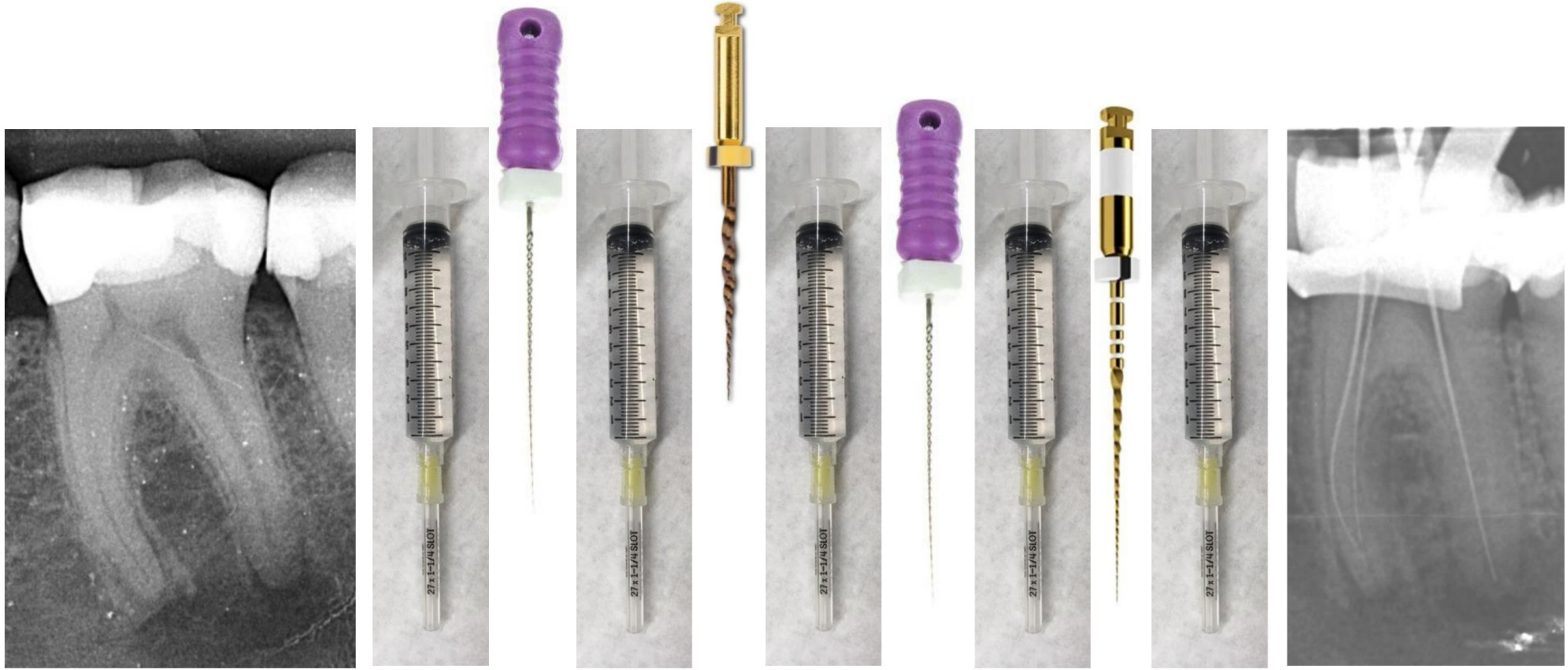
• Why

  • Anatomical path for files • Less chance of file breakage
  • Easier to work

Length photo

- Longitudinal photo
  - Minimum #15
  - Get stuck
  - Buccal K-file
  - Lingual/palatal H-file
  - Injected at a mesial angle
  - Write down a clear reference point
    - Mesiobuccal cusp (mbknb)
    - Palatal cusp (pknb)
    - Mesial randlijst (mrnd)





After each instrument: rinse

- Flush debris from canals
- Replace sodium hypochlorite
- Dissolve tissue debris
- Disinfect

After each instrument: rinse

- Set the flushing needle to WL-1 mm (with rubber stopper or kink in the needle): when the shaping is completed, the flushing needle can be placed in the canal up to that depth. Rinse *during* shaping by placing the needle in the canal but never letting it get stuck (so not too deep).

Apical phase

- WaveOne 25
- WaveOne 35

- 3x pecking motion •

File must go deeper each time • Rinse • Recapitulate

in other words, keep the glide path clear with file 010

- First WaveOne 25 to full length. • Then WaveOne 35

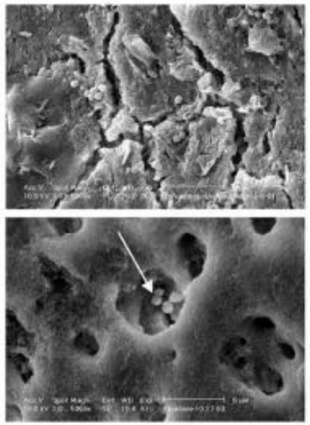
Preparation complete

- Rinse at WL-1 mm •

Dissolve smear layer with EDTA

- Ultrasonic activated irrigation

EDTA



Disinfection

- Canal preparation from coronal to apical
- Irrigation during preparation: 2 cc NaOCl 2.5% after each instrument
- After completing preparation: dissolve the smear layer with EDTA (10-17%) or citric acid (10-20%)
- Ultrasonic rinsing, to remove debris from unprepared canal parts with NaOCl: Irrisafe rinsing needle and Satelec Newtron P5 on setting 4

Fit head pins, dry

- Design with waveone green •

Single cone main pin wave one green

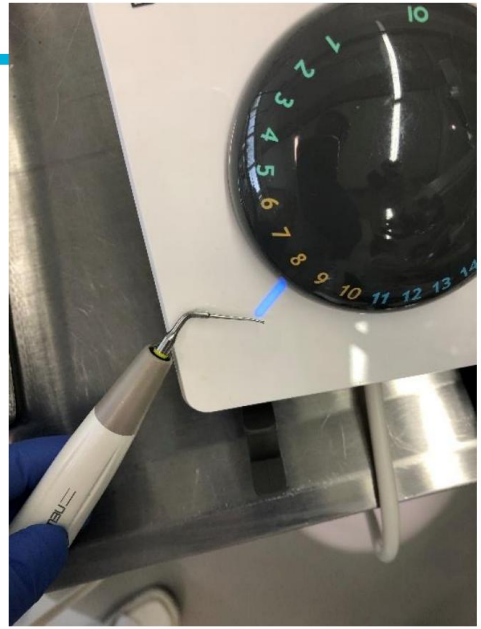
- At working length
- Too short? > repeat preparation
- Too long? > shorten apical post

finishing channel filling

Remove excess with ultrasonic

Vertical condensation with cold
hand stopper (correctly fitting = just
below pulp chamber floor)

Wash out pulp chamber with alcohol



Cleaning pulp chamber