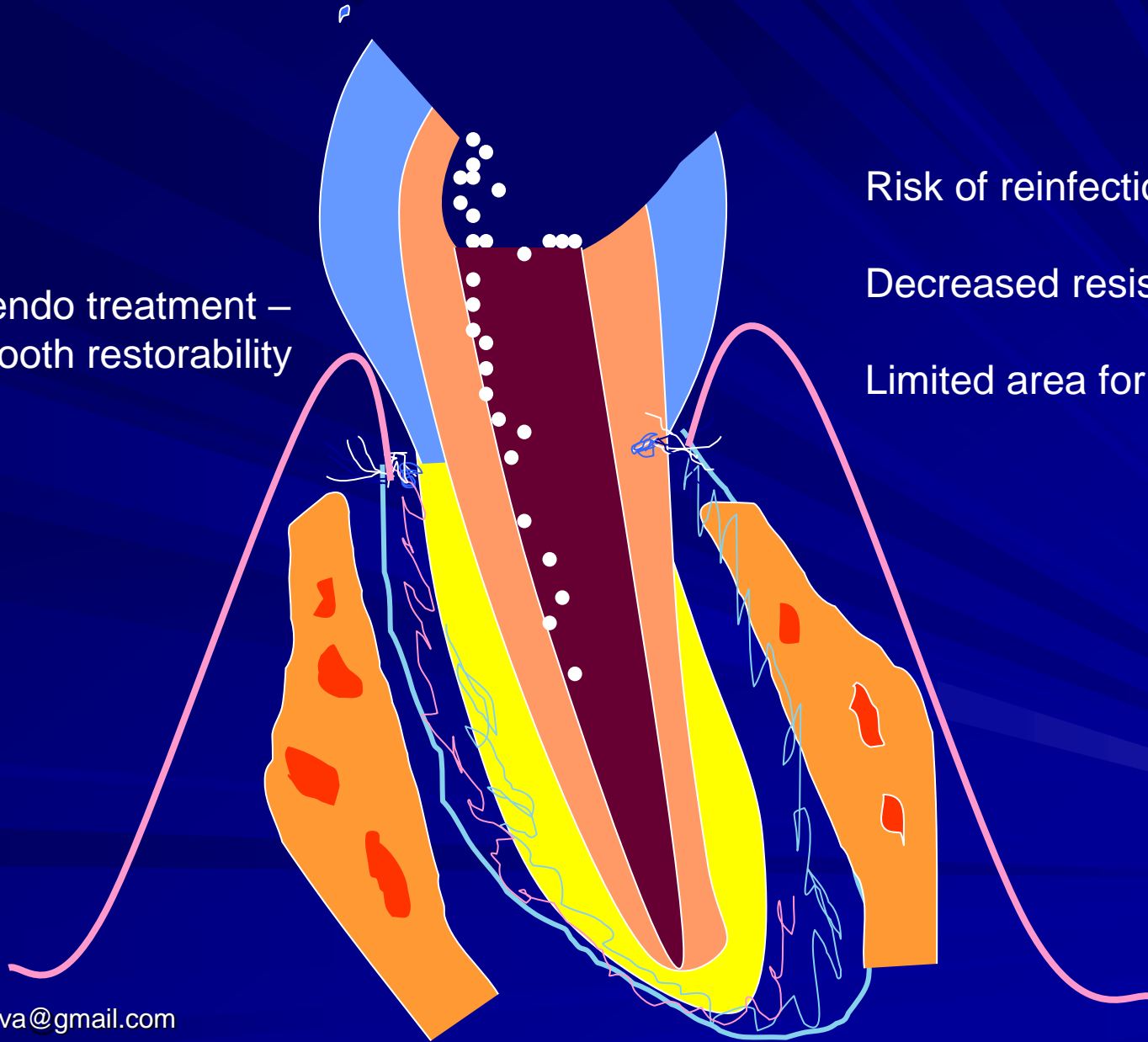


Reconstruction of endodontically treated teeth

Endodontically treated tooth

Consider endo treatment –
Consider tooth restorability

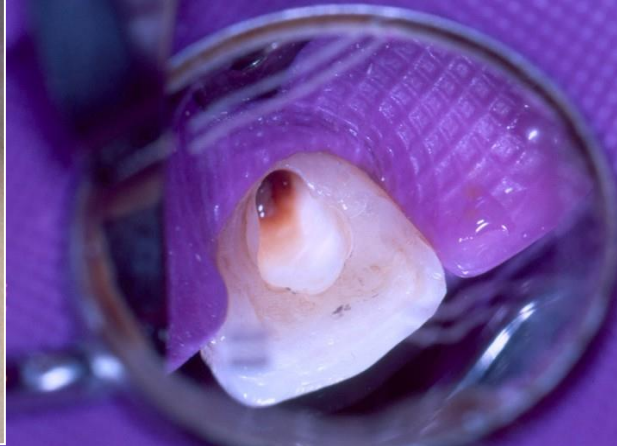


Risk of reinfection

Decreased resistance

Limited area for retention

Aim of postendodontic treatment



- Prevent reinfection
- Longevity of crown reconstruction

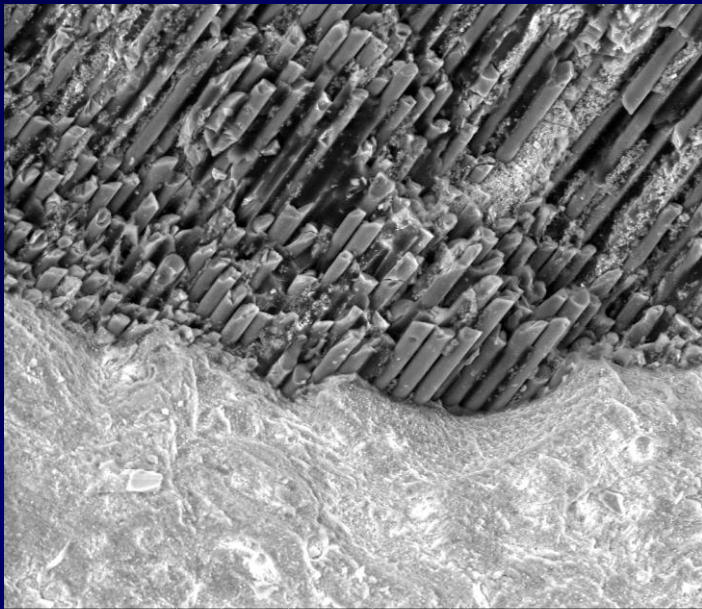
Contemporary trends



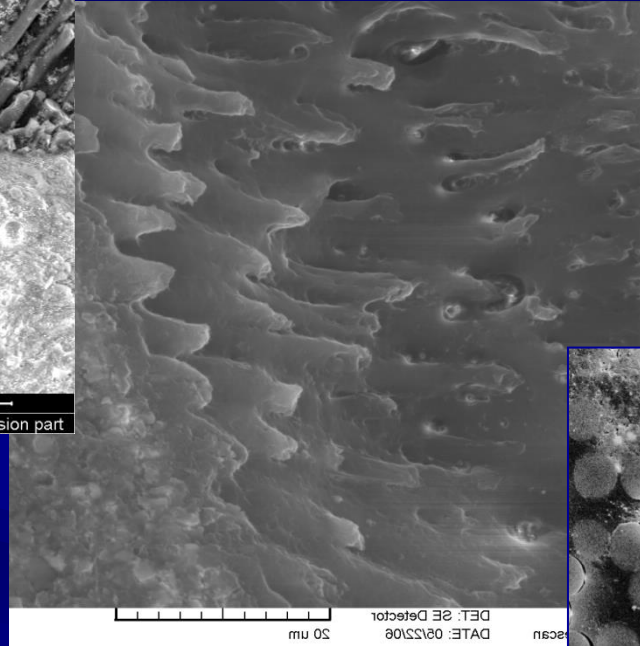
Adhesive materials



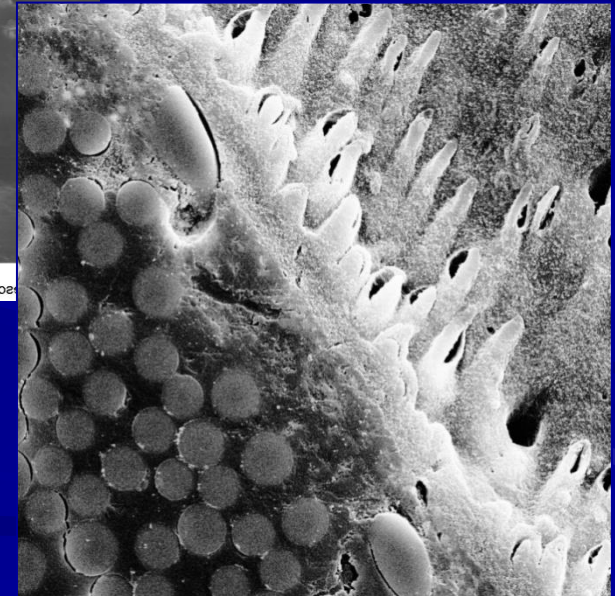
Less indication of root canal posts



9/7/2005	WD	Mag	HV	Spot	Det	Pressure	100.0µm
3:58:52 PM	18.3 mm	500x	25.0 kV	3.0	LFD	70.0 Pa	Tooth-Fill of the extension part

