Intraoperative Cortical Mapping

General information

Indications

Typically used to locate the motor strip, sensory cortex, or speech centers intraoperatively for surgery in and around these eloquent areas. Localization of these areas based on visible anatomy alone is unreliable. These techniques are typically employed in seizure surgery as well as in treating lesions in areas of the eloquent brain.

Some techniques require an awake patient, with the surgery done under local anesthesia with sedation. Motor and sensory cortex can also be localized in anesthetized patients using SSEPs.

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see Cortical map.

The gold standard for cortical mapping, is direct electrocortical stimulation (DECS),

Sir Victor Horsley is credited with first utilizing intraoperative electrical stimulation for cortical mapping [1].

1)
Panczykowski DM, Monaco EA 3rd, Friedlander RM. Transcranial focused ultrasound modulates the activity of primary somatosensory cortex in humans. Neurosurgery. 2014 Jun;74(6):N8-9. doi: 10.1227/NEU.0000000000000365. PubMed PMID: 24836106.