

## So, you fractured an instrument, what can you do?

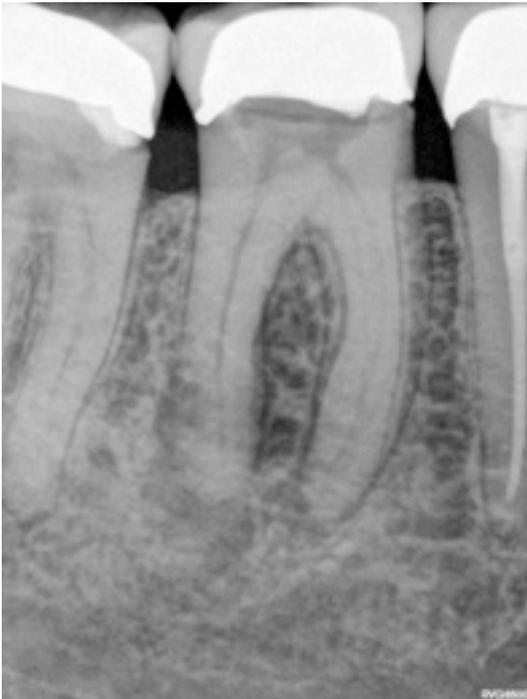
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This was a case which was sent to my office, because the referring dentist could not prepare one of the mesial canals of a lower right first molar.

### History

A 52 year old woman with an ASA score 1, experienced pain on tooth #30. She went to her dentist, who opened the tooth, which was non vital. The dentist located one distal canal and one mesial canal. Because the most common configuration are two mesial canals, she referred the patient to me.

*Diagnostic X-ray*



*Clinical image 1*



*Clinical image 2*



It was obvious that there was chronic apical periodontitis. Also 2 mesial canals were visible. Furthermore the crown did not fit the tooth, there was a large space between the edge of the crown and the tooth (clinical image 1)

## Treatment

After removing the temporary restoration I found the opening cavity to be still full of calcified dentin, overhanging dentin, etc. However, two mesial canals were immediately visible.

*Clinical image 3*



I made the opening cavity complete and started creating a glide path in all canals. This took me a long time, but eventually I had managed to create a glide path in all three canals up to a size 20. I used a lot of K-files 08 and 10 for this and afterwards the Pathfiles from Maillefer. From then on I switched to Protapers. After having shaped the D and MB canal with a Protaper S1, I decided to take a new S1 (so my second new Protaper S1 for this tooth), because I had encountered a lot of resistance, even with a glide path. I got to working length in the ML canal with the S1. After cleaning the instrument and irrigating the canal, I decided to take it one more time to working length -----> FAIL! It fractured. A 7mm piece was now in the apical part of the ML root.

*Working length with the fractured instr.*



*Clinical image 4*



I checked if I could still get to working length in the MB canal. I could, but had definitively contact with the instrument. Hence I switched to Protaper Handfiles. I tried to bypass the instrument and could do this up to where the MB and ML canal joined.

Now I had to decide, whether I would try to remove it, bypass it, or let it be. I choose the last option, the reasons are listed below:

- trying to remove it, would weaken the root, without the guarantee that I would succeed in retrieving the instrument
- I tried bypassing but was not able to do this
- The MB and ML canals joined together in the apical part and I still had patency in the MB canal (watch <http://www.youtube.com/watch?v=IUPIbWq8W0Y> for a movie, where you can see that the two canals are connected (suction of the irrigation fluid))
- The patient was informed and agreed with the option of letting the instrument in place
- The instrument was fractured when the tooth was isolated and when a decent amount of NaOCl already had been used in the canal.

I further shaped the canals with Protaper handfiles and afterwards I finished the MB with a 35.04 Profile the D was finished with 35.06.

The rinsing was done with NaOCl 5% and a final rinse with CA 10% both US activated.

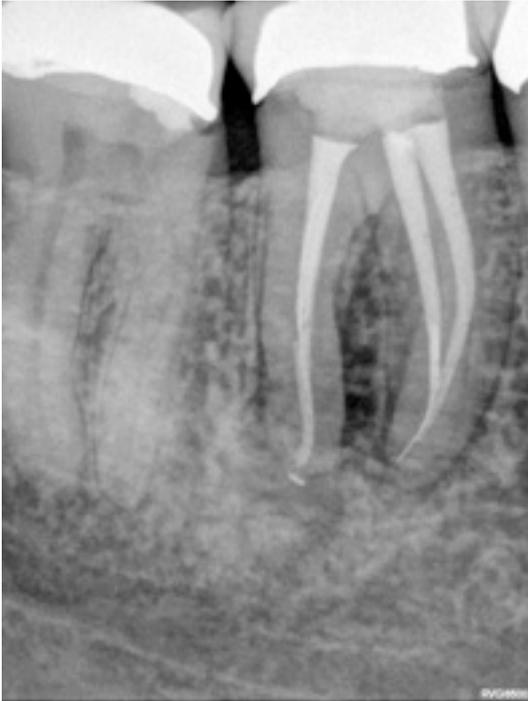
Obturation was done by warm vertical compaction, when I obturated the MB canal, sealer came into the ML canal.

#### *Clinical image*



The tooth was eventually temporarily restored with glass ionomer cement. The prognosis is good, even with the fractured instrument, but follow-up is necessary.

*Result*



*Clinical image 5*