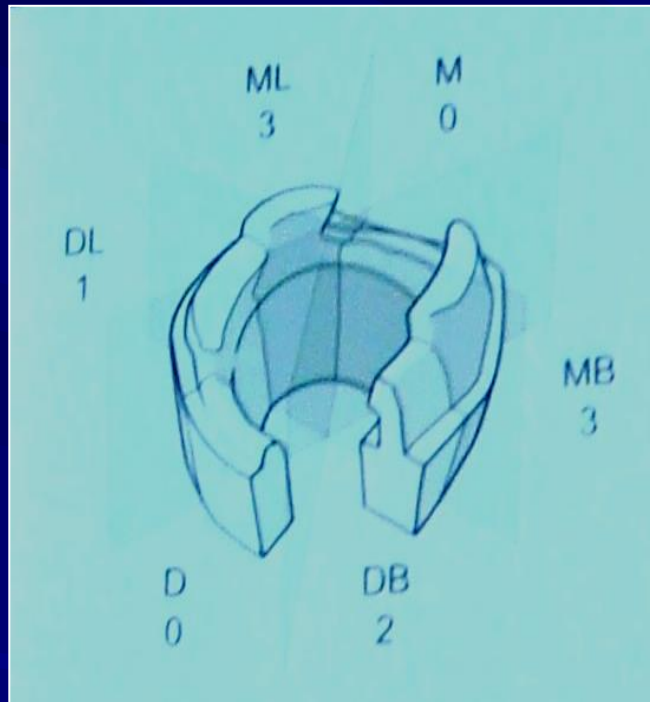


DATE: 08/23/06
 DET: SE Detector
 20 µm



SEM MAG: 4.00 kx	DET: SE Detector	20 µm	Vega ©Tescan
HV: 20.0 kV	DATE: 06/19/07		Digital Microscopy Imaging
VAC: HiVac	Device: TS5136XM		

Restorability of the endodontically treated tooth



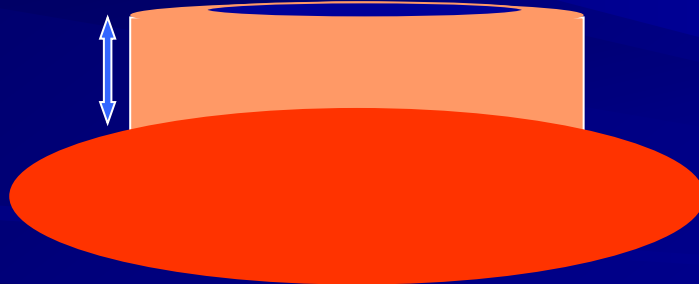
It is necessary to judge the amount of remaining hard dental tissues

*Bandlish DB, Mc Donald AV,
Setchel DJ
Assesment of the amount
of remaining coronal
dentine
in root treated teeth
Journal of Dentistry
2006;9:699 - 708*

