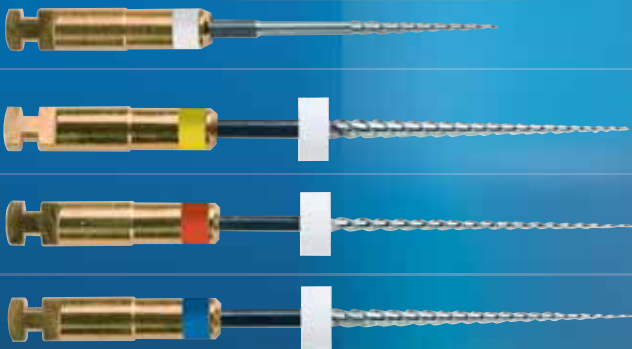




# CMA<sup>®</sup>

CORONAL • MEDIAN • APICAL





Only one  
sequence  
for treatment  
and retreatment



# CMA: a revolutionary system for your everyday practice


- **A reduced number of instruments.**  
4 nickel-titanium rotary endodontic instruments for a simplified sequence.

- **Only one sequence for root canal shaping and removal of filling material.**



4 nickel-titanium rotary instruments			Taper	Tip $\phi$	Ring	Total length
<b>C</b>	<b>Coronal</b>		8%	25/100 <sup>th</sup>	White	15 mm
<b>M</b>	<b>Median</b>		6%	25/100 <sup>th</sup>	Yellow	21 mm 25 mm
<b>A</b>	<b>Apical Fine A1</b>		4%	20/100 <sup>th</sup>	Red	21 mm 25 mm 29 mm
	<b>Apical A2</b>		6%	20/100 <sup>th</sup>	Blue	21 mm 25 mm

- **Only one sequence for simple, curved and narrow canals.**

**Clinical case by Dr. Stéphane Simon**




(1) Pre-op X-ray





(2) (3) Post-op X-ray

**Clinical case by Pr. Roger Rebeiz**

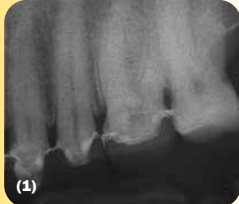


(1) Maxillary first molar: narrow canals; dentine heavily mineralised.




(2) Constant and regular conicity obtained using CMA instruments.


**Clinical case by Dr. Roland Arsan**



(1) Pre-op X-ray: maxillary premolars and molars.



(2) The same CMA sequence was used for all 11 canals. All root canal trajectories respected.



(3) Same teeth, seen from another angle.  
**Only 4 instruments were enough to shape all these canals.**

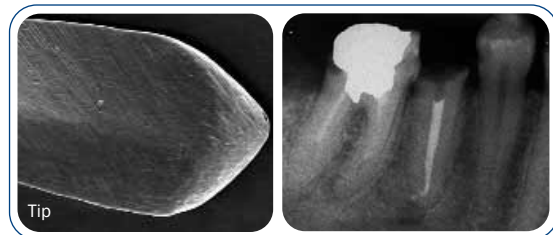
■ **Safer,  
more secure  
and reliable  
rotary  
instruments.**



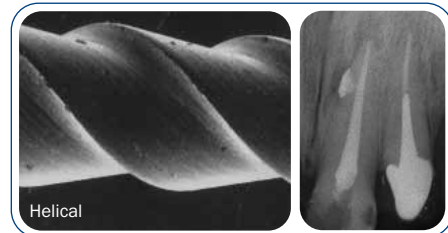
>> Cross-section with 3 cutting angles ensures **more cutting efficiency.**



>> Non-cutting tip: **ensures the respect of the root canal trajectory.**



>> Their shape favours the **removal of debris out of the canal.**

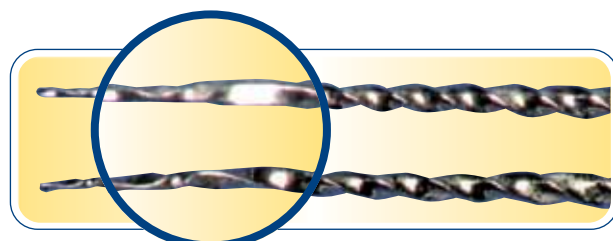


>> Short handle: **improves and eases the access to molars.**



■ **Guaranteed Safety**

- >> Stronger hard wearing NiTi alloy.
- >> Deformation visible to the naked eye.



