



弥散张量成像纤维束示踪技术显像弓形束及术中弓形束导航的可行性分析

赵岩^{1,2}, 陈晓雷¹, 王飞¹, 孙国臣^{1*}

¹中国人民解放军总医院神经外科, 北京100853; ²南开大学医学院, 天津300071

Application of Diffusion Tensor Imaging-based Arcuate Fasciculus Tractography and Intraoperative Arcuate Fasciculus Navigation

ZHAO Yan^{1, 2}, CHEN Xiao-lei¹, WANG Fei¹, SUN Guo-chen^{1*}

¹Department of Neurosurgery, Chinese PLA General Hospital, Beijing 100853, China; ²Medical School of Nankai University, Tianjin 300071, China

摘要

参考文献

相关文章

Download: PDF (1263KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 目的 初步探讨弥散张量成像纤维束示踪技术显像弓形束及术中弓形束导航在神经外科手术中的可行性。**方法** 85例接受术中磁共振及神经导航辅助治疗的大脑半球肿瘤患者分为左侧大脑半球肿瘤组 ($n=55$) 和对照组 ($n=30$)，术前均行常规磁共振成像及弥散张量成像检查，通过纤维束示踪技术显像弓形束并与神经导航系统整合指导手术，分别于术后2~4周、3~6个月随访患者的弓形束显像及语言功能。**结果** 所有患者手术前均实现了弓形束的显像，左侧大脑半球肿瘤组患者将三维显像的弓形束图像整合入神经导航系统后通过显微镜下导航指导手术，在术后长期随访中仅4例存在语言功能障碍。**结论** 弥散张量成像纤维束示踪技术能够显像弓形束并与术中导航系统整合，改善外科手术对语言功能区肿瘤的治疗效果，帮助患者最大程度保留语言功能，提高术后生活质量。

关键词: 弥散张量成像 纤维束示踪技术 弓形束 神经导航

Abstract: Objective To investigate the feasibility of applying diffusion tensor imaging (DTI)-based arcuate fasciculus tractography and intraoperative arcuate fasciculus navigation for neurosurgery. Methods Totally 85 patients with interhemispheric tumors who had undergone intra-operative magnetic resonance imaging (MRI) and neuronavigation were divided into sinistrocerebral tumor (SCT) group ($n=55$) and sham group ($n=30$). All patients accepted routine MRI and DTI preoperatively. The Results from both DTI-based arcuate fasciculus tractography and neuronavigation were applied to guide the surgery. All patients were followed up for 2 - 4 week in the SCT group and 3 - 6 months in the sham group postoperatively. Results All patients smoothly received the pre-operative DTI-based arcuate fasciculus tractography. The three dimensional arcuate fasciculus was successfully integrated with the neuronavigation and achieved microscope heads-up display. Long-term follow-up showed that there were only 4 patients suffered from persistent language dysfunction. Conclusions The combined application of DTI-based arcuate fasciculus tractography and intraoperative arcuate fasciculus navigation is feasible for guiding brain surgery. It can improve the surgical outcomes of intracranial tumor involving language functional area. The technology also maximizes the retention of language function and improves the post-operative quality of life.

Keywords: diffusion tensor imaging tractography arcuate fasciculus neuronavigation

Received 2011-04-15;

Fund:

国家自然科学基金 (NSFC 30800349)

Corresponding Authors: 许百男 Email: sjwkk@sina.com

引用本文:

赵岩, 陈晓雷, 王飞, 孙国臣. 弥散张量成像纤维束示踪技术显像弓形束及术中弓形束导航的可行性分析[J] 中国医学科学院学报, 2011, V33(5): 499-503

ZHAO Yan, CHEN Xiao-lei, WANG Fei, SUN Guo-chen. Application of Diffusion Tensor Imaging-based Arcuate Fasciculus Tractography and Intraoperative Arcuate Fasciculus Navigation[J] CAMS, 2011, V33(5): 499-503

链接本文:

http://www.actacams.com/Jwk_yxkxy/CN/10.3881/j.issn.1000-503X.2011.05.005 或
http://www.actacams.com/Jwk_yxkxy/CN/Y2011/V33/I5/499

Service

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [Email Alert](#)
- ▶ [RSS](#)

作者相关文章

- ▶ [赵岩](#)
- ▶ [陈晓雷](#)
- ▶ [王飞](#)
- ▶ [孙国臣](#)