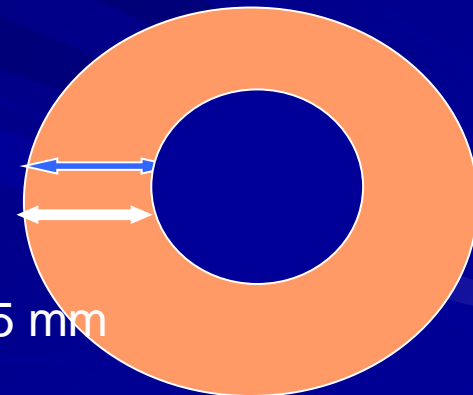


Indication – loss of the crown – minimal requirements

2 mm

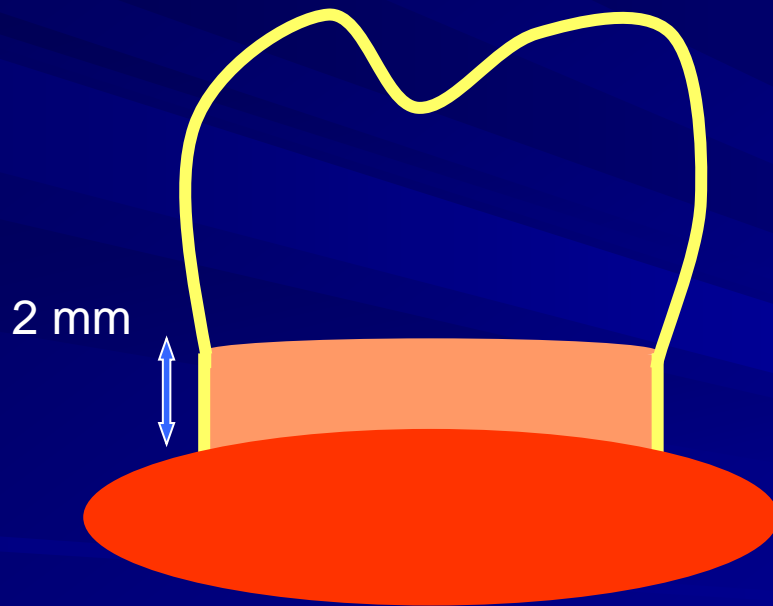


1 -1,5 mm



Ferrule effect

Retention



Transfer of
masticatory forces
on the alveolar
bone

Gingival sulcus depth

+

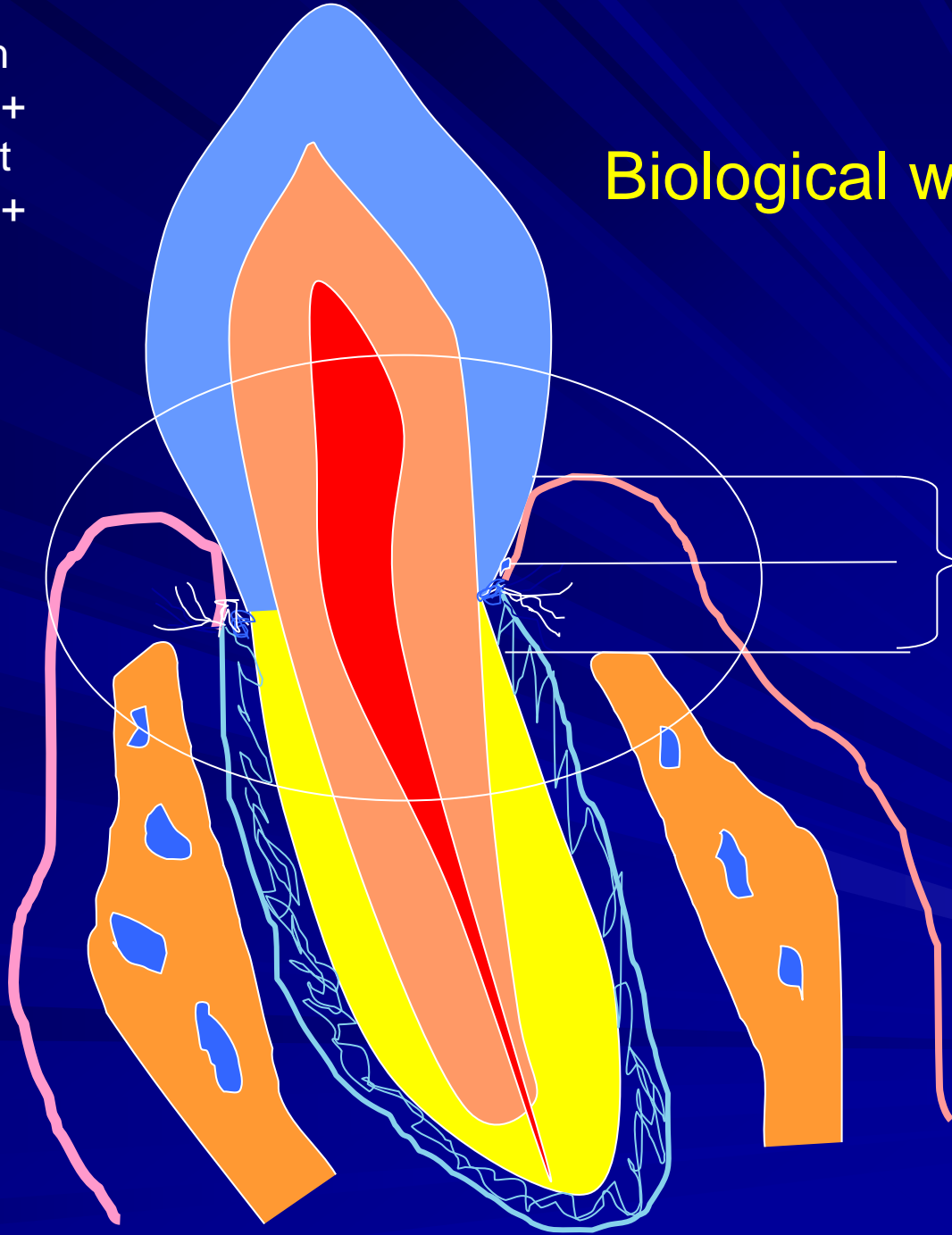
Epithelial attachment

+

Connective tissue attachment

Biological width

cca 2 mm

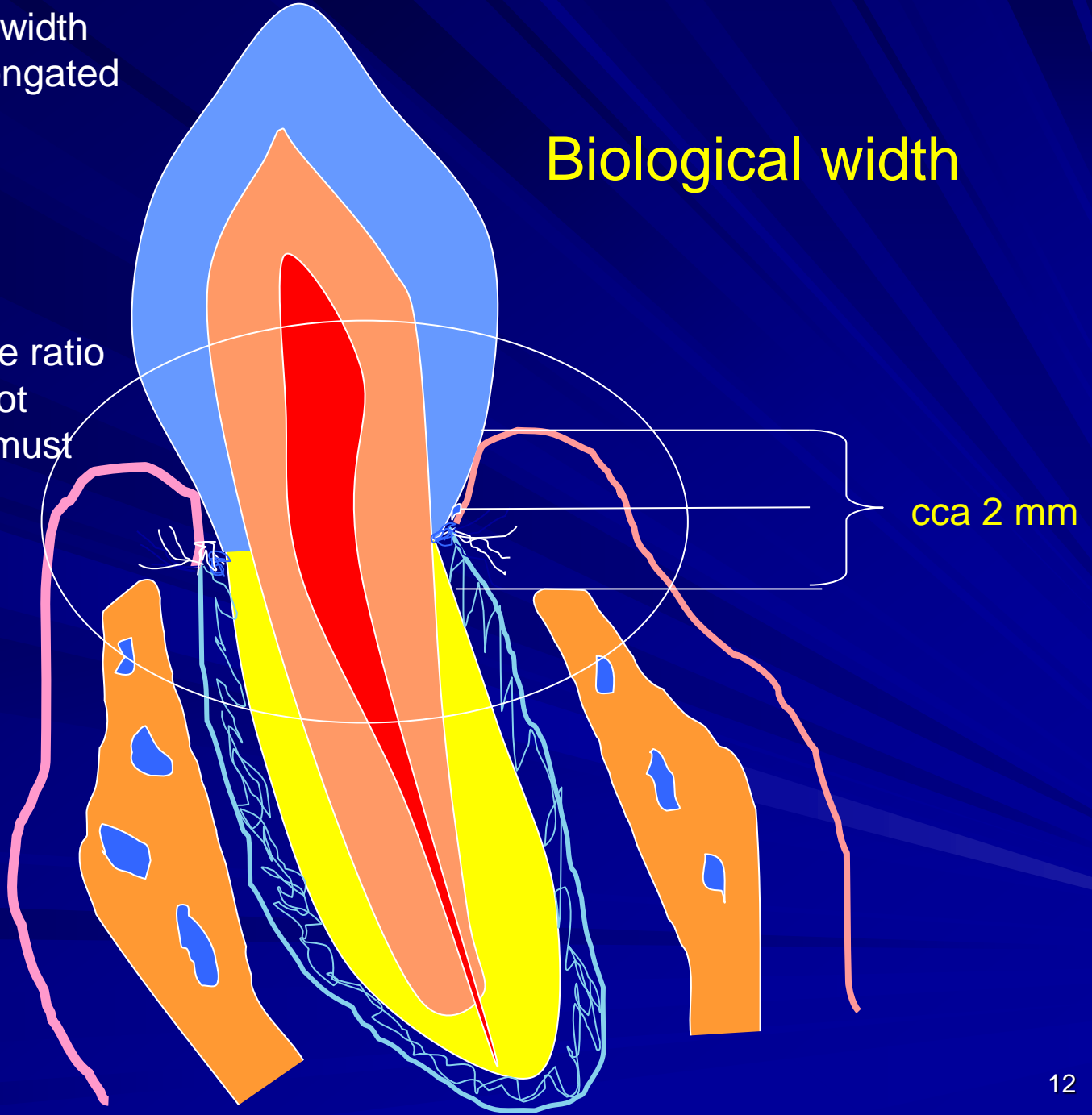


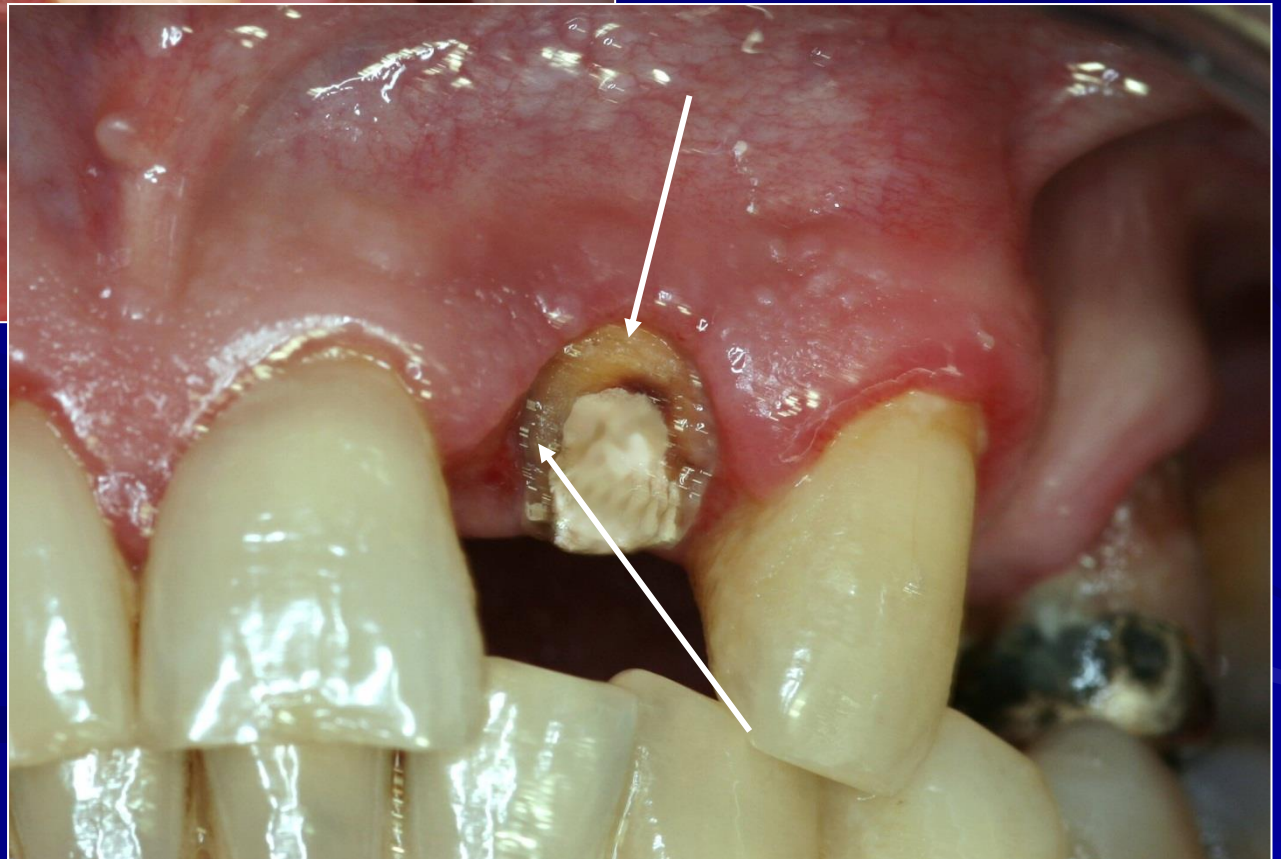
- Ferrule effect plus keeping of biological width (the distance between the restoration and alveolar crest) are crucial factors for the longevity of the postendodontic restoration

Within the biological width
can be the crown elongated
using gingivectomy.

If it is necessary
to achieve more
– the ostectomy can
be performed. But the ratio
clinical crown /the root
after this procedure must
remain at least 1:1

Biological width

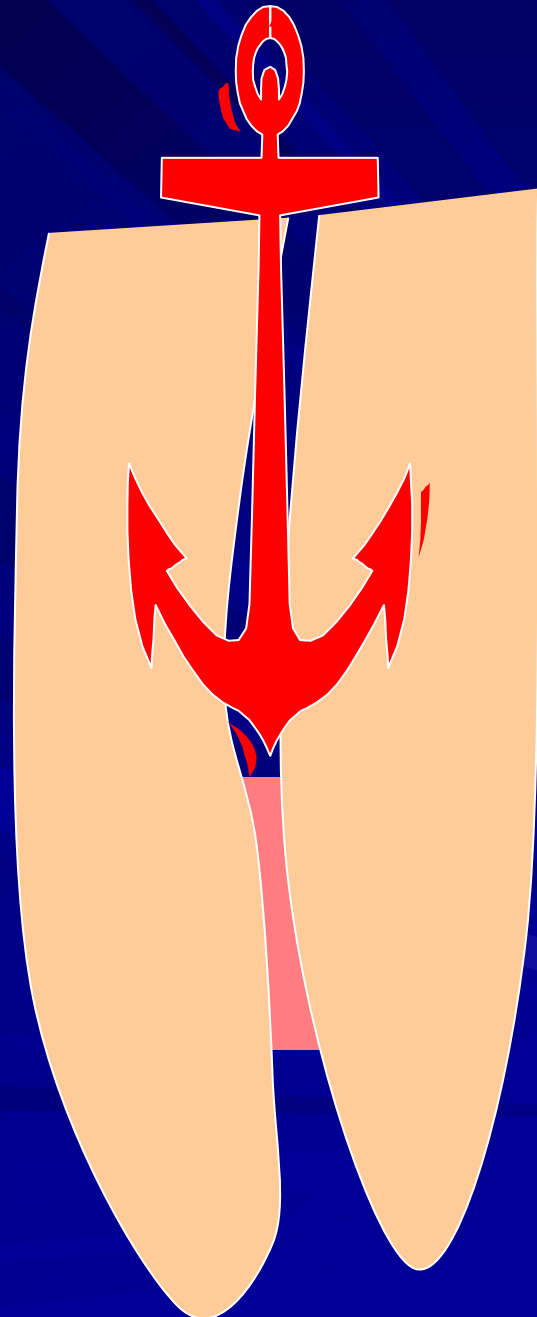
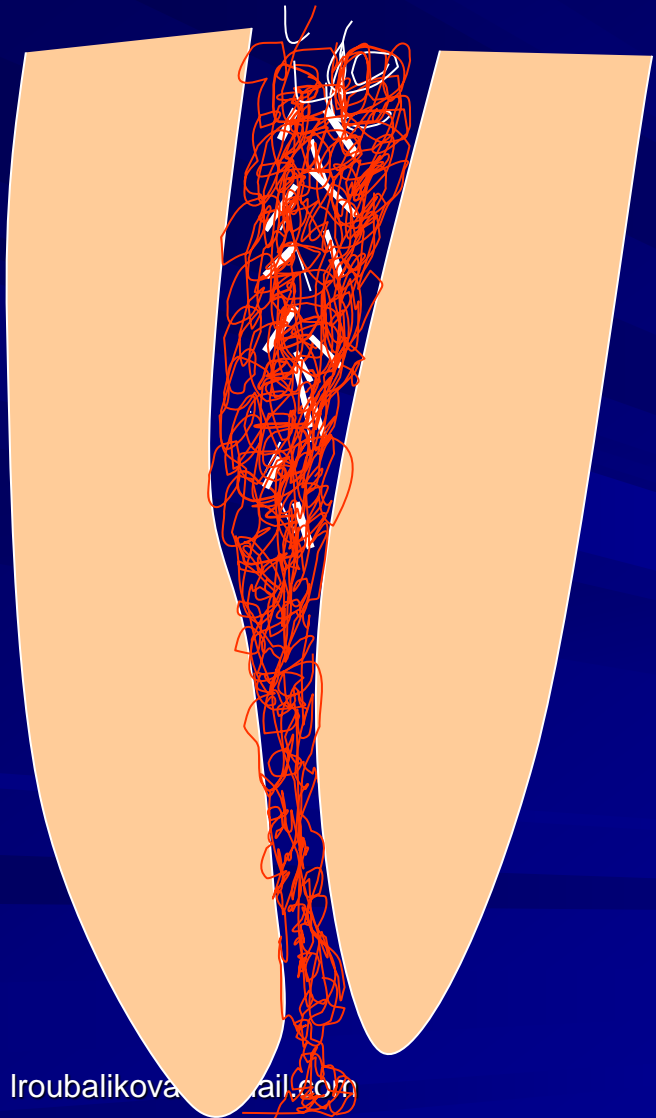


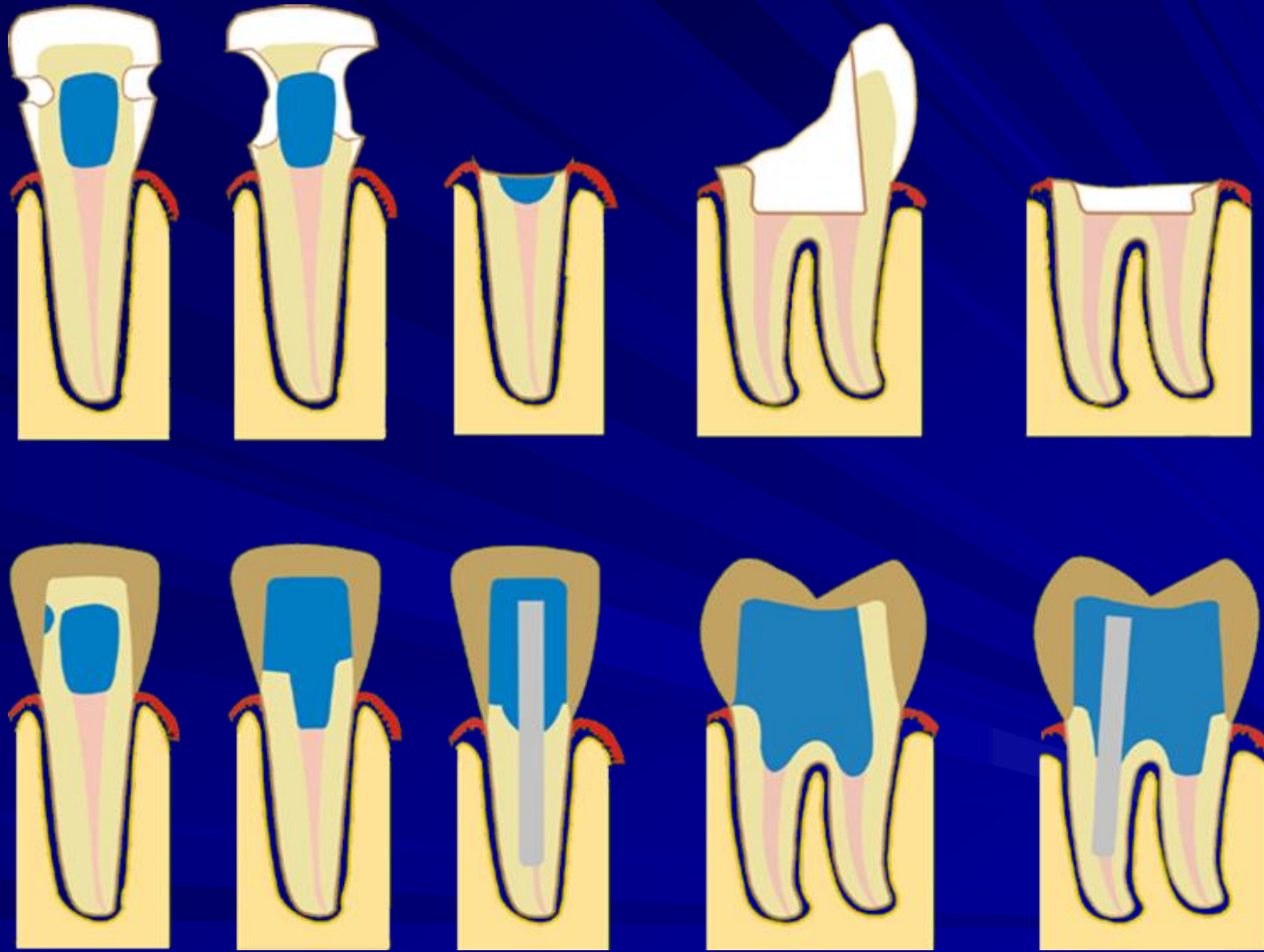


When post

Depends

- How much hard dental tissues is lost





In frontal area:

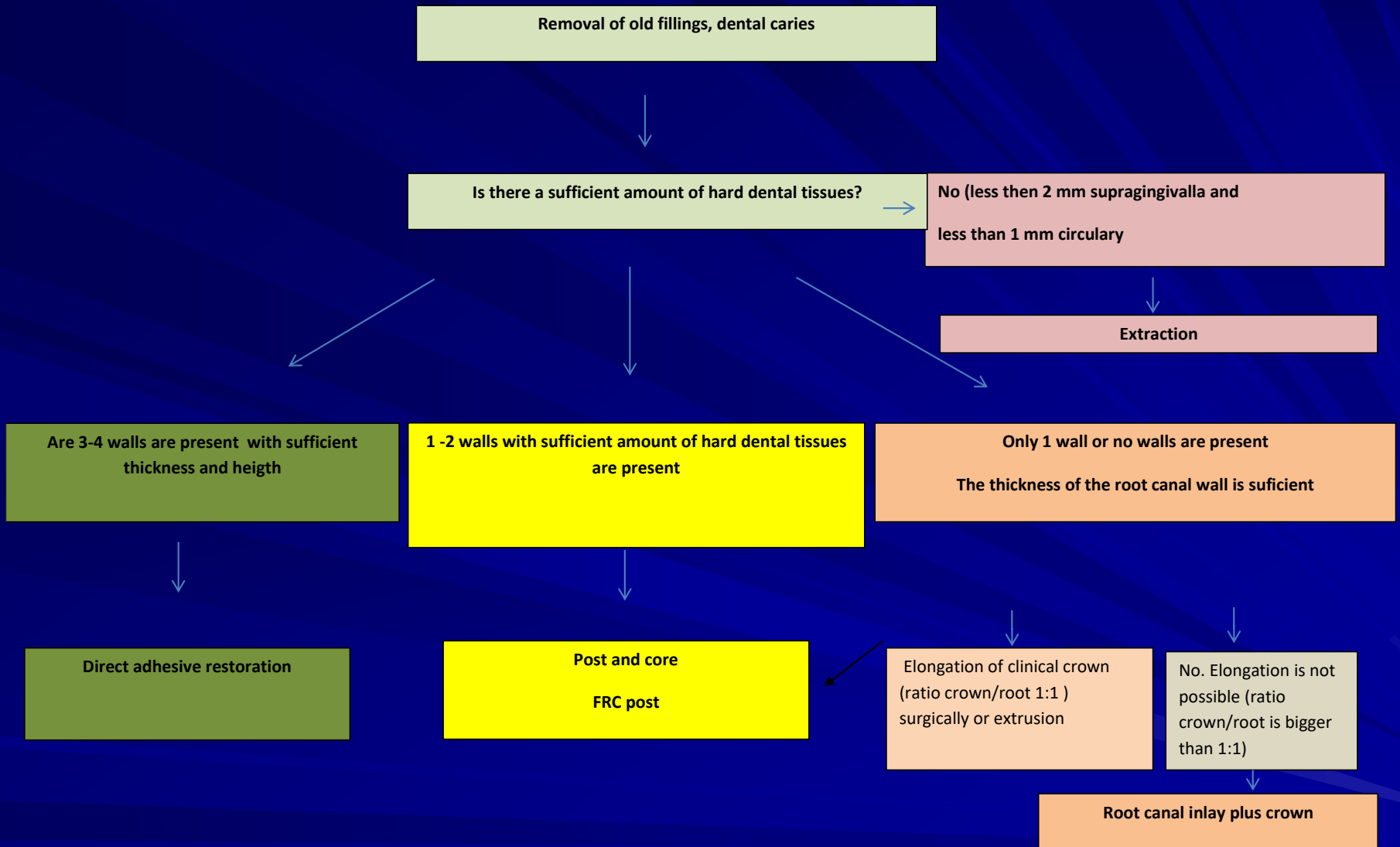
- when two marginal ridges are lost plus access cavity
- When only one marginal ridge is lost plus access cavity plus heavy loading (e.g deep bite)

In posterior area – when both proximal ridges are completely lost

Frontal area

- Bigger loading with transversal forces
- Smaller area for retention



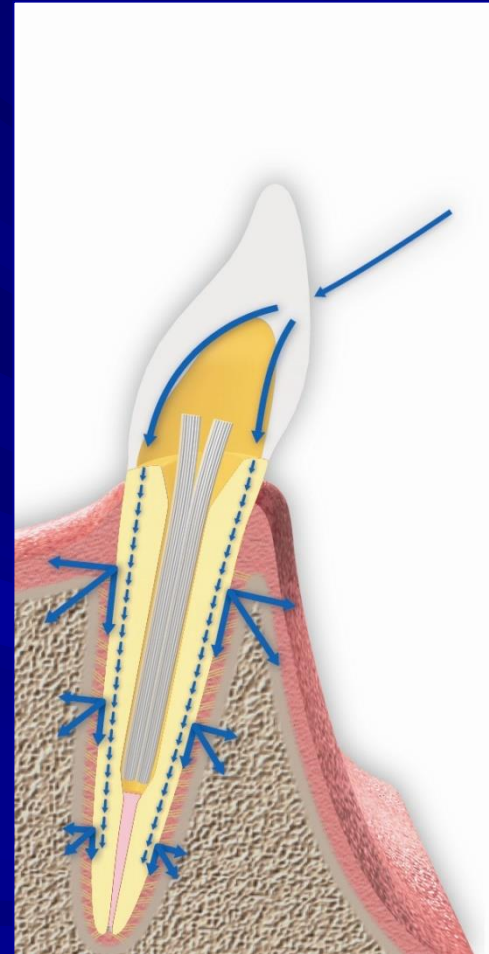
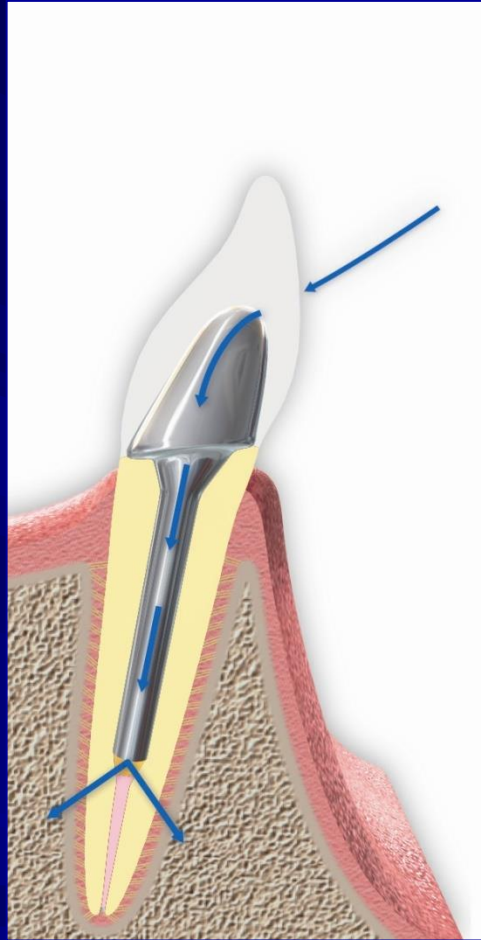


