Canal Cleaning and Shaping

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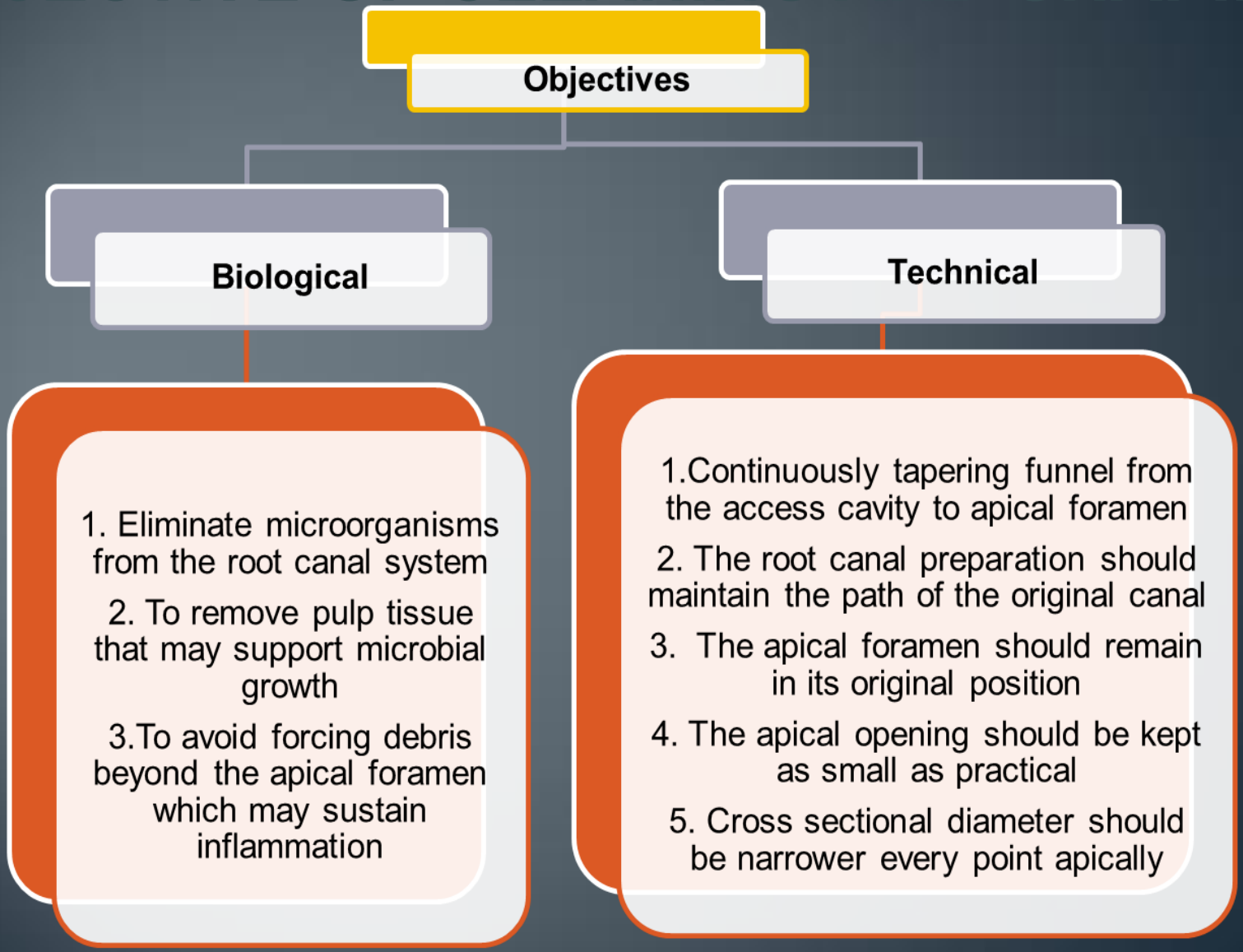
Objective

- RCS must be cleaned and shaped: cleaned of their organic remnants and shaped to receive a three dimensional hermetic filling of the entire RC space”

