Dokumenttyp: journal article

Autor(en) des Beitrags: Buchmann, N; Gempt, J; Stoffel, M; Foerschler, A; Meyer, B; Ringel, F

Titel des Beitrags: Utility of diffusion tensor-imaged (DTI) motor fiber tracking for the resection of intracranial tumors near the corticospinal tract.

Abstract: Treatment of intracranial tumors near the corticospinal tract remains a surgical challenge. Several technical tools to map and monitor the motor tract have been implemented. The present study aimed to assess the utility of diffusion tensor imaging (DTI) fiber tracking in the surgical treatment of motor eloquent tumors at our institution. Patients operated for intracranial tumors close to the motor tract with the use of intraoperative image guidance including DTI fiber tracking of the corticospinal tract and intraoperative motor evoked potential (MEP) monitoring were analyzed. The intraoperative utility of fiber tracking data was analyzed. Furthermore, preoperative MRI scans with and without motor fiber tracking were reevaluated post hoc for tumor relation to the motor tract, estimated resectability, and best approach. Thereby, the utility of fiber tracking in surgical planning was assessed. Nineteen patients were analyzed. The estimation of tumor localization in relation to the motor tract and of resectability was not influenced by fiber tracking in any of the cases. Only in one single case did evaluating surgeons change their surgical approach after the addition of the fiber tracking data. In all cases, fiber tracking included in image guidance did not change the intraoperative strategy, while MEP monitoring did. DTI fiber tracking did not influence the surgical planning or the intraoperative course. However, it...
is still used at our institution due to its ease in acquisition and its potential impact in a larger series. Furthermore, more experience with this technique is required to lead to a technical improvement.