The authors have attempted to utilize intraoperative ultrasonography to characterize criteria for malignancy of the lesions operated upon for this investigation. Of course, it was a preliminary diagnosis made on the basis of case history and preoperative imaging studies. These hypotheses, however, can be confirmed or rejected with additional information obtained by intraoperative imaging. Malignant gliomas and brain metastases were assessed. From these observations, the authors establish several criteria suggestive of malignancy during intraoperative ultrasonography. This should be useful, e.g. in an environment where frozen sections are not available. The major drawback is that nonmalignant tumours were not assessed in this study and thus, no control group is available. Ultrasonography was furthermore used to check the extent of resection. Whatever to date is the gold standard of intraoperative imaging in intrinsic brain tumours; any technique will help to more precisely document the extent of surgical resection than what the surgeon feels. Technology adds information to the surgeon's estimate of the resection volume. Several techniques are available for intraoperative imaging. While ultrasonography, which is widely available, requires specific manual skill and expertise of the investigator, other intraoperative imaging techniques, such as computerized tomography or magnetic resonance scanning, are expensive and require additional space. Thus, only a minority of neurosurgeons have access to the latter technologies. However, it still remains to be shown that with more aggressive surgery, the patient's prognosis will improve.

For the past two decades, intraoperative ultrasonography (IOUS) was a well-established true real-time imaging instrument in brain surgery. Long before the advent of modern intraoperative CT and MR devices, this helpful tool could assess intraoperative orientation as well as facilitate effective tumor resection. Hence, its daily use depends on the specific experience of the user. Usually neurosurgeons are not familiar with ultrasonographic imaging to use it in their daily routine. Maybe because of this in the Scientific Echo statements heralding the benefits of the use of IOUS were low. Furthermore, the upcoming neuronavigation methods made the IOUS fall into desuetude.

Currently, modern neurosurgery is debating the benefits of neuronavigation in brain tumor surgery as the facilitation through resection via intraoperative CT and MR imaging. The most interesting feature for me is that modern ultrasonographic devices can offer both in one with far lower costs. There are promising data in the literature about the effectiveness of the new methods, showing that ultrasonographic resolution is equal to that of CT and MR imaging. For all the centers in the world with lesser resources, IOUS can indeed be an alternative to the expensive MR devices that have come into use.

From this angle, the present article deserves interest. Neurosurgeons have to familiarize themselves (again) with the use of intraoperative ultrasonographic devices and the imaging data they obtain before, during and after their resection work.

The intention of the authors was to characterize features of malignant brain tumors obtained from IOUS. The number of patients (40) seems to be appropriate for the purpose of comparing the sonographic appearance and configuration of cystic, solid, and necrotic parts of various malignant lesions. However, why is it important to ‘predict’ intraoperatively ‘the pathological nature of the lesions?’ What then is the value of the frozen section? And why do they not restrict their description merely to, for example, Grade IV malignant gliomas?

I am confused in the light of the fact that the study population comprised an inhomogeneous mix of patients with ‘previously operated and irritated recurrent tumors, metastatic malignant lesions’ and true ‘primary malignant glial tumors!’ From my operative experience, the excision of well-delineated metastatic lesions (mostly capsulated) differs significantly from that of intrinsic gliomas.

Therefore, for me the demonstrated features such as necrotic parts, perilesional edema, irregular contour and contrast enhancement could be more of intraoperative help in orientation and consequent tumor removal than in differentiating between various histological entities. All the further results of the paper are somehow related to this, which is my major objection, so I abstain from discussing them.

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