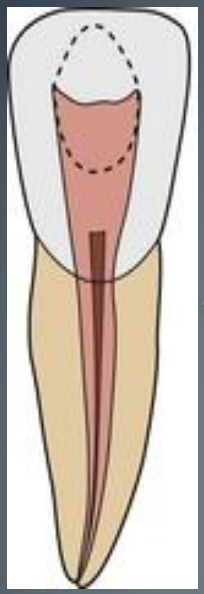
Schilder (1974)

OBJECTIVE OF CLEANING AND SHAPING



Techniques for root canal shaping

Techniques for root C&S

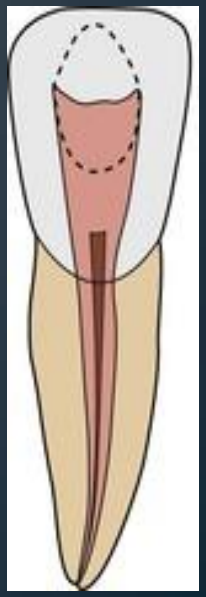


Apical coronal techniques

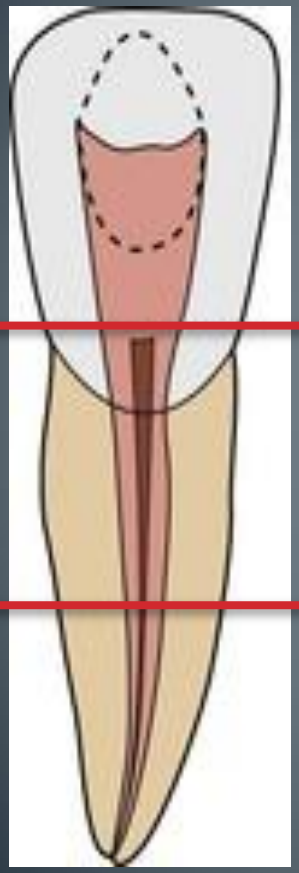
- Standardized technique
- Step-back technique
- The roane technique(balanced force)