# Operative protocol for root canal shaping

Pre-op X-ray.



Opening  
of the  
pulp chamber.



## Step 1

**Exploring the coronal 2/3 of the canal and making it permeable:**

**Instruments used:**

Manual steel files N° 10 and 15.  
Used until they move freely in the canal.



**Objectives:**

- Secure and prepare the access for CMA into the coronal 2/3 of the canal.



## Step 2

**Flaring the coronal and middle part of the canal:**

**Instruments used:**

**CORONAL and MEDIAN.**



**CORONAL C**

flares out the coronal part of the canal.



**MEDIAN M**

enlarges the middle part of the canal.

**Objectives:**

- Straighten the access and enlarge the root canal entries to provide continuity between the pulp chamber and the canals, so as to allow the tools a free access to the apical one-third.



## Recommendations

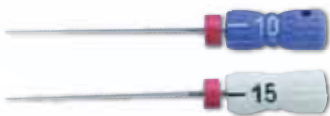
- Nickel-titanium rotary instruments must be used in a portion of the canal which has been **explored and prepared previously** with a manual file number 15.
- **Examine the instruments** before and after each use. Discard the tool if there is the slightest deformation.
- **Speed:** 300 to 400 rpm.
- **Torque:** 2 to 3 N for all instruments.
- **Movement:** progression towards the apex by continuous short (1mm to 3 mm) and rapid up-and-down strokes, finishing off with a « brushing » movement on the root canal walls.
- **Time:** 5 or 10 seconds per rotary instrument.
- The nickel-titanium rotary instruments **must never be forced**.
- Properly **clean** the instrument **after each removal**.
- The canal must be **copiously irrigated** with sodium hypochlorite each time the instrument has been introduced.
- Use of chelating gel is advised in order to facilitate work with the tools.
- If progression with **A1** is hindered, go again with K 15 file and **M**. If is hindered with **A2**, go again with K 15 file and **A1**.

## Step 3

### Determining the working length:

#### Instruments used:

Manual steel files N° 10 and 15. Used until they move freely in the canal.



#### Objectives:

- Determining the working length.
- Preparing for the nickel-titanium rotary instruments to pass safely all the way to the apical one-third.



After the use of the **C** and the **M**, interference in the cervical area and coronal curves are eliminated, which further frees the way to the apical one-third.

## Step 4

### Enlarging the apical portion of the canal:

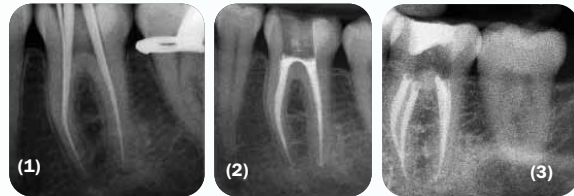
#### Instruments used:

**APICAL FINE A1** is used on the whole length of the root canal, to be followed by **APICAL A2**.



#### Objectives:

- Preparing the apical portion.
- Making a space where the irrigation solutions can collect.
- Providing the apical taper which will give the best obturation.
- Keeping apical diameter small.



Pr. Roger Rebeiz

(1) Gutta points in place.

(2) (3) Root canal obturation seen from different angles.



Exploring the canal.



Flaring the coronal part of the canal  
**CORONAL**

**C**



Enlarging the middle part of the canal with the **MEDIAN**

**M**



Determining working length.



Preparing the apical portion of the canal with **APICAL FINE**

**A1**



Providing apical conicity before obturation with **APICAL**

**A2**



# Operative protocol of retreatment



**Preoperative X-ray**

**Access cavity .**  
This must provide a clear view of the root canal entries, and adequate access.

- Cleaning out all traces of filling material.

- Ultrasonic scaler is the technique of choice here.

- Application of an appropriate solvent in the pulp chamber.



## Coronal Step



### Removal of filling material and flaring the coronal portion of the canal:

- **Manual penetration** (using a N°10 steel file shortened by a few mm for example), to pierce the filling material and create a 2mm - 3 mm channel.
- **Use of CORONAL C** to widen the canal entries and remove filling from 2mm or 3 mm with a withdrawing movement, leaning on the wall(s).
- **Irrigation** and solvent renewal.
- **Manual penetration** using a N°15 steel file going a few millimetres deeper.
- **Use of MEDIAN M** working deeper than the CORONAL. This tool works by traction.
- **Irrigation** and solvent renewal.

