

University of Pennsylvania
TEC2 Next Level
November 2016

Case study: retreatment combined with irreversible pulpitis

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DentoDoc

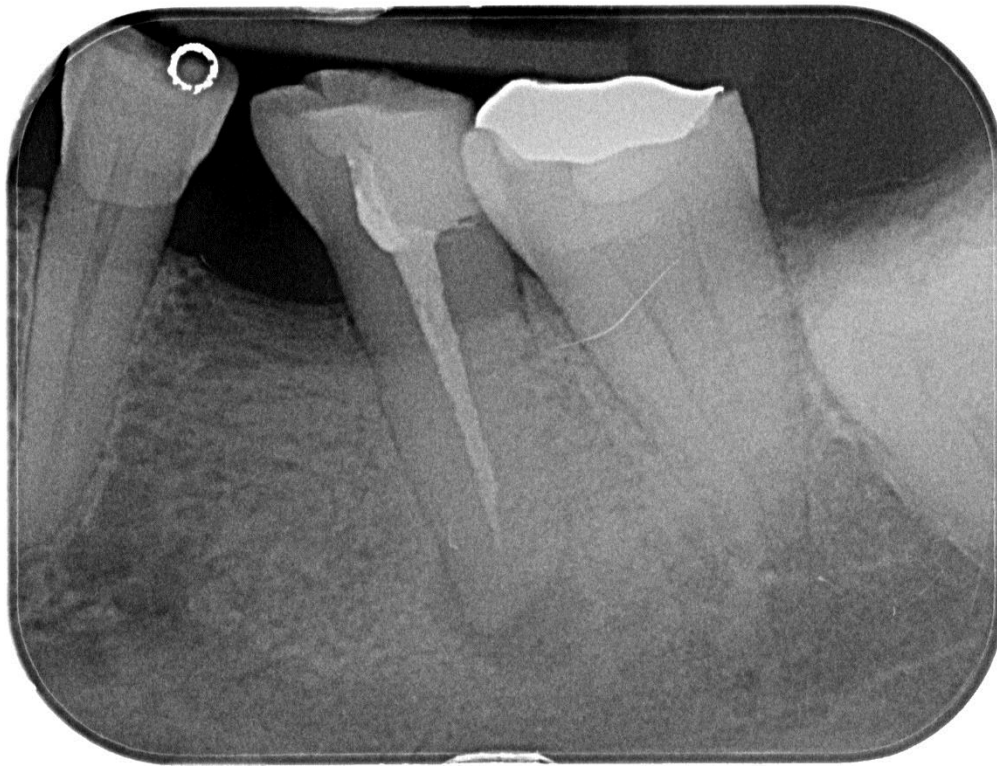
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Starting point



Starting point

- ▶ 62 year old patient with acute pain in 3. quadrant
- ▶ First X-ray 35-37:
 - ▶ insufficiente opturation at 35 with apicaler parodontitis
 - ▶ 37: insufficiente occlusal metal filling as well as diffuse area periapically
- ▶ Patient suffering from severe pain at left face half; not able to depict concerned teeth



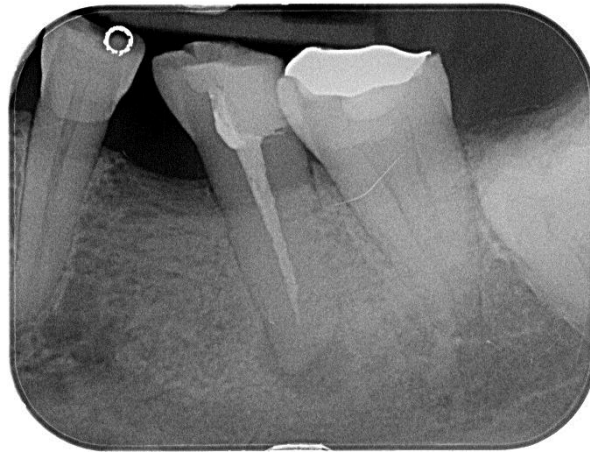
Examination

- ▶ 1. percussion:
 - ▶ 24,25,26,27,34,35 negative
 - ▶ 37 definitely positive
- ▶ 2. pulp test with dichlorofluoromethane (cold spray):
 - ▶ 37 hypersensitive, 24-27 positive, 35 negative, 34 positive
- ▶ 3. palpation all areas 25-27 and 34-37 at apex negative
- ▶ 4. parodontal screening 25-27, 34-37 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



