Space-Occupying Lesions of the Sensori-Motor Region

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Summary

Successful surgery of the sensori-motor region requires precise pre- and intraoperative localization of the sensori-motor region and pyramidal tract. Important aids are the landmarks of cranio-cerebral topography, coronal suture and bregma and the sulcal anatomy of the sensori-motor region, which can be identified in CT or MR images. Due to considerable displacement and distortion of the anatomical structures, elicited by mass lesions, these aids often fail to render reliable support. In this situation, identification of the motor area can be achieved by electrical stimulation of the precentral gyrus in association with the recording of somatosensory evoked potentials of the pre- and postcentral gyrus. The localisation of the “motor mosaics” in relation to the lesion, enable determination of the direction of displacement of the motor strip and the fan of the pyramidal tract. Based on this information the most appropriate route of access to the lesion is selected, either transcortical or transsulcal. Lesion-specific operative techniques as well as location-specific approaches are discussed. With consequent application of these principles the risk of a new persistent motor deficit was as low as 4%. Thus, the indication for surgery in this area can now be set with greater confidence and far more generously than in the past.