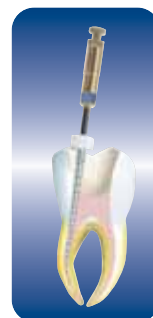
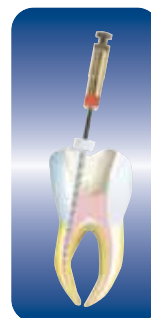


## Apical Step

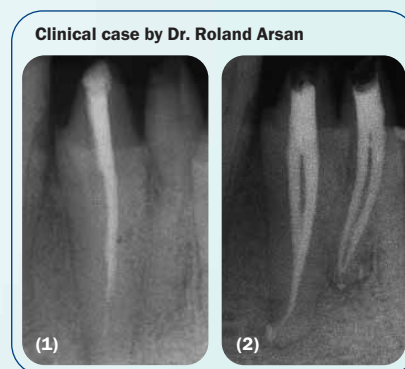
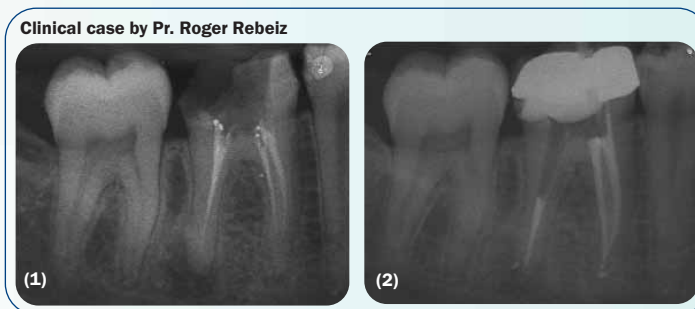


### Preparation and filling remove the apical portion of the canal:

- **Manual N°15 file, precurved**, to explore this portion of the canal. Measuring the length of the canal, if feasible at this stage.
- **Copious irrigation.**
- **APICAL FINE A1** is used on the whole length of the root canal that has been made passable by using the N°15 file.
- **Copious irrigation.**
- **APICAL A2** is used to remove the filling material and clear the canal.
- **Checking passage** to the apex using a K N° 10 file just beyond the extent of the work.



## ■ Same instruments for root canal filling removal and for shaping.







(1) Pre-op X-ray  
(2) Post-op X-ray

## Recommendations

- The nickel-titanium rotary instruments can remove fillings of materials which **can be softened in solvents**. **They cannot be used to remove fillings of insoluble resin paste.**
- As the tool moves further towards the apex, use less solvent and irrigate more fully.
- The tools must be **wiped regularly with a compress** to keep their effectiveness; **check for matter presence** in the helices, and watch for any sign of loss of helical shape, which can indicate imminent fracture.
- When an endodontic tool goes no further **it must not be forced**, or a blockage may be created.

## Four instruments, only one sequence!

4 nickel-titanium rotary instruments		Taper	Tip ø	Ring	Total length
<b>C</b>	<b>Coronal*</b>		8%	25/100 <sup>th</sup>	White 15 mm
<b>M</b>	<b>Median*</b>		6%	25/100 <sup>th</sup>	Yellow 21 mm 25 mm
<b>A</b>	<b>Apical Fine A1*</b>		4%	20/100 <sup>th</sup>	Red 21 mm 25 mm 29 mm
	<b>Apical A2*</b>		6%	20/100 <sup>th</sup>	Blue 21 mm 25 mm

\* Sold in blister packs x 6

Product	Content
Kit <b>CMA NiTi START KIT A</b> Length 25mm	<b>4 NiTi instruments:</b> <b>CORONAL, MEDIAN, APICAL FINE A1 &amp; APICAL A2</b> 25mm <b>+ 2 manual steel files</b> n°10 & n°15
Kit <b>CMA NiTi START KIT B</b> Length 21mm	<b>4 NiTi instruments:</b> <b>CORONAL, MEDIAN, APICAL FINE A1 &amp; APICAL A2</b> 21mm <b>+ 2 manual steel files</b> n°10 & n°15

Instruments developed by Pr. Roger Rebeiz and Dr. Roland Arsan.  
Illustrations and comments by Pr. Youssef Haikel.

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