Diagnosis

- ▶ Irreversible pulpitis with suspicion at apical parodontitis tooth 37
- ▶ Insufficient obturation with apical parodontitis 35



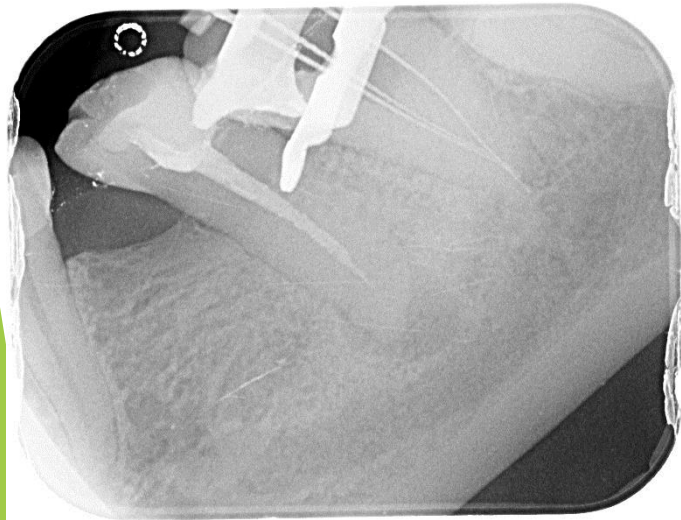
Treatment plan

- ▶ Retreatment at teeth 35,
- ▶ 37 endodontic acute treatment
- ▶ Treatment with dental operating microscope and rubber dam
- ▶ Exchange of old filling 35,37 with Composite,
- ▶ Removal of caries prior to opening of pulpa 37
- ▶ trepanation 35,37
- ▶ Treatment of root channels down to apical constriction
- ▶ desinfektion,
- ▶ opturation and occlusal closure with Composite
- ▶ prothetic Vsupply of tooth 35,37 with gold or ceramic crown
- ▶ 35 dentinadhesive stick prior to prosthetic



X-ray upon endometric legth measurement

- ▶ As tooth 37 was acute: first trepanation 37 and X-ray
- ▶ Next treatment: tooth 35 trepanation and X-ray



X-ray upon endometric legth measurement

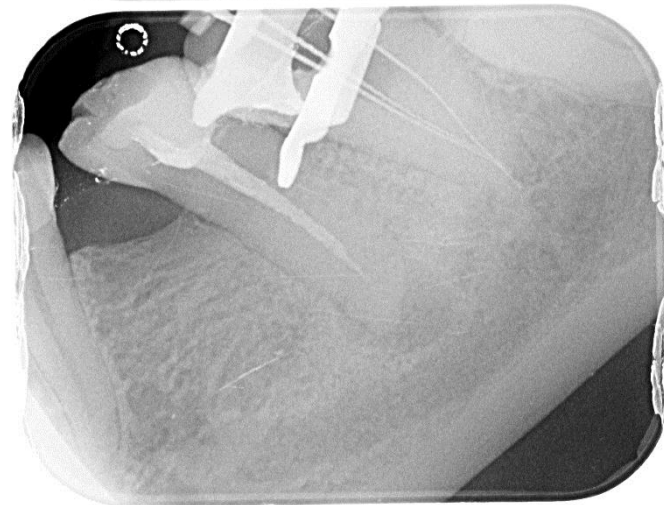
X-ray mesial exccentric
tooth 35 21mm (Iso 20 H)

tooth 37

Mb: 19mm (Iso 15 H)

Ml: 20 mm (Iso 15 H)

D: 20 mm (Iso 20 R)



Apical Sizing

- ▶ Zahn 37
- ▶ Initial rotary File final apiakal Size
- ▶ Mb: Iso 15 Mb : Iso 40
- ▶ ML: Iso 15 ML: Iso 40
- ▶ D: Iso 20 D: Iso 45

