

The Fourth Root in the Mandibular First Molar

The first mandibular molar can have an additional distolingual (DL) root (also known as Radix Entomolaris). This anatomical anomaly sometimes poses clinical challenges to endodontic treatment with the following clinical characteristics: 1. it occurs in high frequency among patients of Asian descent (reports of prevalence average to about 20%); whereas in Caucasian population, its occurrence is less than 5%. 2. the DL root usually offsets significantly towards the distolingual direction, aggressive searching for its orifice could lead to perforation (case 3-2). 3. the DL canal usually has a sharp mid-root or apical curvature towards the buccal direction, which is not fully appreciable on a straight angle PA radiograph; unawareness of this curvature can lead to file separation (case 3-1), apical blockage and short fill (case 6). The DL root is better revealed by PA radiographs taken at ~ 25 degree mesial shift angle, or the best, a CBCT scan (case 1). 4. the DL root is usually shorter and thinner than other roots (case 2); unawareness of its smaller size often results in over instrumentation, apical transportation, and apical overfill. We need to be able to anticipate, identify and treat the DL root canal appropriately to its anatomy without complications. Case 4, 5, 6 and 7 are actual clinical cases with this anatomy treated at our office. Happy New Year !

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