

Brain Mapping And Awake Surgery For Intracranial Lesions

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Anatomical and functional neuroimaging are currently regarded by most as vital in planning for brain surgery. Functional neuroimaging is capable of demonstrating functional aspects of the brain and they may reveal a greater area of involvement than structural neuroimaging. This is called a structural versus functional mismatch. Our experience in both extra-operative and intra-operative mappings using functional MRI (fMRI), magnetoencephalography (MEG), diffusion tensor imaging (DTI), brain atlas (BA), electroencephalography (EEG), subdural and depth electrocorticography (ECoG) and/or awake surgery are presented. The combination of both techniques helps us in carrying out brain surgery for tumours, epilepsy and vascular pathologies in a safer way. Preservation of neurological functions is one of our main intentions and highlighted in this presentation. Besides neurosurgical-related presentation, neuroscience aspects of brainwaves and its origin which might be related to the seat of the human soul, and microgravity are briefly discussed. Based on these salient features, awake brain surgery should not be done in some areas of the brain.