Coronal apical techniques

- Step-down technique
- Double-flared technique
- Crown-down technique



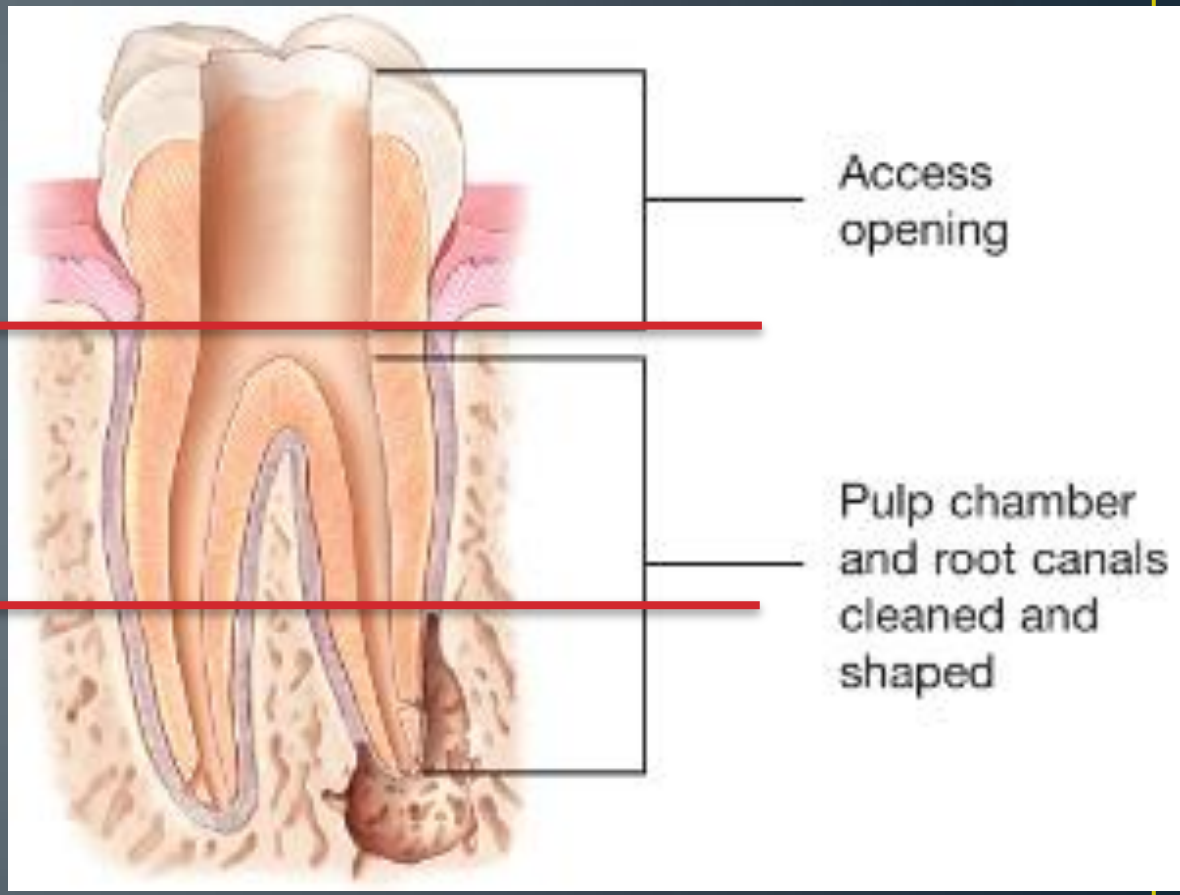
Steps in C&S



1/3 rd

2/3 rd

Apical



Step-down technique

- This is a modification of step-back technique.
- This technique is suitable for small and straight/curved canals

Canal preparation-Step Down technique (K-file):

