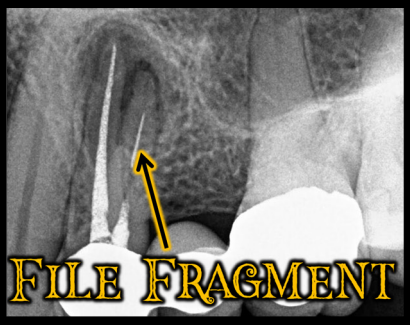
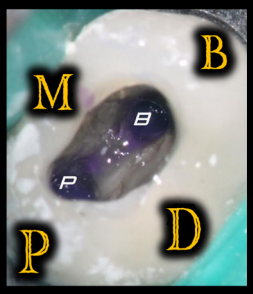
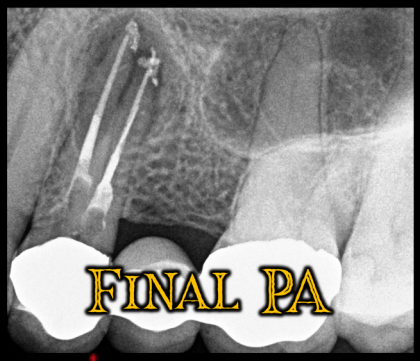
RICHMOND
ENDODONTIC CENTRE

ABUT KICKED

OCT
2019







According to the literature the expected incidence of a fractured instrument is about 0.4 – 5%. Startlingly, a systematic review of the literature found no statistically significant difference in healing rates between teeth with or without instrument fragments in the canals. That stands only if no pre-operative apical radiolucency was present and the separated bit did not prevent a thorough cleaning of the entire canal.

The images above are of such an unfortunate scenario: a pre-op radiolucency, the file separated early during the procedure, and it blocked the canal. In addition, this premolar is a bridge abutment for a patient that is a self-confessed dental phobic bedlamite with a pain threshold approaching absolute zero.

Removal or by-passing a stainless steel hand file enjoys a relatively high rate of success (85%) if the fragment is visible with a microscope. That success rate plummets though if the instrument is not visible and it is a tapered NiTi rotary file. A silver lining, for this case, is that the file is in the buccal canal and as such surgical access will not be onerous. As best I could, I prepared the caitiff person for the distinct possibility of endodontic microsurgery as I thought it unlikely I would by-pass the file and inconceivable that I would be able to remove it en masse.

A lack of a pronounced curve increases the plausibility this instrument fractured because of a torque overload and not cyclic fatigue. If only a small segment of the coronal portion of the file was involved then by-passing it may be viable. The file was not visible. To rectify this, the access was opened slightly with high speed diamond burs. A red Munce bur was used in the coronal 4mm of the canal followed by a white Munce bur which reached the coronal portion of the file allowing visualisation with the microscope. The endo explorer and hand files confirmed the fragment was immobile and completely occluded the canal. A pink Munce bur was used to remove about 1.5mm of the coronal portion of the file. With frequent irrigation, to prevent over-heating, a small ultrasonic tip was used to initially trough around the file fragment. White dentine débris was present palatal to the file. The tip was then used to remove the compacted dentine and débris between the palatal wall and instrument.

These steps took less than fifteen minutes. The next few steps took over thirty minutes and about two dozen small handfiles. EDTA was placed in the canal and pre-bent small hand files slid into the canal just shy of the blockage. The files were twisted vigorously and pulled often. This was repeated with pre-curved 06, 08, 10, and 15 hand files a number of times. It was hoped this would 'fluff-up' the dentine and débris abutting the file. Next a pre-curved 06 hand file gently explored the palatal aspect of the canal. Light apical pressure was applied while the file was turned counter-clockwise and then slightly more as it was rotated clock-wise. If some apical progress was realised the file was then reamed in order to enlarge the captured territory. This was repeated with 08, 10, and 15 hand files until the files negotiated past the fragment and patency was regained. This is a technique sensitive procedure: if too much pressure is applied one will perforate, if the progress is not closely monitored and too little pressure is applied then one is literally banging a file against a wall.

Fortunately, I was able to by-pass the file and gain patency. With a separated file in the canal it would be foolhardy to use a rotary file in the buccal canal; its instrumentation was com-pleted solely with hand files (step-back technique) to a size 30/02. This abutment kicked, but with perseverance and a few tricks the treatment turned into an early Hallowe'en treat.

Regards,

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