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One of the iatrogenic accidents in endodontic treatment is an instrument fracture within the root canal system. The majority of instruments fractured in root canals are reported to be NiTi. The literature shows the majority of NiTi instruments fracture, unfortunately, in the apical one-third or beyond the curvature in the canal because of the superelastic property of the NiTi file. An instrument fracture is very frustrating and instrument retrieval is considered to be even more challenging in endodontics than any other part of endodontic procedure. In addition, the instrument fracture immediately hinders the clinician from performing further treatment, and thus the outcome of the treatment will be compromised. Although the success rates of instrument retrieval with ultrasonics are in the range of 80 to 90 %, ultrasonic retrieval has never been 100 % successful and it is deemed to be unpredictable in terms of time and dentin sacrifice. Ultrasonic removal attempts especially from the apical one third of a curved canal often result in a significant amount of dentin sacrifice. On top of that, aggressive use of ultrasonics could lead to perforation and secondary fracture especially around a curve because there is no standardized technique for successful instrument retrieval. Therefore, in the workshop a standardized technique is suggested to retrieve a broken file to both maximize the success and minimize dentin sacrifice without causing iatrogenic events as it has been developed to be minimally invasive using a novel file retrieval kit. The recent literature has shown that the instrument retrieval with this technique was predictable and was significantly more successful and more conservative in dentin sacrifice than that with ultrasonics. The unique procedures in combination with CBCT for instrument retrieval will also be shown and discussed using contemporary concepts.

Objectives.

Participants who attend this workshop will be able to

1. describe the nature of instrument fracture
2. make an appropriate diagnosis and a treatment plan for broken instrument removal
3. understand the concept of broken file removal
4. prepare the canal for broken instrument removal
5. remove a broken instrument from the canal