

Management of separated instruments during root canal treatment

The separation of an instrument during root canal treatment is a common reason for endodontic referral. The ideal solution for this complication is to have the separated instrument (SI) retrieved (Case 1, 2, 3). The key is to be able to do so without the risk of causing further complications (such as breaking another instrument or pushing the SI over the apex); and to do so with minimal collateral damage, which most often means without removing too much tooth structure. If the coronal part of the SI can be visualized, there is usually a good chance for its retrieval (Case 4 & 5). The high power of magnification and the high intensity of light from a surgical microscope can provide the necessary visibility to help achieving this goal, i.e., retrieval of the SI with a tolerable amount of tooth structure loss. If a SI is apical to the canal curvature, it almost always cannot be visualized without excessive removal of the tooth structure coronal to the SI, which in most cases is contraindicated. Sometimes, a “file braiding technique” can be applied carefully with success in such situations (Case 6). A SI at the very apical segment of a root canal is often impossible to retrieve with certainty and usually not worth running the risk of pushing it out of the apex. Apical canal dilaceration and bifurcation are the common reasons for such breakage (Case 7). A SI can sometimes be by-passed through nearby canal anatomy to achieve a good result without its actual retrieval (Case 8).

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