Posterior area

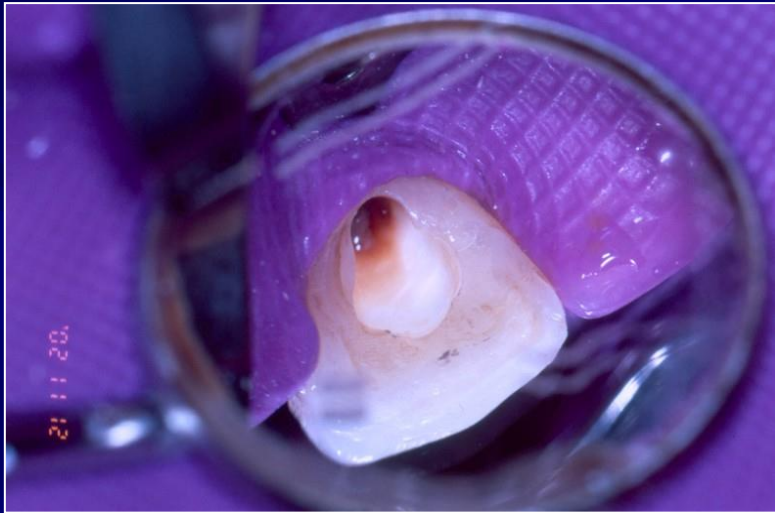
- Loading more in axial direction (less amount of transversal loading)
- Overlay is considered without any post in most cases



