



Canal Obturation in Open Apex

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The meaning of obturating root canal is to substitute an inert filling materials in the prepared canal space in order to eliminate all avenues of leakage from the oral cavity or periradicular tissue into root canal system. Inadequate obturation induce the infiltration of periapical tissue fluids, which provide materials for growth of microorganisms or localization of bacteria, into dead space of loosely filled canal. Most parts of endodontic failure is attributed to inadequate obturation of root canal system.

Apical stop (matrix) must be established at 0.5mm to 1mm short of radiographic apex in order to develop fluid- tight seal at apical foramen and total obliteration of the root canal. However, open apex or blunderbuss apex do not permit the tight seal of obturation material and cause overextension of sealer and gutta percha beyond apical foramen due to the absence of apical stop (stop) or apical seat. Endodontic failure eventually occurs.

The placement of dentin chips or other artificial barriers such as calcium hydroxide, demineralized bone, tricalcium phosphate and collagen is often used to create apical stop (matrix) for the purpose of obtaining a biological apical seal before canal obturation. Mainly, calcium hydroxide or dentin chips are used for this purpose. This kind of artificial barrier is sometimes described as apical plug. Calcium hydroxide and dentin chips works equally well to prevent extrusion of sealer or gutta percha through the apex, and thus, are able to provide a hermetic sealing of canal. They are also provide enough apical stop against which gutta-percha is compacted by lateral condensation or even vertical condensation. Especially this approach become useful treatment for patents under time constraints.

Accordingly, although routine clinical use of this technique do not appear to be standard of care, promisingly results support the potential use of artificial barrier in the apical portion of open apex or blunderbuss canal.

In many cases, we meet the failure in controlling exudate from periapical tissue and in making artificial barrier on large open apex or blunderbuss canal. Under this kind of situation. Apical closure of large open apex or blunderbuss canal artificially induced with calcium hydroxide for 3 or 6 months, which is known as an apexification, also is another approaching method for solving the problem. If apexification do not produce the closure of open apex or blunderbuss apex, Endodontic surgical treatment should be carefully intervened to gain apical seal of canal.