

NEURONAVIGATION FOR SURGERY OF MULTIPLE BRAIN LESIONS

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Background. This study retrospectively analyzes our experience using neuronavigation (NN) for surgery of multiple brain lesions from 2000 to 2004.

Materials/methods. Since November 2000 NN was used as a standard option in our clinic in brain surgery. Formerly Zeiss SMN system was used, but since September 2002 - Metronic Treon Stealth Station system. Totally 200 operations were performed using neuronavigation for 181 patients. From these in 15 cases NN for simultaneous extirpation of more than one brain lesion during one surgery session was used. Male/female ratio was 8/6. Age range was 19 - 87, mean age - 56.6. In 13 cases 2 lesions were resected, in 2 cases - 3 lesions. Preoperative investigation was done with Siemens Symphony 1.5 Tesla MRI using 3-D T1 sequence, in some cases fused with FLAIR sequence or angiography scans. As software Treon Cranial application Mach 4.1 was used. All operations were performed with Carl Zeiss OPMI 200 NC4 microscope and CUSA Excell ultrasound aspirator.

Results. The morphological finding in patients with multiple lesions was as follows: MTS - 9 cases, meningeoma - 4 cases, cavernous hemangioma - 1 case, angiosarcoma - 1 case, AVM - 1 case. One patient had AVM and meningeoma simultaneously. In 9 cases lesions were on one side, in 6 - on both sides. In 3 cases lesions were both supra- and infratentorially. All NN operations were done technically successfully. Mean NN accuracy was 0.6 - 1.8 mm. No lethality was encountered in connection with equipment itself. No neurological worsening was observed in the early postoperative period.

Conclusions. NN gives the opportunity for more radical surgery allowing to extirpate multiple lesions during one operative session thus saving the total time of treatment. In the treatment of multiple MTS the NN is an alternative option to Gamma knife treatment.