



Instruction manual

Safe and efficient NiTi rotary system

Fulfilling the biological requirement
for successful endodontics



BioRaCe kit



1 Educational CD



1 Endo Stand



1 Basic set



1 Extended set

Kit contents

Table of contents

Concept	<u>4</u>
Minimal apical preparation sizes	<u>5</u>
Coding system	<u>8</u>
SafetyMemoDisc	<u>10</u>
Endo Stand	<u>11</u>
Basic Sequence	<u>12</u>
Extended Sequence	<u>17</u>
Obturation	<u>19</u>
Clinical cases	<u>20</u>
References	<u>22</u>

Endodontics is the prevention or elimination of apical periodontitis

4



Pre-operative



Post-operative



Follow-up 1 year

Since root canal infection is the cause of apical periodontitis, the biological aim of endodontic treatment is the prevention or elimination of root canal microbes.

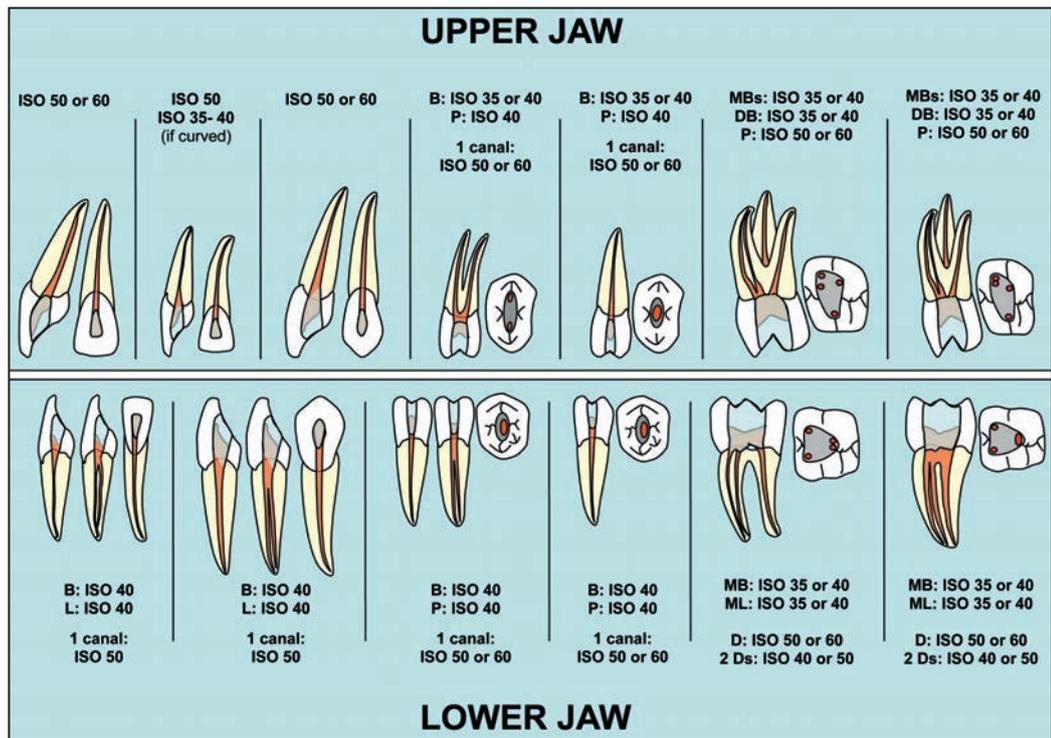
Consistent success in endodontics requires high technical skill in order to achieve a biological aim. It is well established that in order to remove enough microbes from the root canal to ensure predictable success, the apical third of the canal must be instrumented to certain minimum sizes (see anatomical chart & references).

Most instrumentation systems require an additional step to achieve minimum sizes in the apical third of the canal. This results in additional files, time and expense for the practitioner.

The BioRaCe sequence is unique, it has been especially designed to achieve the required apical sizes without the need for additional step and additional files. If used according to instructions, most canals can be effectively cleaned with 5 NiTi files. Thus with the use of the unique BioRaCe system, the biologic aim of root canal treatment is achieved WITHOUT compromising efficiency.

Concept

Required minimal apical preparation sizes



The attached chart describes the required minimal apical preparation sizes based on morphometric and anatomical studies of the root canal system (see references at the end).

