Reviewer's report

Title: Post-stroke epilepsy as the presenting feature of Cerebral Misery Perfusion: a case report

Version: 2 Date: 21 May 2009

Reviewer: Jean-Claude Baron

Which of the following following best describes what type of case report this is?: Findings that shed new light on the possible pathogenesis of a disease or an adverse effect

Has the case been reported coherently?: No

Is the case report authentic?: Yes

Is the case report ethical?: Yes

Is there any missing information that you think must be added before publication?: Yes

Is this case worth reporting?: Yes

Is the case report persuasive?: Yes

Does the case report have explanatory value?: Yes

Does the case report have diagnostic value?: Yes

Will the case report make a difference to clinical practice?: Yes

Is the anonymity of the patient protected?: Yes

Comments to authors:

This case report is interesting mainly thanks to the use of BOLD imaging to map cerebrovascular reserve (CVR). Apart from that, there are a number of inconsistencies throughout the manuscript that need be rectified in a thorough revision.

• The title “Post-stroke epilepsy as the presenting feature of Cerebral Misery Perfusion: a case report” does not reflect the content of the paper. For instance the issue of epilepsy in misery perfusion is not addressed at all in the Discussion, which focuses on the BOLD imaging findings and the management of cerebral misery perfusion, highlighting the high risk of ipsilateral stroke in this situation which effectively affected the reported case. Further, the issue of epilepsy in this
patient is not well presented. It is said that he had “primary focal seizure with secondary generalisation and mild post-ictal right-sided weakness”, which is quite convincing. However, it is not stated if he was started on anticonvulsants following this episode. “A repeat MRI showed a new infarct in the right anterior cortical watershed territory”, which I accept but it is unclear whether the authors consider the primary focal seizure as concomitant to this “new” infarct or whether it was just a straightforward post-stroke seizure which led to the discovery of a “new” asymptomatic infarct. The subsequent “collapses” associated “loss of consciousness preceded by right-sided weakness”. They were “variably associated with involuntary jerky movements of his body, starting on the right side”. This description is not precise enough. Did these events occur despite appropriate treatment with AEDs? Do the authors consider them as “epileptic” (i.e., focal motor seizure with secondary generalization) or do they represent episodes of ischemia distal to the occlusion (but then why would loss of consciousness occur?). Another point to discuss is “limb-shaking TIAs”, which to my surprise is not addressed at all in this report, despite being widely published and routinely diagnosed in TIA clinics. There are in fact papers that address the possible link between limb-shaking TIAs and “epilepsy” (see e.g. Han Neurology 2004).

- Regarding the left carotid occlusion, if this was due to dissection then a good fraction of these will recanalize in the subsequent 3-6 months. Were f/u carotid Dopplers obtained, and if so did they show persistence of the occlusion (obviously very likely in view of the subsequent events and the BOLD data). If not then just looking at flow voids on available MRIs could do the job.

Minor points:

- Abstract: This will need to be revised based on changes made in the core text.
- Introduction: Again the highlight on seizures in the first paragraph may need to be revised if the focus of the Discussion is on other aspects of this case. Duration of follow-up in the St-Louis carotid occlusion study should be indicated. Several other prospective studies using PET, SPECT or TCD (reviewed in Momjian-Mayor Stroke 2005) have shown similar findings as the latter study which should be mentioned to strengthen the point.

- Case presentation: The distribution of the acute right hemiparesis (i.e. whether it involved face, arm and leg or just arm, as would be expected for cortical watershed) should be clarified. The method to look for intramural hematoma on MRI should be indicated as well as the date of the MRI relative to the stroke. It appears digital subtraction angiogram was not performed. Can the comment at all on collateral circulation supplying the left carotid territory?

- Figure 2: the loss of CVR clearly predominates in the watershed territories in these maps.
- Discussion: There are two or three studies that have compared vasodilatory challenge results to OEF in patients with carotid occlusion (e.g. Yamauchi H, JNNP) that the authors may wish to cite in support of their interpretation. The primary aim of EC-IC bypass is to increase the CPP. The cause for the fundamental weakness of the EC-IC bypass study was not really that the
techniques were “under development at the time” but that the organisers of the trial had very poor insight into the pathophysiology of hemodynamic cerebral ischemia, which had in fact been well described (see Ref 3). Regarding the JET trial, there is a more accessible reference (Mori E, International J. Stroke, 2008, 3, Suppl 1: 55). The conclusion of the Discussion may need rewording re: the seizure issue.

Quality of written English: Acceptable

Declaration of competing interests:

I declare that I have no competing interests.