EDITORIAL COMMENTARY

Normal magnetic resonance imaging and epilepsy surgery

Two broad principles should be followed when assessing patients for epilepsy surgery. Firstly, the evaluation requires a multidisciplinary team and secondly, patients should be offered surgery whenever possible on the basis of congruence of non-invasive tests. One of the difficulties that arises, however, is that patients with a definite history of intractable focal epilepsy may have either non-localising or non-congruent investigations. If this occurs then such discrepancies should be resolved by intracranial EEG.

Scott *et al* (this volume, pp 69–71) report their experience with an important group in which high resolution MRI was normal. This occurred in 20% of their patients but may be much more common in non-surgical series. Out of their 36 patients evaluated with scalp telemetry, 13 had a non-localising electroclinical syndrome. In such cases there would be widespread agreement in all epilepsy surgery programmes that further presurgical evaluation should be abandoned. Their arguments that intracranial EEG should not be carried out in another 17 cases, many of whom on clinical grounds seemed to have temporal lobe epilepsy, are less convincing. Only five patients had this investigation, of whom three were offered surgery. As the remaining patients were not actually evaluated they seem to be merely stating their practice rather than providing convincing evidence that it is indeed correct. The rationale for rejecting six patients because of discordant interictal and ictal scalp EEG and another nine who despite lateralised psychometric findings had discordant ictal EEG is not clear. Indeed many centres would conclude the reverse and consider such discordant data as one of the principal indications for intracranial EEG. Whereas they rightly point out the cost and risks associated with depth electrode studies many of these patients might have been offered surgery on the basis of subdural EEG recordings, which are far less invasive. Even before advances in neuroimaging depth studies were only carried out in a small proportion of highly atypical cases.¹

If the MRI is normal then functional imaging using ictal SPECT or FDG PET and intracranial EEG should be

considered. Chauvel *et al* have reported excellent results with this approach in non-lesional frontal epilepsy which can be one of the most severe and disabling epilepsy syndromes.² A similar approach followed by multiple subpial transection can be used if the focus involves eloquent cortex.³

The identification of non-invasive predictors of operative outcome is an important area of research and worthy of further study. There is, however, a more general problem in all of the medical literature assessing the usefulness of particular investigations in presurgical evaluation. If undue reliance is placed on the result of one individual test then patients are only admitted to the programme or operated on if the test is abnormal. Prophecies may then become self fulfilling. New technology should not be considered a substitute for a detailed clinical assessment. Large and highly successful epilepsy surgery programmes existed long before the introduction of high resolution MRI, or indeed the widespread use of intracranial EEG.⁴ In particular, physicians caring for patients with intractable focal epilepsy should not be deterred from referring them for surgical evaluation on the basis of an MRI evaluation which was reported to be normal.

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- 1 Binnie CD, Elwes RDC, Polkey CE, *et al*. Utility of stereoelectroencephalography in preoperative assessment of temporal lobe epilepsy. *J Neurol Neurosurg Psychiatry* 1994;57:58.
- 2 Chauvel P, Kliemann F, Vignal IP, *et al*. The clinical signs and symptoms of frontal lobe seizures: phenomenology and classification. In: Jasper HH, Riggio S, Goldman-Rakic PS, eds. *Advances in neurology*. Vol 66. New York: Raven Press, 1995;115–26.
- 3 Sawhney IMS, Robertson ITA, Polkey CE, *et al*. Multiple subpial transection: a review of 21 cases. *J Neurol Neurosurg Psychiatry* 1995;58:344–9.
- 4 Bruton CJ. The neuropathology of temporal lobe epilepsy. Maudsley monographs. No 31. Oxford: Oxford University Press, 1988.