Imaging fusion

To The Editor: We are interested in the technique noted by Kocer et al.1 (Kocer N, Kizilkilic O, Babic D, et al: Fused magnetic resonance angiography and 2D fluoroscopic visualization for endovascular intracranial neuronavigation. Technical note. J Neurosurg [pub ahead of print December 14, 2012. DOI: 10.3171/2012.11.JNS111355]).

Endovascular intervention is a critical procedure for the treatment of intracranial vascular lesions requiring contrast medium to guide the vascular road map. Kocer et al.1 used an imaging fusion technique in combination with MR angiography (MRA) and 2D fluoroscopic visualization for endovascular intracranial neuronavigation in the management of an internal carotid artery cavernous aneurysm with a stent. They demonstrated that the imaging fusion technique successfully reduced the use of the contrast agent, avoiding the potential risk of renal impairment.

We fully agree with their opinion. Actually, this imaging fusion technique provided not only a reduction in contrast use, but also minimized the exposure of radiation to doctors and staff. Moreover, the technique has great potential in application to embolization of arteriovenous malformations (AVMs). Furthermore, it could be applied to aid confidently in the recognition of the feeding artery in microneurosurgery for resection of an AVM.

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Disclosure
The authors report no conflict of interest.

Reference

RESPONSE: We would like to give our thanks to Liu et al. for their interest in our technical note.

The authors mentioned that they fully agreed with our opinion and emphasized that the imaging fusion technique could minimize radiation exposure for doctors and staff, and reduce the use of contrast medium. Additionally, they mentioned the potential of this technique in AVMs.

We also think the technique could have a potential use in the treatment of cerebral AVMs. The 3D MRA-MRI fusion has advantages, such as determination of exact location of the AVM to prevent additional damage during surgical access and to facilitate the procedure, identifying arterial feeders and drainage veins in complex AVMs.

As techniques improve, our ability to use this kind of treatment option, especially in proximal aneurysms, is feasible. The chance of cisternal localization of distal arteries being changed by the microcatheter and guidewire should be kept in mind during navigation. Digital compensation methods are also improving. All dose-reduction techniques in combination with such technology will help and may force us to change our daily practice in the near future.

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Two-handed endoscopy

To The Editor: We read with interest the paper by Cutler et al.1 on two-handed endoscopic technique for vestibular nerve sectioning (Cutler AR, Kaloostian SW, Ishiyama A, et al: Two-handed endoscopic-directed vestibular nerve sectioning: case series and review of the literature. Clinical article. J Neurosurg 117:507–513, September 2012). We have used and previously reported a similar two-handed, single-operator endoscopic technique for interhemispheric transcortical resection of thalamic tumors and subtorcular resection of pineal lesions.2,3 We used a 0° Wolfe endoscope with a mounted rigid suction attachment and channel for intermittent irrigation as described in our papers. As in the technique described by the authors, the suction-mounted endoscope is held in the left hand while the right hand dissects with regular bipolar cautery forceps or resects with an ultrasonic aspirator under endoscopic vision. We had a similar experience with regard to improved magnification, dissection, and illumination. Furthermore, unlike the instrumentation used by the authors, the additional irrigation line in our mounted endoscope facilitated the operative technique.

Through the authors’ experience with vestibular neurectomy, they report that improved maneuverability and light intensity from this two-handed endoscopic technique “virtually eliminates” deficiencies of 2D viewing. However, in our experience, using this technique for more
complex dissection and tumor resection requires a significant learning curve. Movement and light shadow cues from an endoscope do not provide the same visual depth perception and ease of understanding the structural relationships that a microscope allows for when used for complex dissections. We attached a Stealth probe to the endoscope in our technique for intraoperative guidance to compensate to some degree for the lack of stereoscopic vision.

The single-operator endoscopic technique facilitates procedures performed in a variety of patient positions (for example, supine, prone, lateral, park-bench, sitting) with improved maneuverability and positioning comfort of the operator over the traditional microscope. Difficult-to-access and deep-seated tumors that may be firm, vascular, or attached to critical structures can be safely removed with the improved magnification from the endoscope in combination with the bimanual dexterity achieved with the attachments to the endoscope in the two-handed-technique. We agree that the single-operator, two-handed endoscopic-directed approach is both safe and effective for a variety of procedures. The recent progress made in 3D endoscopic devices may further advance this technique.

The authors report no conflict of interest.

References


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Traumatic head injury


Traumatic head injury caused a breakdown of the blood-brain barrier and led to the spreading of lymphocytes into brain parenchyma with progression of an inflammatory process in the brain. Sánchez-Aguilar et al.1 performed a clinical trial to investigate the effect of rosuvastatin on inflammation-related cytokine profiles. They found that rosuvastatin significantly reduced the tumor necrosis factor–α level. Moreover, the treatment with rosuvastatin was correlated with a decrease in disability scores and better functional outcome.

Since rosuvastatin belongs to a family of histone deacetylation inhibitors, it may turn on some inflammation-regulated genes.2,3 The changes in gene expression profiles are one of the major issues in statin-treated studies that could be addressed in the future.

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References


RESPONSE: The relevance of immunological phenomena activated after traumatic brain injury is widely recognized in such a way that therapies approaching this target could be promising.2 Our study of rosuvastatin demonstrated an effect on tumor necrosis factor–α levels and the association between this therapy and a possible reduction in disability. Admittedly, one trial cannot demonstrate all the possible benefits or collateral effects of a new drug’s application. Common problems of trauma studies should be considered (sample size, population heterogeneity, and so forth) in the interpretation of our results.1,2 Moreover, we have measured the cytokine levels in plasma, and so we could be speculating that a measurement in CSF or cerebral tissue would be more exact.3 Gene expression in brain tissue and regulation of leukocyte cell populations are other aspects to consider. We should not forget that statins act not only as regulators of inflammation but also as promoters of neuroplasticity, antioxidation, and improvements in microcirculation.4 All of these possible mechanisms could not be easily translated into clinical trials. However, if we considered the experimental and