- ▶ Zahn 35
- ▶ Iso 20 iso 60



Retreatment tooth 35

- ▶ Retreatment of channel with BioRaCe (FKG, Swiss), Revivonsfeilen Protaper , Dentsply (USA)
- ▶ coronal removal of Guttapercha, dissolution of Guttapercha with orange solvent
- ▶ Removal of Guttapercha with files (size 15-20 Reamer, Headström)
- ▶ BR0 coronal opening of channel entry
- ▶ Verification of path with Iso 20 file Reamer
- ▶ BR1, BR2, BR3 shaping coronal and middle channel third
- ▶ BR 4, BR 5 , BR 6, BR 7 shaping apical channel third



Retreatment tooth 35

Disinfektion

Irrigation protocol:

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



Endodontic treatment tooth 37

- ▶ Treatment of channels with BioRaCe
- ▶ BR0 coronal opening of channel entrys
- ▶ Upon opening of three channel openings and broadening of channel at coronal thrid:
 - ▶ Not 3 separate channels visible at tooth 37, but one big pulp stone blocks the main channel
 - ▶ Upon removal of the pulp stone: main channel was treated thoroughly down to BR7 apical
- ▶ Verification of path Iso 20 File Reamer
- ▶ BR1, BR2, BR3 shaping coronal and middle channel third
- ▶ BR 4, BR 5 , BR 6, BR 7 shaping apical channel third



Irrigation protocol tooth 37

- 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



Opturation

Single Cone Opturation Technique tooth 35
Guttapercha and TOTAL Fill

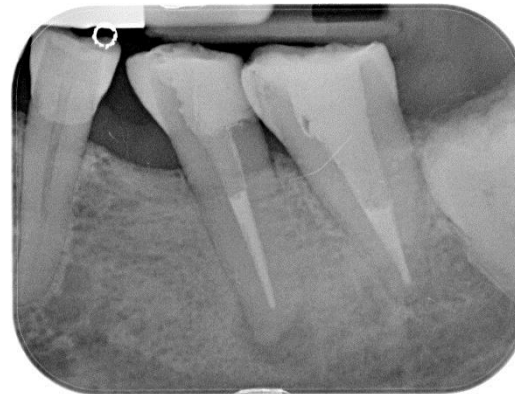
upon treatment 37 and removal denticle one main channel opturation with
warm vertical compaction technique

► Masterpoint



Kontrollaufnahme

- Kontrollröntgen der
- Opturation mit Versiegelung der Kanäleingänge subkrestal und DAR



Epicrisis

On tooth 35 a apical parodontitis was formed due to an insufficient filling as well as reinfection of the channel system

The acute infection on the pulp on tooth 37 causing the patient severe pain was due to a leaking gold inlay

As covering caries lesions were visible after removal of the gold inlay one can suggest that the leakage of the inlays and the subsequent bacterial infection might be the cause for the acute pulpitis on tooth 37

First, both teeth 35 and 37 were treated with Composite.

In order to increase the stability and prognosis one should treat both teeth with gold or ceramic crowns within the foreseeable future

Tooth 35 should be treated with a dentadhesive stick prior to the preparation of a crown

The rate of success concerning endodontic retreatment on tooth 35 is controversially discussed in recent studies with about 60 - 80 %.



Epicrisis

Special remarks during retreatment should be given to the disinfection of the channel system as especially for retreatments a high probability of infections and high risk germs, such as *E. faecalis*, has been reported.

Usually, the germs are surrounded by a biofilm. In order to dissolve the biofilm for a successful disinfection, it is necessary to apply high volumes of potent lavages (NaOCl; EDTA; CHX)

Controlled clinical studies with retreatments performed at universities with experts highlight an improvement up to 80-95 %.

A clear difference in view of those results might be a hint that the treatment success is dependent on the skill of the surgeon, the technical resources and suitable treatment time.

In addition, the success of the retreatment will be strongly influenced by the quality of the prosthetic supply.

X ray controls once a year are highly recommendable.

In contrast to that, the success rate for tooth 37 is much better with 95%.



Thank you for your attention!

Questions?!



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