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New hope in brain glioma surgery: The role of Intraoperativeultrasound- A review

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Abstract

Maximal safe resection represents the gold standard for surgery of malignant braintumors. As regards gross-total resection, accurate localization and precise delineation of the tumor margins are required. Intraoperative diagnostic imaging (Intra-Operative Magnetic Resonance-IOMR, Intra- Operative Computed Tomography-IOCT, Intra-Operative Ultrasound-IOUS) and dyes (fluorescence) have become relevant in brain tumor surgery, allowing for a more radical and safer tumor resection. IOUS guidance for brain tumor surgery is accurate in distinguishing tumor from normal parenchyma, and it allows a real-time intraoperative visualization. We aim to evaluate the role of IOUS in gliomas surgery and to outline specific strategies to maximize its efficacy. We performed a literature research through the Pubmed database by selecting each article which was focused on the use of IOUS in brain tumor surgery, and in particular in glioma surgery, published in the last 15 years (from 2003 to 2018). We selected 39 papers concerning the use of IOUS in brain tumor surgery, including gliomas. IOUS exerts a notable attraction due to its low cost, minimal interruption of the operational flow, and lack of radiation exposure. Our literature review shows that increasing the use of ultrasound in brain tumors allows more radical resections, thus giving rise to increases in survival.

Biography

Natale Francaviglia is a neurosurgeon and Head of Neurosurgery Departmentin ARNAS Ospedale Civico-Di Cristina, Italy

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