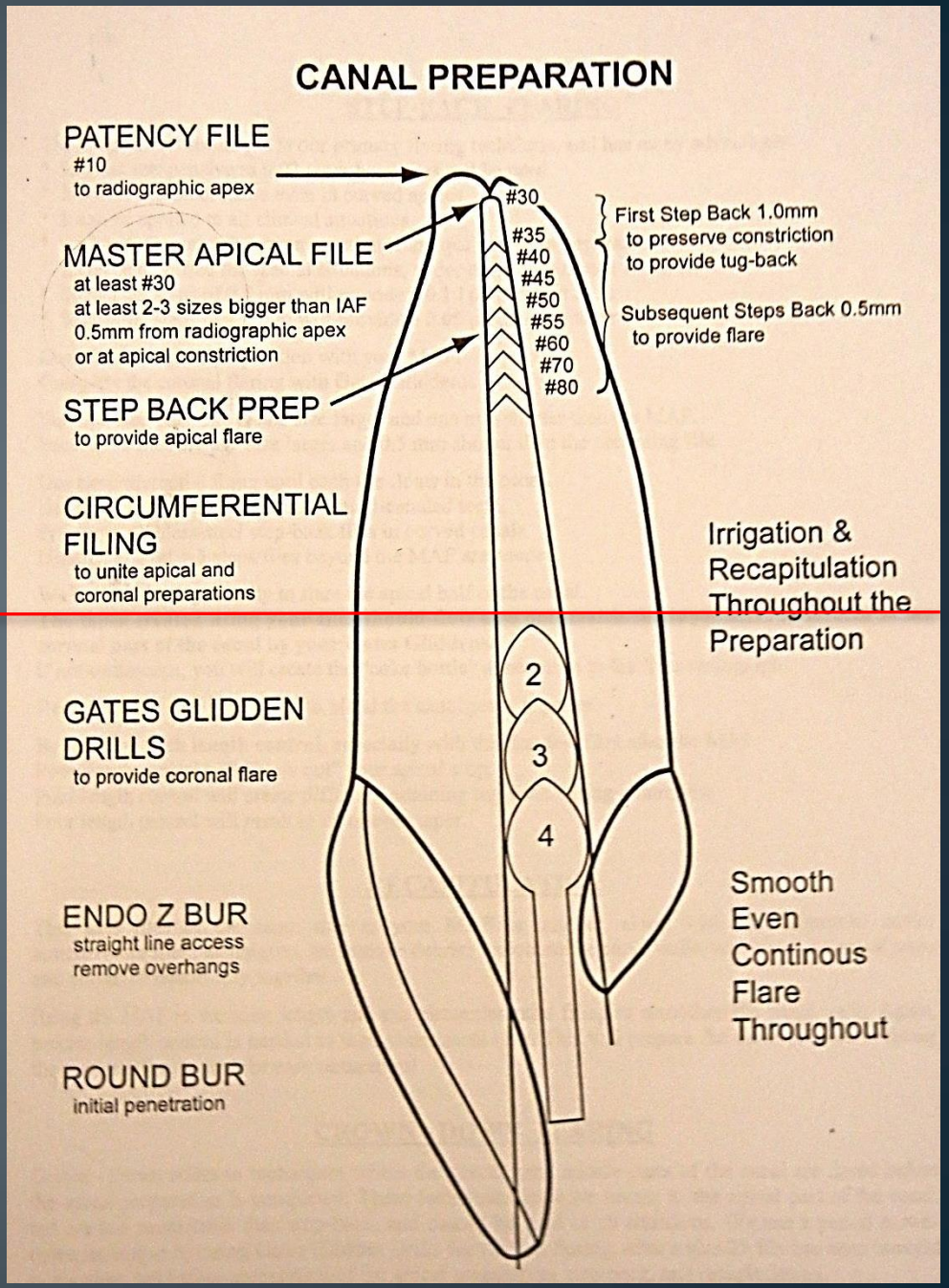
2. Apical preparation

Step back

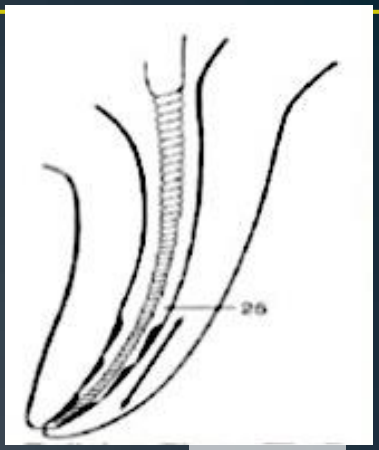
Working length determination

1. Coronal preparation

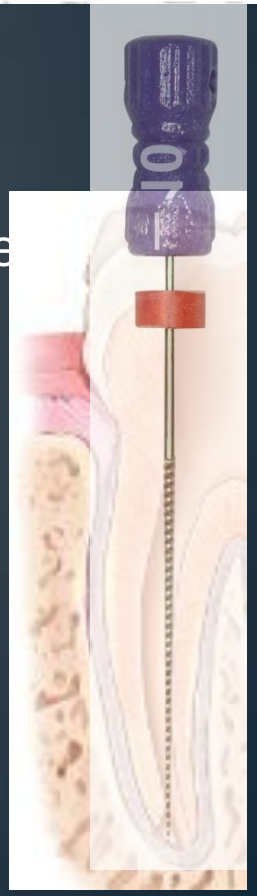
Step down



Recapitulation & Patency filing



- Recapitulate:
  - In between placing each larger instrument, the master apical file is inserted to the working length to clear any debris collecting in the apical part of the canal
  - The small bits of debris that are packed into the apex are removed to prevent canal blockage
- Patency filing:
  - Passively inserting a small file, size 08 or 10, 2 mm beyond the established working length.
  - It is controversy as it may cause extrusion of debris through the apical foramen



WIDE OR NARROW PREPARATION?

WIDE APICAL PREPARATION

ADVANTAGES:

- removal of infected dentin .
- Access of irrigants and medicaments to apical third of root canal.

DISADVANTAGES:

- Risk of preparation errors and extrusion of irrigants and filling material.
- Not ideal for thermoplastic obturation.

