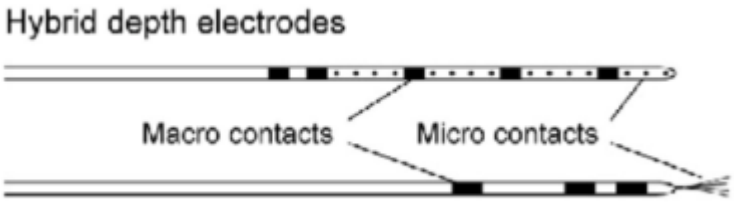
Hybrid Depth Electrodes



Carlson et al. from the Cedars-Sinai Medical Center reviewed the medical charts of 53 cases of medically refractory epilepsy operated on from 2006 to 2017, where both non-hybrid and hybrid microwire depth electrodes were used for intracranial monitoring.

They assessed the localization accuracy and complications that arose to assess the relative safety and utility of hybrid depth electrodes compared with standard electrodes.

A total of 555 electrodes were implanted in 52 patients. The overall per-electrode complication rate was 2.3%, with a per-case complication rate of 20.8%. There were no infections or deaths. Serious or hemorrhagic complications occurred in 2 patients (0.4% per-electrode risk). Complications did not correlate with the use of any particular electrode type, and hybrids were equally as reliable as standard electrodes in localizing seizure onset zones.

Hybrid depth electrodes appear to be as safe and effective as standard depth electrodes for intracranial monitoring and provide unique opportunities to study the human brain at single-neuron resolution [1].

1)
Carlson AA, Rutishauser U, Mamelak AN. Safety and Utility of Hybrid Depth Electrodes for Seizure Localization and Single-Unit Neuronal Recording. Stereotact Funct Neurosurg. 2018 Oct 16:1-9. doi: 10.1159/000493548. [Epub ahead of print] PubMed PMID: 30326475.