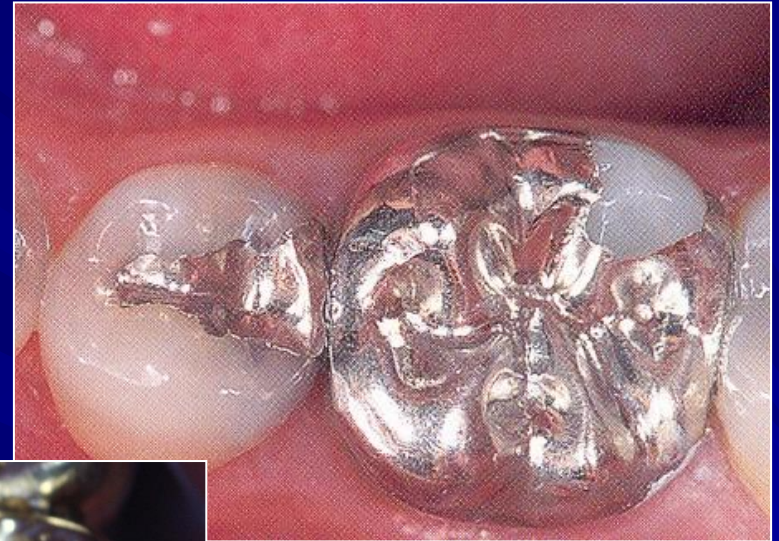
Metal versus FRC post



Techniques without posts



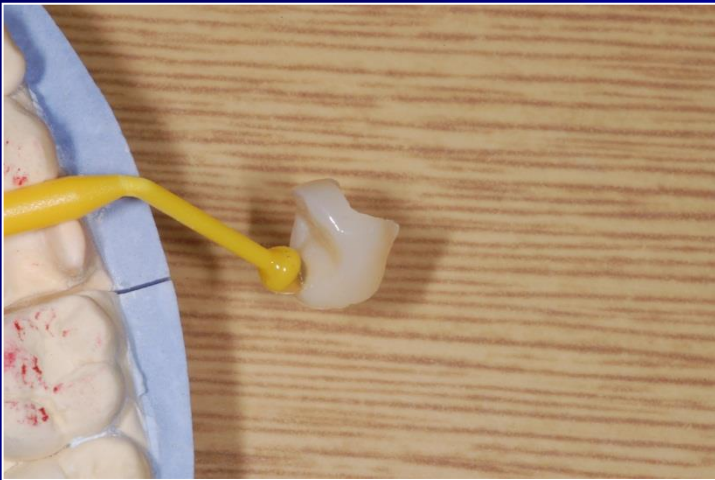
Techniques without posts



Amalgam overaly
Metal overlay



Composit or ceramic overaly
- Endodontic crown



Indication of FRC posts in

Premolars: on proximal ridge is lost

Molars: both proximal ridges are lost



Available posts prefabricated, custom made



Kov



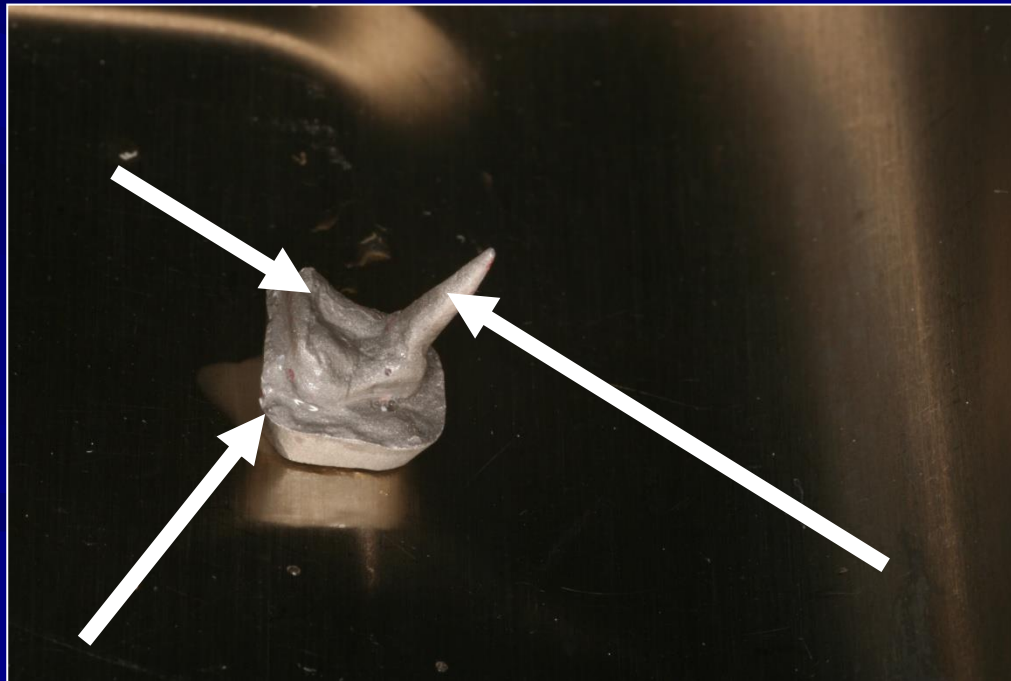
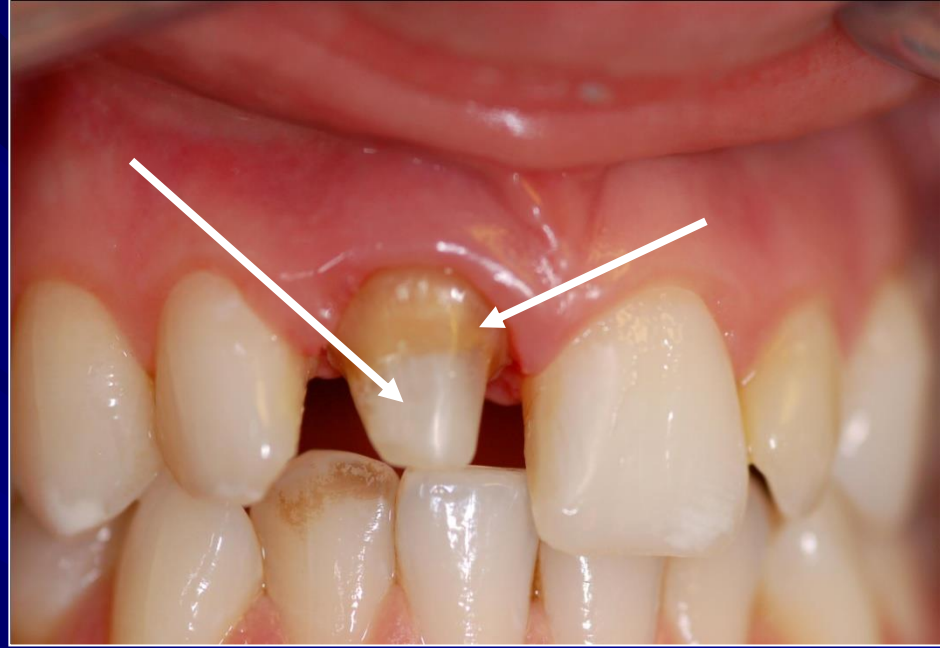
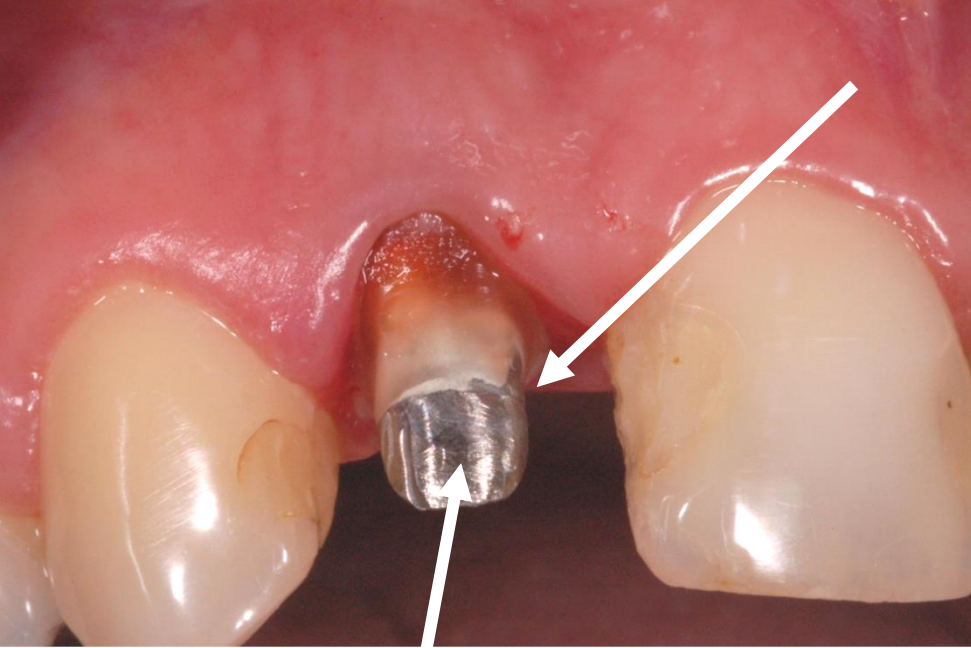
Vláknový uhlík

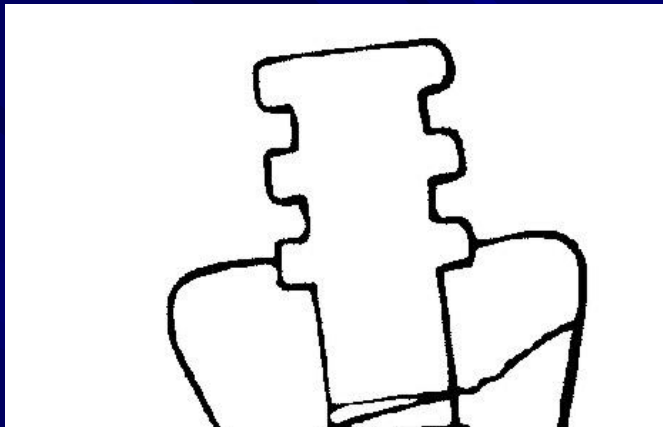


FRC



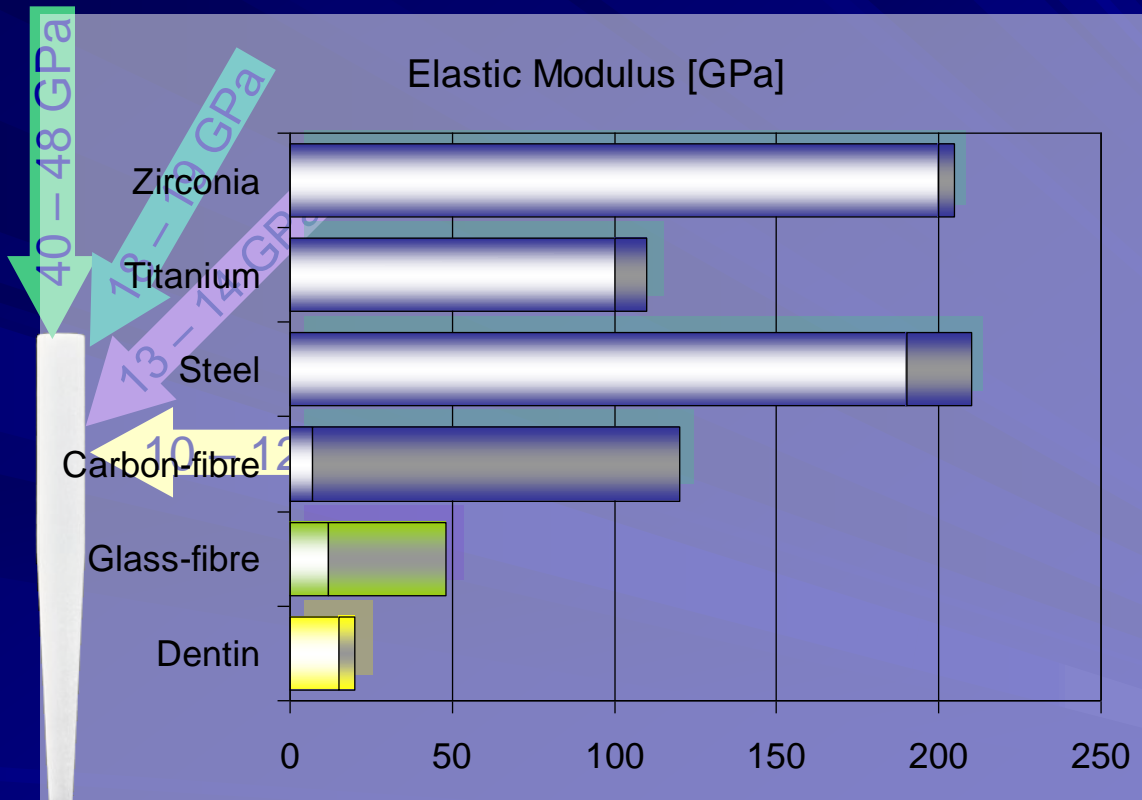
Zirkon





Benefits of FRC posts

- Elastic modulus similar to dentin
- Good seal – adhesive technology
- Aesthetics
- One visit less (dental lab no need)



