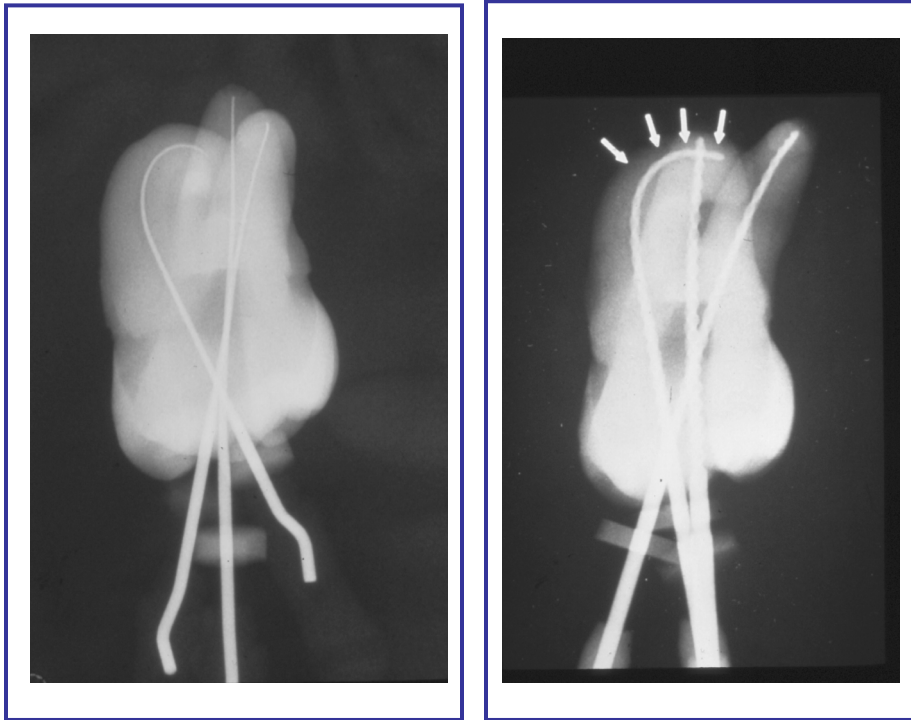


**32. How can we determine the largest file diameter or taper that can be used in curvatures that we are likely to encounter?**



*As the file diameter increases as it progresses around a curvature, stress on the file increases and canal transportation is more likely to occur.*

A severe curvature in the apical portion of the canal conceivably could be less threatening for file failure than a moderate curvature in the mid-root or coronal portion of the canal. When referring to the testing included in Section IV one can conclude that negotiating curvatures of unknown severity but frequently encountered anatomies, generally should be approached with **particular caution if 360 degrees of a file's circumference is engaged and if the file dimensions at the point of curvature are greater than a size 55 for .02 tapers, a 50 for .04 tapers, a 45 for .06 tapers, or a 35 for .08 tapers.** For instance, negotiating a curvature over 3 mm from the apex with a 25/06 that would have a .43 mm diameter should be done with caution. File diameter selection and technique modifications become especially important in avoiding failure when considering the position and severity of curvatures.

*Maximum File Sizes requiring particular caution*



*J.T. McSpadden*

*The maximum file sizes for this anatomy that should not be exceeded while instrumenting to working length include:*

- 1. Size 45/.02 taper*
- 2. Size 25/.04 taper*

*None of the ProTaper files or .06 taper files should be carried to length*

*6 mm from apex*

*A 90 degree curvature having a radius of 8 mm or less causes fatigue failure too quickly for instrumentation at the fulcrum of the curvature with file diameters .55 mm or more for .02 taper files or .50mm or more for .04 taper files. When the additional stress of torque is applied the diameter size needs to be reduced.*