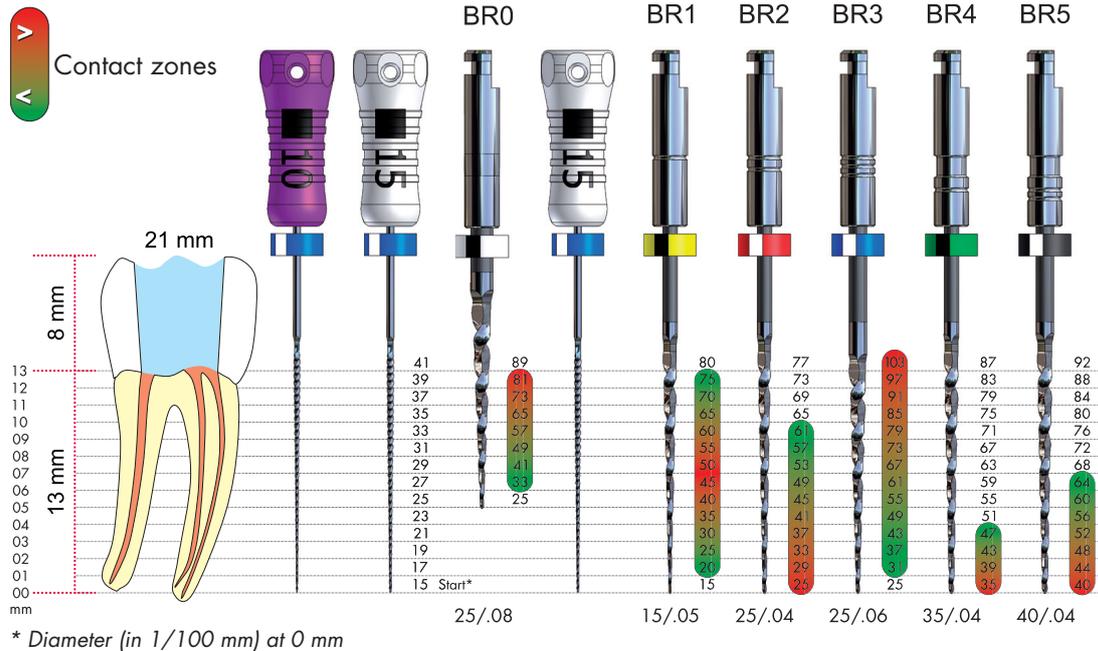
Please, consult the anatomical chart before the treatment is initiated.



BioRaCe basic sequence

6

Note on the opposite figure that when the instruments are at full working length, the tip of BR0, BR1 and BR3 don't touch the canal walls (see contact zones).

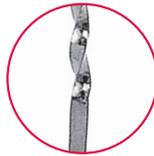


Concept

BioRaCe instruments present the same physical characteristics of RaCe instruments such as:



Non-cutting Safety Tip



Alternating Cutting Edges
- avoids self-threading -



Sharp Cutting Edges
- triangular section -



Electro-Chemical Surface
Polishing

BioRaCe differs from the well known RaCe instruments in regard to instruments sizes, tapers and sequence. The major goal of BioRaCe is to achieve apical preparation sizes that are scientifically proven to effectively disinfect the canal (see references at the end).

BioRaCe has been designed to clean the root canal efficiently and safely with few instruments.



BioRaCe should be run @ 500-600 rpm

Recommended torque : 1 Ncm



BioRaCe



BioRaCe instruments are identified by a specific coding system on the handle and by specific colored rubber stoppers*

8

Example of marking on handles BR0 to BR7 according to Basic sequence



BioRaCe Basic Set

Coding key (ck) Rubber Stopper (Assistant Colour Coding)

	ck	acc		ck	acc
BR0			BR3		
25/.08			25/.06		
BR1			BR4		
15/.05			35/.04		
BR2			BR5		
25/.04			40/.04		



Recommended torque value for all instruments:

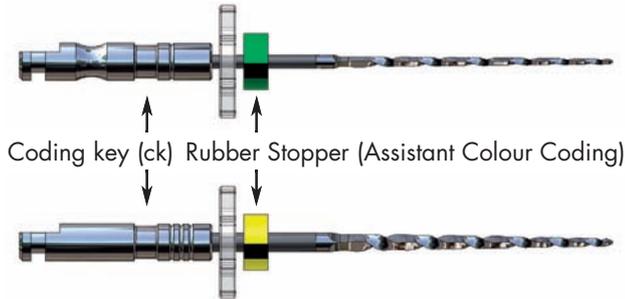
1 Ncm

* The colored stoppers do not correspond to ISO color coding for sizes. However at the final apical sizes the colors are correct for ISO sizes [green #35 and black #40].

