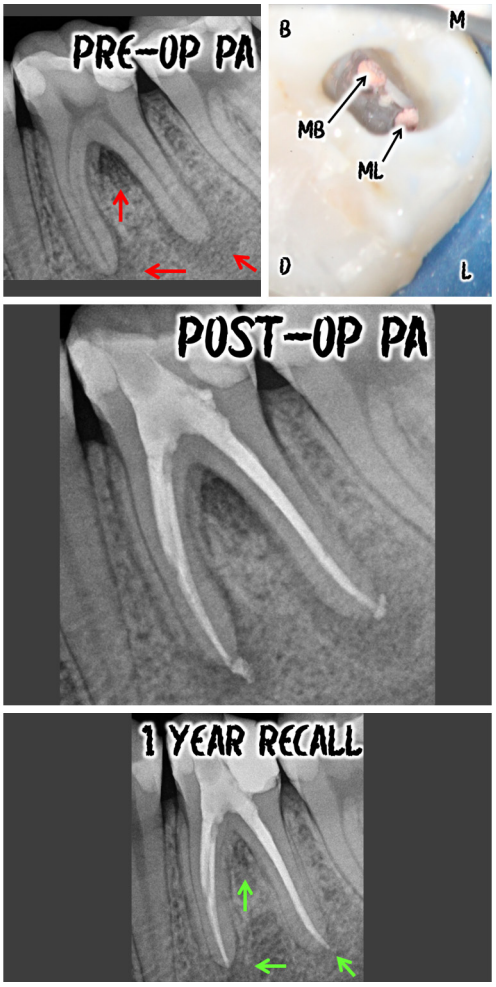
RICHMOND
ENDODONTIC CENTRE

FURCAL-TASTIC

FEB
2020



Last year, a nineteen-year-old lady presented with tooth 36 which had necrotic pulp and symptomatic apical periodontitis. A possible complicating factor was the furcal radiolucency. The dental literature is replete with articles espousing parochialisation of the issues regarding furcal defects. It is not surprising many are timorous of the prospect of successful treatment of teeth with any furcal issue.

Clinical examination revealed no probing defects or mobility and the marginal gingiva was healthy. The chamber had not been accessed. This defect was not secondary to periodontal disease or an iatrogenic error. Thus, this tooth was deemed to have a favourable prognosis. Yet, one may wonder what is the cause of the furcal defect and how best to treat it?

The relationship between pulp degeneration and conspicuous apical and furcal radiolucencies is well established. The necrotic pulp, of this 36, is solely responsible for the furcal degradation. Intraradicular canals extend from the chamber floor to the furcal area and are present in about 8% of mandibular first molars. Less frequent, but not insignificant, are lateral canals which can extend from a major canal to the furcal area too. These minute canals are the conduit for the pulp pathology extension to the furcation region.

The diameter of the intraradicular orifices on the chamber floor is approximately 10 to 40 µm. Clinical visualisation and mechanical débridement of these minuscule canals are not practical. Our only means of addressing these microscopic nidi is via chemical cleaning and a sound coronal seal. Unfortunately, no scientific evidence exists to support the notion that modern endodontic techniques will increase the success rate of treating such defects. Nevertheless, numerous documented case reports do support such a premise as does the case of this 36.

As with all of my endodontic treatment, the digital operating microscope aided visualisation of the chamber and canal orifices. No evidence of a fracture was observed and, as expected, nor was I able to see an intraradicular orifice. A conservative access preparation and instrumentation regimen is the best defence against a perforation. That is not to say a furcal radiolucency is indicative of a particularly thin furcal wall or chamber floor. Nevertheless, it does behove the clinician to proceed cautiously.

The three primary roles of irrigation during instrumentation are to aid in the removal of débris, prevent excess heating of the dentine, and reduce the friction the instrument endures. Chemical cleaning of the canals is considered incomplete if active irrigation is not performed after completion of the mechanical preparation. After the confirmation of the fit a GP point in each canal I will perform active irrigation. Mechanical activation of the irrigants is critical and my regimen is as follows:

- Five seconds of active irrigation of each irrigant per canal
- First NaOCl, followed by EDTA, NaOCl, EDTA, and then a final rinse with chlorhexidine

Successful resolution of the furcal radiolucency is deemed to be due to the active irrigation and placement of bonded composite in the coronal fifth of each canal and on the chamber floor. I must admit a tincture of animus at the lack of a sealer puff in the furcal area on the post-op PA.

No endodontic treatment eradicates all the bacteria or pulpal débris. We do not 'sterilise' the canals or chamber per se; essentially, we eliminate a majority of the irritants and entomb the remnants to ensure viable bacterial colonies are not feasible. If a furcal radiolucency is due to pulpal pathology it too can be expected to respond favourably to modern endodontic treatment. In a sense, such furcal defects are not dissimilar to an apical radiolucency. All of us must strive to expurgate the overreaching negative assumptions about furcal radiolucencies and be less diffident as to their impact on the success of endodontic treatment.

Regards,

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