Electrostimulation of the brain cortex is a safe, simple and precise method for identification of the brain motor zone which enables prevention of additional postoperative deficit and higher level of surgical radicalness [1].

Patients harboring tumours in close relationship with the motor cortex were operated on with image-guided mini-invasive approach and multimodal neurophysiological monitoring. The peculiarity is the partial exposure of the motor cortex and the limited electrophysiological mapping used to search for negative spots. Multimodal neurophysiological monitoring comprised the electrocortical stimulation, somatosensory evoked potentials, motor evoked potentials and subcortical electrostimulation. Ultrasonography guided the tumour removal. The post-op clinical motor scores and the extent of resection were assessed.

Twelve patients were operated on with the combined approach and were further analyzed. Six had high grade gliomas, 1 anaplastic astrocytoma, 1 oligodendroglioma, 1 pilocytic astrocytoma and three had metastasis. One out of twelve had a worsening of the motor scores at the last follow-up. The mean extent of resection was 90% ranging from 60% to 100%, but in 9 out of 12 patients, it reached or exceeded 90%.

The synergic strategy comprising intraoperative multimodal neurophysiological monitoring and the ultrasound sonography is feasible in all surgeries. Data are promising in terms of both clinical motor scores and extent of resection. This strategy represents an alternative approach to the treatment of supratentorial tumours, although further studies are necessary to confirm the long-term efficacy of this procedure [2].

see Glioblastoma multiforme in the motor area

1)
Tasić GM, Nestorović BD, Milić IS, Nikolić IM, Jovanović VT, Bogosavljević V, Janićijević AM, Radosavljević M. [Operative treatment of primary brain tumors localised in motor zone with direct corticalis electrostimulation–series of 62 patients]. Acta Chir Iugosl. 2011;58(1):53-9. Serbian. PubMed PMID: 21634104.
2)
Cordella R, Nava S, Prada F, Agnoletti A, Legnani F, Dimeco F. Ultrasound guided mini-invasive tailored approach and intraoperative neurophysiological monitoring. A synergistic strategy for the removal of tumours near the motor cortex. A preliminary experience. J Neurosurg Sci. 2016 Mar 11. [Epub ahead of print] PubMed PMID: 26967717.