Source: Materials Science and Engineering: An Introduction

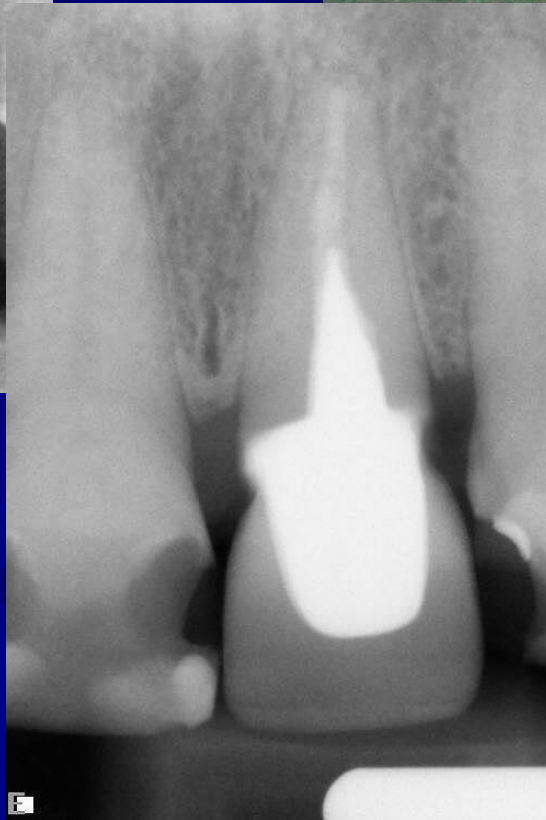


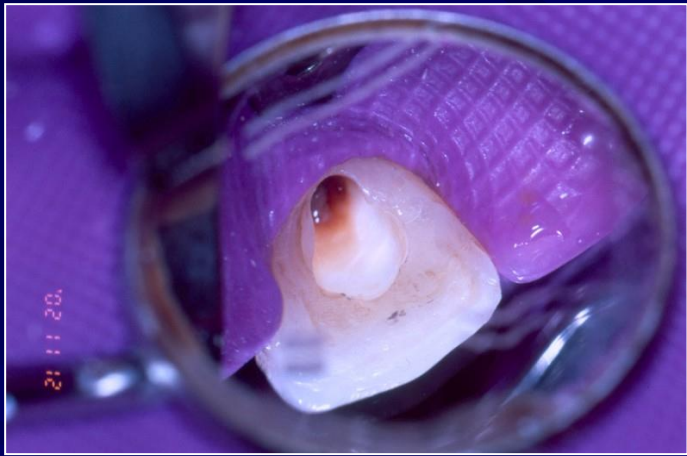
Supragingival tissues

Ferrule
Good adhesion

Risks – only when technology is not properly followed

- Decementation
- Fracture of the post
- Fraktura of the root
- Gap







Core made of composite material

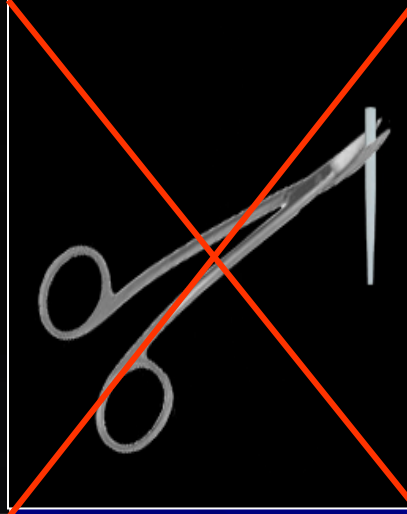
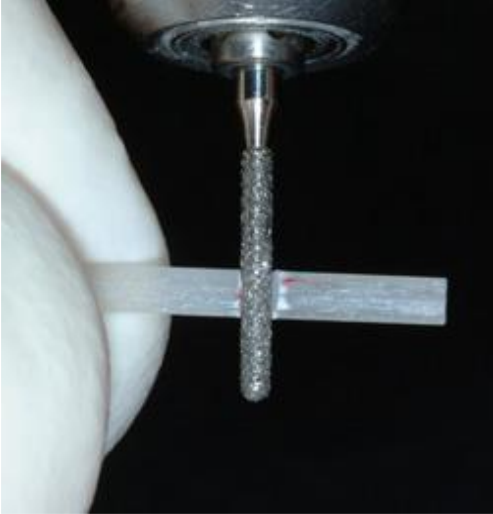
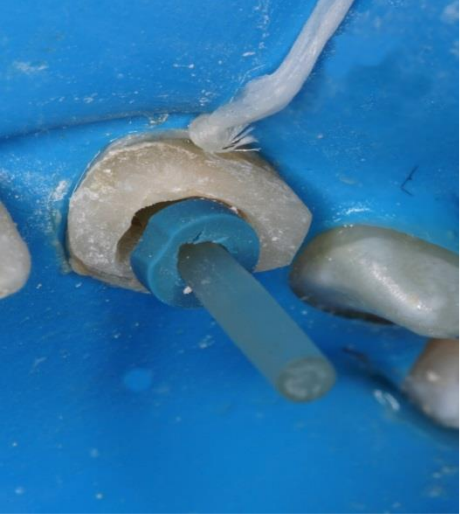
Step by step procedure



Check root canal filling



Preparation



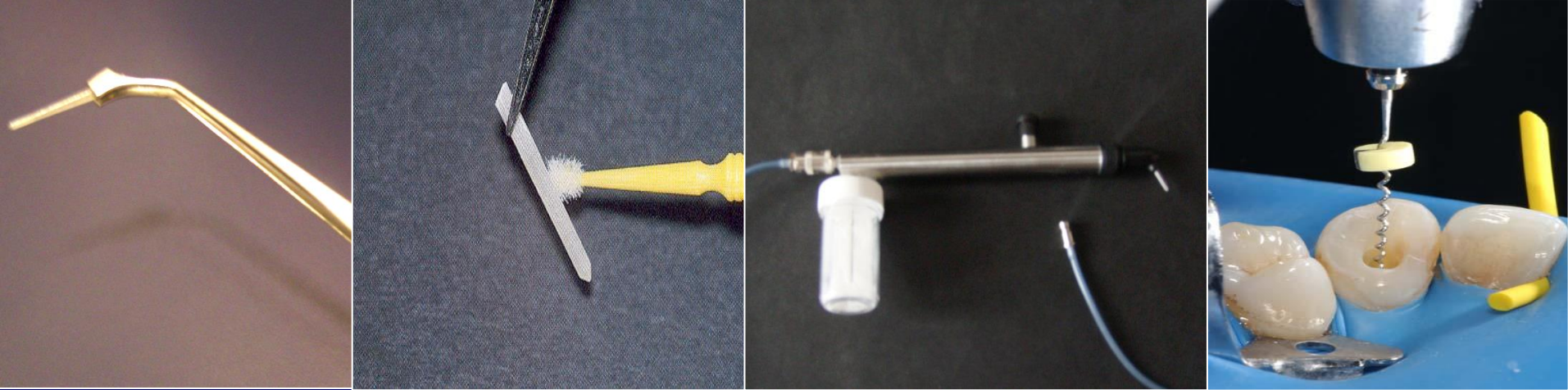
Try the post

4 mm of root canal filling is left

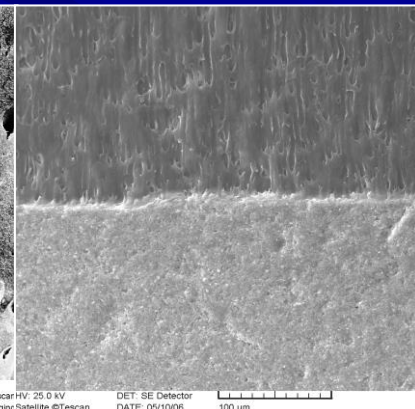
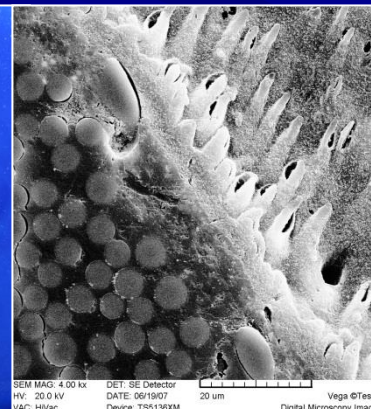


Adhesive procedure





Cementation using a dual or chemically curing composite cement





Cements





Core

Special material

Filling composite material

Post and core material – one material
- for post cementation and core