Narrow apical preparation

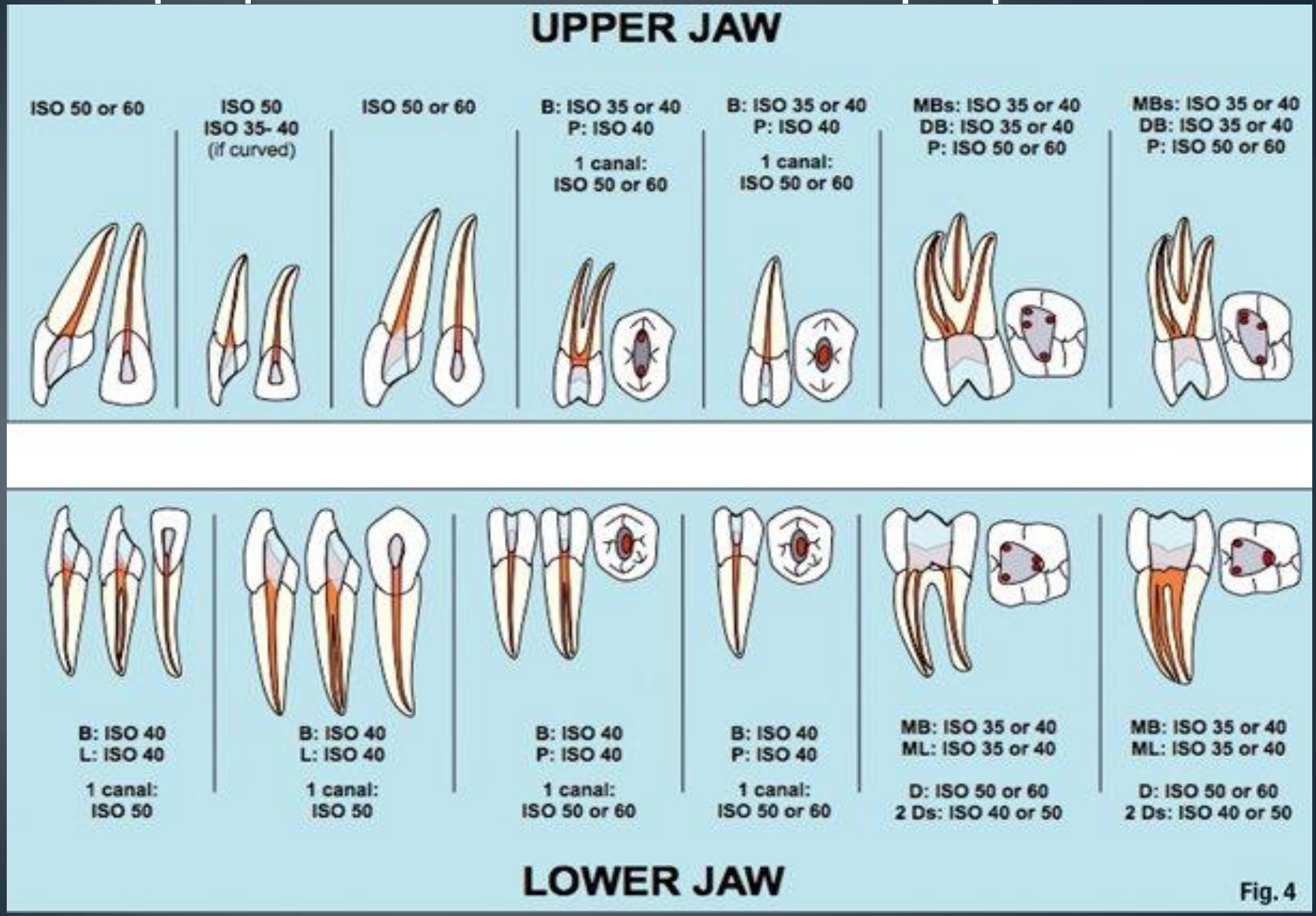
ADVANTAGES:

- Minimal risk of canal transportation and extrusion of irrigants or filling material
- Can be combined with tapered preparation to counteract some drawbacks

DISADVANTAGES:

- Little removal of infected dentin.
- Questionable rinsing effect in the apical area
- Compromised disinfection during interappointment medication.
- Not ideal for lateral compaction

Canal preparation: Minimal sizes preparation



Anatomical chart showing the recommended minimal sizes for each canal.