Coding system

BioRaCe Extended Set instruments have an additional control device: SafetyMemoDisc*

BioRaCe Extended Set



Severe **Curvature**

BR4C  
35/.02

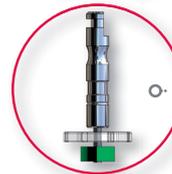
BR5C  
40/.02

Extra widening

BR6  
50/.04

BR7  
60/.02

BR4C



Extra identification groove on BR4C and BR5C instruments only (i.e. Severe Curvature)

Recommended torque value for all instruments:

1 Ncm



* With the SafetyMemoDisc (SMD) please see after



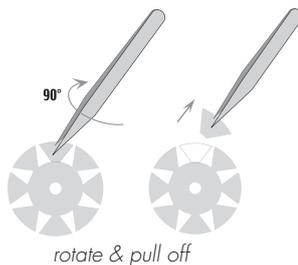


SafetyMemoDisc (SMD) device: a better control of risks for optimum safety

10

Increased safety:

- Discard instruments before they become a hazard; a new package is cheaper than spending time trying to remove broken pieces.
- Follow FKG recommendations on speed and torque to set your motor (see page 7).



The SMD are mounted on the BR6/7/4C/5C instruments as a standard feature. You can control the fatigue of each instrument, according to the complexity of the canal.

Each SMD has eight petals. After each use, the practitioner will pull several petals off (see recommendations below). The remaining petals indicate the possibility of further use.

The SMD are sterilisable and therefore stay on the instruments. You keep the utilisation's information all along the file life.

How many times can BioRaCe BR6/7/4C/5C be used?

There is no straight answer – follow SafetyMemoDisc recommendations below.

Example of canal complexity:

Simple, radius ≥ 25 mm

Medium, radius 25 until 11 mm

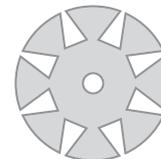
Difficult, radius ≤ 11 mm

Remove:

2 petals

4 petals

6 petals



SafetyMemoDisc

Endo Stand - dedicated instruments organizer



User-friendly, the BioRace Endo Stand is compact, strongly built to withstand all types of sterilizations, ensuring that the practitioner has the right tools on hand for carrying out the treatments.

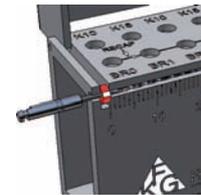
We recommend to use the Basic set instruments (BR0, BR1, BR2, BR3, BR4, BR5) in four cases, as a maximum. Therefore BioRace Endo Stand has a special indicator of wear with 4 petals.

The practitioner will pull one petal off after each use. The remaining petals indicate the number of times the Basic set can still be used.

The information on the number of uses is recorded all along the Basic set life.



*Indicator of wear, with 4 petals.
Refill packs available separately*



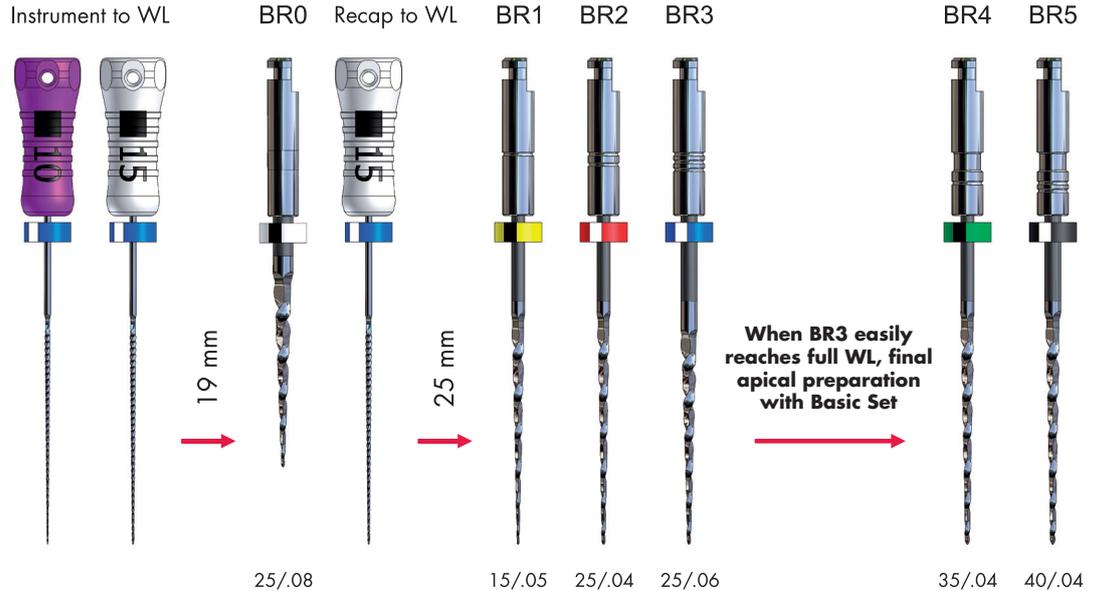
Note that there are 2 notches to help positioning the rubber stopper at the required length (suitable for left-handed or right-handed persons)



