

NEURONAVIGATION IN MOLDOVA. ULTRASOUND-GUIDED NEUROSURGERY

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Introduction: Recent advances in probe technology, image fusion, 3D techniques have provided significant improvements to image quality. By integrating neuronavigation and 2D ultrasound it is possible to create 3D US volumes and to navigate directly based on 3D US data.

Methods: We have used a system (SonoWand Invite) where the 3D US volume is reconstructed from 100–200 2D images, created by making a move or tilt over the area of interest with a precalibrated and tracked US probe. The optical tracking system reads the position of the patient reference frame and the US probe. In addition to tissue images it is also possible to make images of vessels (US angiography) based on recordings of the power Doppler signals from the blood stream.

In our practice the main applications of intraoperative ultrasound (iUS) were: neurooncology (tumour localization, tumour resection control - corpus callosum glioblastoma, third ventricular cranio-pharyngioma, occipital anaplastic astrocytoma, recidivant vestibular schwannoma); vascular (ACoA aneurysm, AVM Spetzler-Martin grade 4), spontaneous intracerebral hemorrhages.

Lesion localization and planning of optimal approach: once the craniotomy has been performed, the iUS can be used to localise the lesion and neuroanatomical structures such as the ventricle, falx, main vessels and to assess the brain shift (responsible factors - gravity, brain swelling, loss of CSF, tumour debulking). At the end of the procedure, once the dura is closed but before bone replacement, a quick iUS scan facilitates assessment of early hemorrhage or hydrocephalus.

Resection control: in lesions with clear margins before resection, iUS can be used to check if the resection is complete.

Vascular structures: power Angio provides information on blood flow and vasospasm in AVM and aneurysm surgery. This allows real time evidence of vessel patency or flow disruption following clipping, and facilitates identification of an aneurysm within a haematoma.

Results: Using neuronavigation system with integrated US in our practice helps us to optimise neurosurgical treatment of the: supra- and infratentorial tumours, AVM, aneurisms, spontaneous intracerebral hemorrhages.

Conclusion: iUS provides low cost real time imaging that is easy to use and has a rapid learning curve. With the future development of ultrasound technology intra-operative 3D US will be used on a daily basis in most neurosurgical departments.

Keywords: Intra-operative imaging, 3D Ultrasound, Brain Shift, Neuronavigation, Neurosurgery, Ultrasound.

HEALTH LITERACY AND BELIEFS ABOUT MEDICINES IN AN OBSTETRIC POPULATION AT CORK UNIVERSITY MATERNITY HOSPITAL (CUMH)

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Aims: The goal of this project was to assess the impact of demographic factors on both health literacy and medication beliefs and to determine the relationship between health literacy and beliefs about medicines