Video: 2 minutes

Innovation: miniaturized bipolar forceps that are wristed

**Introduction:**

*Narrator*: “Endoscopic Neurosurgery is a new and growing field. Neuroendoscopic instruments are 1-2mm in diameter and are used to operate within confined workspaces whose dimensions vary in the 5-20mm range. Robotic neurosurgery wo uld provide surgeons with greater dexterity, precision and control. Electrocautery bipolars are an essential tool for neurosurgery to cauterize tissue and prevent excess blood loss. However, current electrocautery robotic surgical tool sizes are 8 mm in diameter

<show picture of our tool vs 8mm DaVinci cautery forceps tip>

And are too large to operate inside the confined workspaces of the brain. We propose a miniaturized bipolar, 2mm in diameter, to be teleoperated on the DaVinci Surgical Robot System for endoscopic neurosurgical cases.”

**Section 1: CAD Model** -> show the bending of the wrist and the actuation of the forceps on Solidworks (Alex)

*Narrator:* “We, the Centre for Image Guided Intervention and Innovation (CIGITI) at SickKids, present a new tool that is 2mm in diameter, can articulate and cauterize tissue.”

**Section2:** **Close up of tool working**

<Change scene: Close up of bipolar forceps opening and closing to cauterize chicken>

**Section 3: Working in Context**

<Change scene: skull, tool clamped on one side and tip approaching the hole in the skull, change camera angle to “inside the skull” where you can see the forceps touching the tissue, Kevin turns on the generator, forceps touch the tissue and show the foot pedal, cauterized tissue>