Overview of the BioRaCe Basic sequence

12

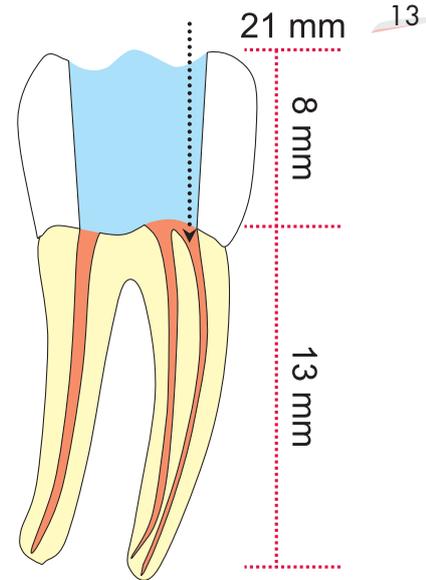
The changes in sequence of sizes and tapers has allowed the required apical sizes to be achieved without increasing the number of instruments.



Basic Sequence

Pre-Operative Procedures

- Take parallel pre-operative radiograph(s).
- Place rubber dam (rubber dam may be placed after penetrating the roof of the pulp chamber, in case of a difficult access).
- Perform access.
- Localize canal with an endodontic probe.
- Remove coronal curvatures and establish straight line access to the canals orifices.
- Use disinfectant over the pulp chamber, tooth, and 1 cm of surrounding rubber dam.
- Establish working length with an Electronic Apex Locator (EAL) with SS k-files (e.g. 25 mm - #08-15).



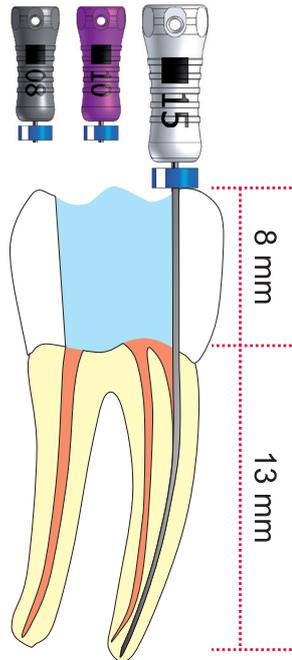


Manual Instrumentation Phase

14



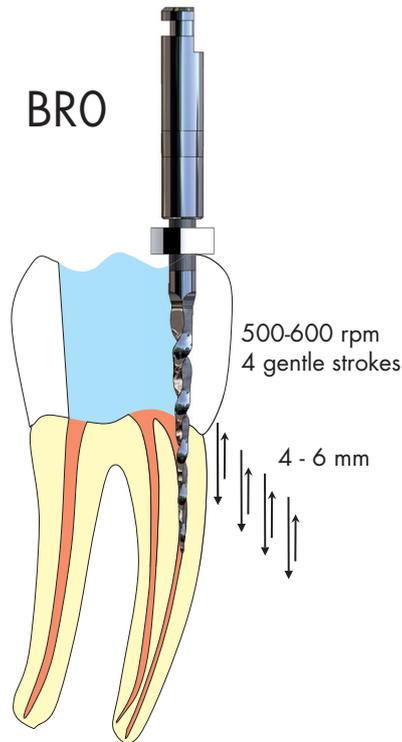
SSt files to Working Length (hereafter WL) # 08, 10, 15



- Copious irrigation with irrigant solutions.
- Manual instrumentation with 0.02 taper SSt files from # 08 to #15 to full WL.
- Irrigation.
- If needed verify radiographically the WL with a SSt file #15.

Instrumentation
phase

Rotary Instrumentation Phase: Access by using BRO instrument



- Do not start this phase until a K-file #15 comfortably reaches the WL.
- Adjust motor to 500-600 rpm and 1 Ncm.
- Fill the canals and pulp chamber with irrigant.
- BRO - "only" 4 gentle strokes - clean the flutes.
- Repeat until approximately 4-6mm of coronal part of the canal has been prepared.



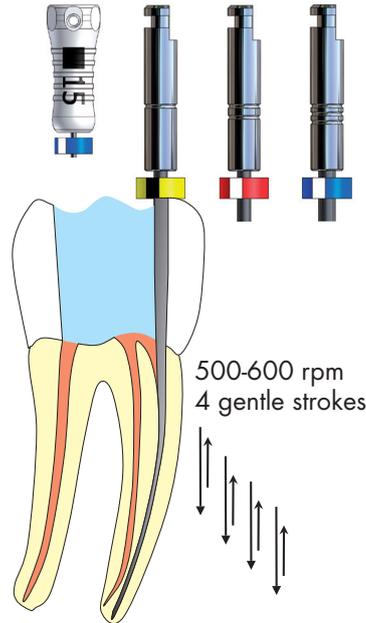


Rotary Instrumentation Phase: Reach Working Length (WL) with BR1 to BR3

16



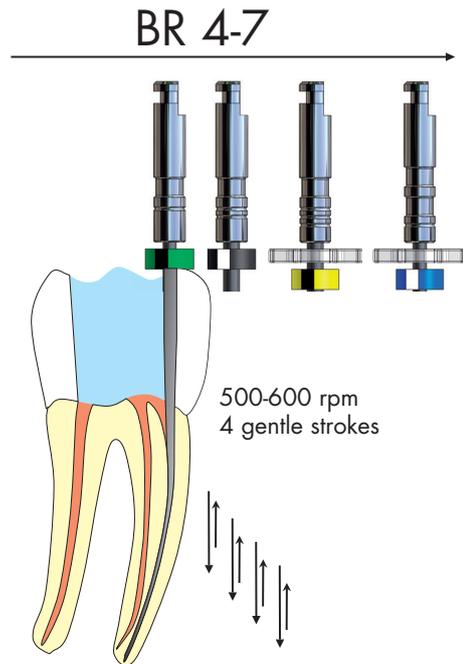
Recapitulation
#15 to WL BR 1-3



- After use of BR0, repeat irrigation.
- Recapitulate to full WL with a SSSt file #15.
- Fill the canal and pulp chamber with irrigant.
- Use BR1 with 4 gentle strokes. If this instrument does not reach the WL, clean the instrument and repeat until the WL is achieved (If necessary, reconfirm the WL with an Electronic Apex Locator).
- Use BR2 and BR3 as described for BR1.
- DO NOT use BR3 to full WL on canals with severe apical curvatures.
- Irrigate copiously between instruments.

Instrumentation
phase

Rotary Instrumentation Phase: Final apical preparation with BR4 to BR7



- In most cases, the final apical preparation is achieved with instruments BR4 and BR5. Depending on the root canal anatomy (see anatomical chart), two additional instruments BR6 and BR7 can be used for larger canals.
- The same principle as explained for BR1-3 should be used for the apical preparation.

NB. Copious irrigation at all times and cleaning of the files after 4 gentle strokes is essential for safe and efficient use of these instruments.

