ASME Technical Brief

Goal: outline mechanical testing of the tip to characterize the tip

*Tip Curvature:*

* describe curvature of the tip (refer to ASME CCM paper)
* pictures of tip taken from microscope
* include figure of tip reaching sinus tympani and attic

*Mechanical Testing:*

* Bending Shape assessment
  + For different bending angles, measure cable displacement (how much the finger piece rotated) and radius of curvature - schematic
* Tip force to break experiment
  + At straight (0deg), halfway bent, fully bent \*\*this hasn’t been tested before
  + Direction: along shaft, perpendicular to bending direction, into/away from bending direction
  + Compare to forces encountered during middle ear surgery, force to dissect soft tissues, etc. (generally <2N)
  + Results:
* Cyclic loading experiment
  + How many cycles until the tip breaks
  + Results:
* Torque experiment
  + When the instrument is introduced into the ear, the tip twists, and thus this test was performed to measure how much it can twist before it breaks or plastic deformation
  + Use Torque testing jig in the lab
  + Results: