MR Guidance of Neurosurgical and Endovascular Procedures



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- MR offers unique imaging capabilities that can benefit a range of interventional procedures
 Deforming procedures in the MB environment
- Performing procedures in the MR environment is challenging and requires that MR offers substantial benefit.





the surgeon optimize resection completeness and improve patient outcomes.

tumor resections can help



- Insertion of DBS electrodes can be performed on anesthetized patients in relatively short operative durations.
- Sub-mm targeting accuracy has been demonstrated in deep brain targets; only a single brain penetration is required.
- Clinical outcomes have demonstrated efficacy comparable to DBS electrodes inserted with conventional approaches.









Hybrid suites allow for the best use of each modality. Hybrid XR/MR suites offer promise for optimizing the treatment of acute stroke. Endovascular devices that are optimized to be both safe and visible on XR and MR would assist workflow within XR/MR suites.



Summary

- Intraoperative MR provides critical feedback on resection completeness
- MR guidance of minimally invasive neurosurgical procedures can provide accurate placement of devices
- MR can provide critical real time feedback on thermal ablation and the distribution of administered therapeutics
- Hybrid suites afford the opportunity to add high value MR assessments in a time efficient manner







- High targeting accuracy can be applied to other minimally invasive procedures.
- Laser ablations benefit not only from precise placement, but also the ability of MR to monitor temperature changes.
- Precise placement of CED infusion cannulas and real time monitoring of infusate distribution assures that the administered therapeutic achieves the desired anatomical coverage.