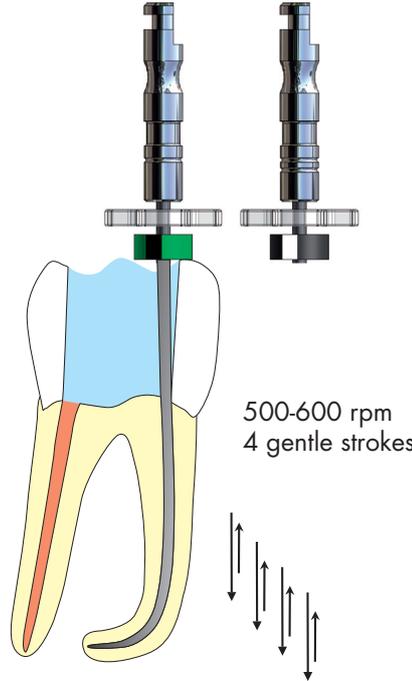


Cases with severe apical curvatures Specific instruments: BR4C and BR5C

18



BR 4C-5C

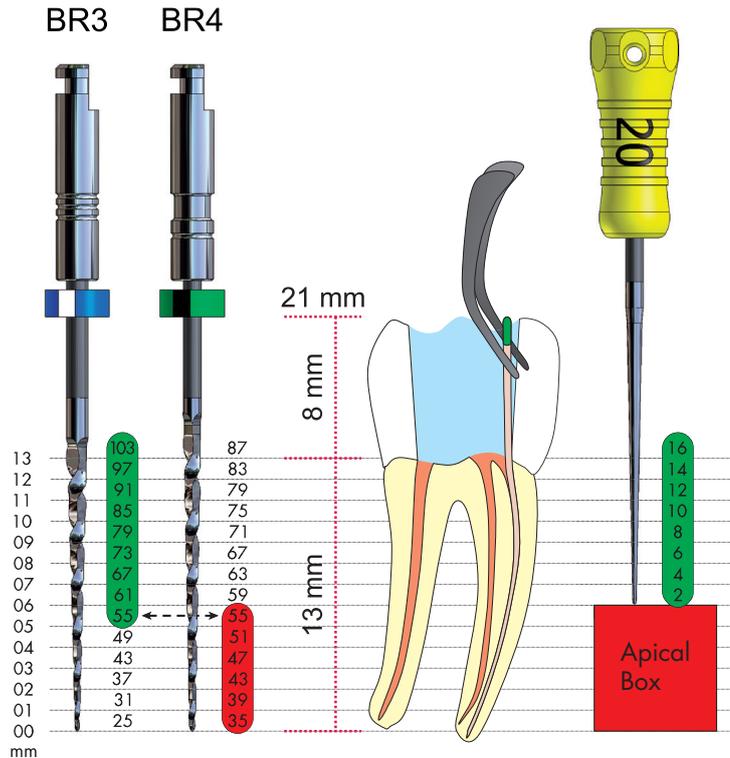


- For severe apical curvatures, instruments BR4C and BR5C should be used to prepare the apical canal.
- If the instrument does not reach the WL with 4 gentle strokes, DO NOT FORCE the instrument. Irrigate the canals and repeat.
- For complicated curvatures it is recommended to use additional FKG instruments (e.g. S-Apex inverted taper instruments).



Instrumentation
phase

Obturation phase



- Place obturation point corresponding to the final apical sizes, in this case BR4 - 35/0.04.
- Complete with preferred obturation material and technique.
- For lateral condensation technique a NiTi finger spreader ISO 20/0.04 is suggested.
- In cases where a warm vertical condensation technique is planned to be used, a fine or a fine-medium heat plugger should be used when the final apical preparation has been achieved with BR4 or BR5.



Clinical cases: Moderate curvatures

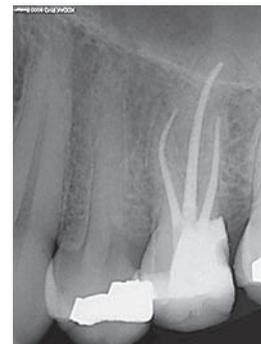
20

More world wide
clinical cases
on www.biorace.ch

Clinical
cases

Tooth 25
Dx: Symptomatic Pulpitis
Tx: Pulpectomy

Treatment Details:
MB #35/0.04
DB #35/0.04
D #50/0.04



Tooth 46
Dx: Asymptomatic apical
periodontitis
Tx: Of non vital tooth

Treatment Details:
MB #35/0.04
ML #35/0.04
DB #50/0.04
DB #50/0.04



Clinical cases: Severe curvatures

Tooth 26

Dx: Symptomatic Pulpitis

Tx: Pulpectomy

Treatment Details:

MB1 and 2: #35/0.04

DB #40/0.04

P #60/0.02



Tooth 27

Dx: Asymptomatic apical periodontitis

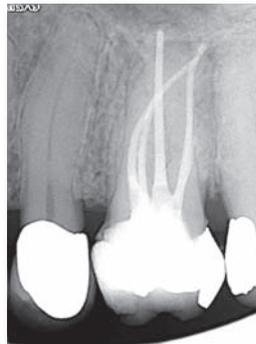
Tx: Of non vital tooth

Treatment Details:

MB1 and 2: #35/0.04

DB #40/0.04

P #50/0.04





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