What to check for cleaning and shaping?

- Coronal flaring
- First bind file/Initial Apical file (IAF)
- Master Apical File (MAF)

 - minimum MAF #40 (central & lateral)

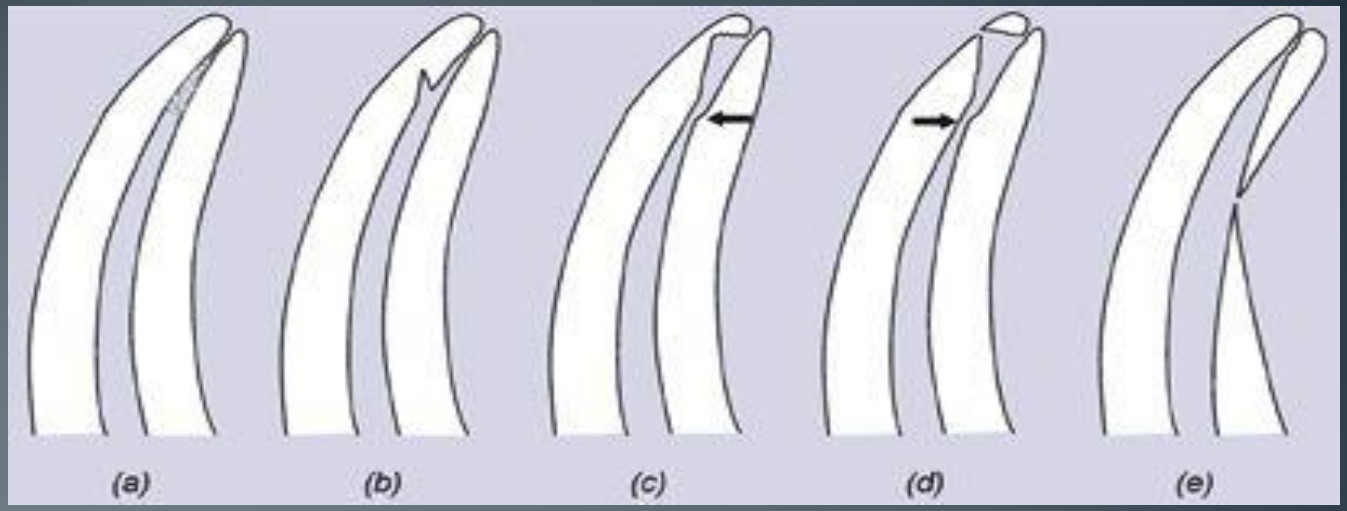
 - minimum MAF for curved canal #35

- Patency- use file #10
- Step back- one size larger than MAF

Irrigation

- Sodium hypochlorite (NaOCl)- 2.6%
  - Excellent antimicrobial
  - Dissolve organic tissues
- EDTA 17%
  - Chelating agent
  - Removal of inorganic portion of the smear layer
- Chorhexidine 0.12-2%
  - Broad spectrum antibacterial
  - Substantivity → have effect in dentine up to several weeks

Types Of Procedural Error



a. Dentine debris and pulp remnants packed into the apical part of the canal resulting in loss of working length. This may be avoided by recapitulation with fine files and copious irrigation.
b. Ledging due either to not precurving the instrument, or forcing it into the canal.
c. Apical zip caused by rotating the file excessively.
d. Perforation due either to persistent filing with too large an instrument, or continual zipping. Note the narrower part of the canal in c) and d) is termed an elbow. This makes obturation of the root canal very difficult in the widened apical area.
e. Strip perforation caused by overpreparing and straightening the curved canal.

THANK YOU