University of Pennsylvania
TEC2 Next Level
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Case study: calcification

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Starting point

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Starting point

- 78 year old patient with acute pain in 1. quadrant
- broken telescope on tooth 12 and minor pain in this area
- First X-ray:
  - 12 to 21: shows broader gap of peridontal ligament at 12 as well as a broken crown at the gingiva
  - Pulp channel: only slightly visible

Examination

- 1. percussion: tooth 12 not sensitive
- 2. pulp test with dichlorofluromethane (cold spray):
  - 12 non-vital
- 3. palpation: no pain in apical region 12
- 4. Peridontal probing :PSI Gard 2
- 5. TMD short test (based on Ahlers and Jakstat*)
  - no hint at TMD, only muscle palpation on the left m. masseter slightly positive

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*Ahlers, M.; Jakstat, H.: Klinische Funktionsanalyse als Grundlage der Diagnostik Kaskade *Quintessenz 2007*

Diagnosis

Pulp Canal Obliteration

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Treatment plan

- Endodontic treatment at tooth 12
- Treatment with dental operating microscope and rubber dam
- Removal of caries prior to opening of pulpa 12
- trepanation 12
- Endodontic treatment of root channel down to the apical constriction
- disinfektion,
- opturation, insertion of adhesive stick and re-insertion of broken telescope in order to readjustment of toot prosthesis

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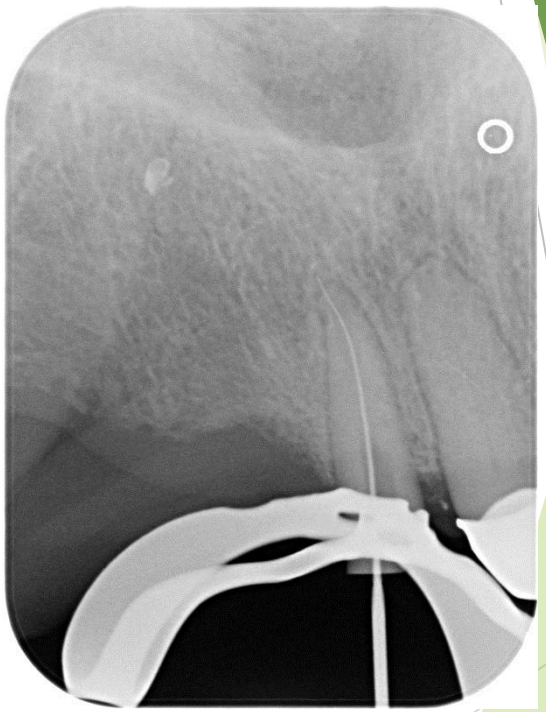
X-ray upon endometric legth measurement

15mm Iso 15 Headström

Measuring device approx. 1mm above apex

→ Shortening of working length to 14 mm



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Apical Sizing

- tooth 12
- Initial rotary File final apiakal Size
- Iso 06 Iso 35/04

treatment tooth 12

- After adjustment of rubber dam: visualization of broken crown area via surgical microscope
- Locating calzifified root performing the sodium hypochlorite „champangne bubble“ test and searching for canal bleeding points
- Opeing of pulp chamber floor with cylindrical diamonds
- Due to extreme calcification → broadening of channel entry Müller´s drill white and yellow without water cooling, removing calzified dentin slowly down the root
- After approx. 1/3 of root length and visualization with 06 C-File coated with chelating agent: very tight channel lumen
- Broadening of lumen and establishing of path up to iso20 manually
- Mechanical treatment with rotary instruments to Iso 35/04 Mtwo (VDW)

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treatment tooth 12

Irrigation protocol

- 1. treatment: changing lavage 3,5% NaOCl, 17% EDTA , processing at humid conditions
- Ultrasonication of lavage solutions
- sustained injection of CaOH into the root channel
- 2. treatment: analog 1. treatment without ultraonication
- Drying and opturation of channels

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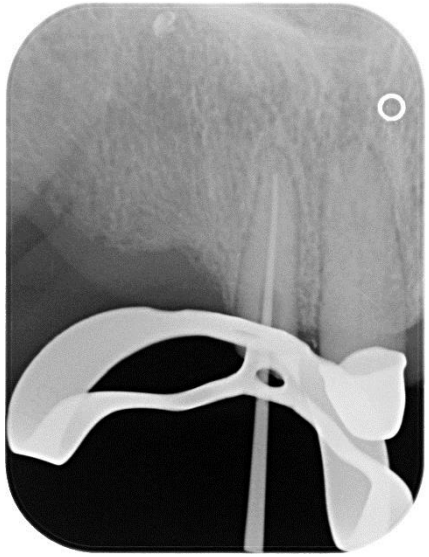
Opturation

Single Cone Opturation Technique Guttapercha and TOTAl Fill
After treatment Aufbereitung 37 und Entfernung Dentikel ein Haupthanal

- Masterpoint



Kontrollaufnahme

- Kontrollröntgen der
- Opturation mit gesetztem adhäsivem Stift

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Status upon re-insertion of telescope

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Epikriese

Tooth 12 is broken at gingiva level. It was treated with a ceramic telescope serving as buttress of a telescope prosthesis of the upper caw which was partly carried by teeth and mucosa

A capacity overload seems to be the reason for the fracture with a too high friction of the primary telescope with the secondary telescope or a frequent congestion during the usual removal and insertion of the prosthesis via the patients´mouth hygiene routine.

Also the calcification of the channel lumen might be due to trauma

In addition, an age-related change of the pulp tissue with subsequent calcification or a combination of both suggestions might be the case

Future prognosis of the tooth is critical as there is still a risk of fracture due to capacity overloads, even though a thorough treatment and opturation has been conducted

There is a high risk of a vertical root fracture due to the therapy and outlined circumstances

Thank you for your attention!

Questions?!

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