ABSTRACT

Clinical and Radiographic Study of Vertical Root Fracture

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Vertical root fractures have been described as longitudinally oriented fractures of the root, extending from the root canal to the periodontium. They usually occur in endodontically treated teeth, although occurrence in non-restored teeth has been described. It can traverse the root in different directions mesially/distally or facially/lingually and may or may not involve the pulpal chamber.

If unrecognized, vertical root fractures can lead to frustration and inappropriate endodontic treatment. Diagnosis is sometimes difficult as there is often no single clinical feature which indicates that root fracture is present and sings and symptoms are often delayed.
Vertical root fractures that involved the gingival sulcus/pocket area usually have a hopeless prognosis due to continuous bacterial invasion of the fracture space from the oral environment. Single-rooted teeth will have to be extracted. In multi-rooted teeth a treatment alternative is hemisection and extraction of the fractured root. Where successful outcomes of conservative treatment have been claimed, the long-term prognosis has yet to be proven.

This study reviews the clinical characteristics, diagnostic signs, and possible causes of vertical root fractures and reports 3 cases of vertical root fractures.