Note prepared on 16th February 2012 by Dr Waney Squier in response to questions posed by Professor Fenella Kirkham on 15th February 2012

I have reviewed all the brain sections with Professor Kirkham's specific questions in mind.

1. Can she exclude cerebral malformations?

The cerebral cortex is not well sampled and there are no sections including insular or perisylvian cortex. There is no evidence of cortical malformation in any of the cortical sections I have examined. There is no evidence of cortical malformation in the photographs of the whole fresh or fixed brain.

2. Can she exclude venous sinus thrombosis? If not how should the autopsy have been done to facilitate exclusion of this diagnosis?

I have seen no evidence of venous thrombosis. In cases I have examined there is usually prominent cortical vein congestion and dilatation, subpial and subarachnoid bleeding and oedema or perivascular bleeding in the cortex and immediate subcortical white matter. I saw none of these features in Adam's brain. There were no congested cortical vessels in the macroscopic photographs of the brain surface. The diagnosis should be sought at autopsy by careful examination of all the dural sinuses.

3. Can she exclude PRES?

The pathology of PRES is not well described, I am aware of only one paper which I had the opportunity to review some years ago. I no longer have the manuscript; but recall that there was little strong evidence or control material to support a neuropathological basis for the diagnosis. I have read the abstract by Kheir et al. sent to me by Professor Kirkham.

The hindbrain in Adam's case has been relatively well sampled. Dilated perivascular spaces are seen in Adam's brain and are typical of oedema. Macrophages, fibrinoid necrosis and acute haemorrhage are not seen, nor are the vascular changes described in acute hypertensive encephalopathy seen. There is no evidence of any specific vascular pathology such as Kheir et al describe.

I do not believe there are any reliable neuropathological criteria on which to base the diagnosis of PRES. One abstract is available and there are no illustrations of the findings. Based on this very limited information I am unable to find any features said to be associated with this condition.