LETTER TO THE EDITOR

Reply: Occipital bending in depression

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Sir,

We thank Professor Siebert for this comment and interest in our recent article regarding occipital bending in depression. The focus of our article was to investigate the prevalence of occipital bending in this patient group relative to control subjects, and our findings suggest that this is separate to previous findings of asymmetry or cortical thinning in the occipital lobe (Peterson et al., 2009). We hypothesized that incomplete neural pruning may lead to the cranial space available for brain growth being restricted, or ventricular enlargement observed in depression (Kempton et al., 2011). This compresses the brain and causes torque and curvature around the other occipital lobe.

The variation in skull base and vascular anatomy in this region is interesting in the context of our findings of the prevalence of occipital torque. Indeed, the more frequent right transverse sinus draining the superior sagittal sinus (Saiki et al., 2013) results in displacement of the interhemispheric cleft and occipital bending. Although rare, there are cases reported of depression being associated with irregularities in the transverse-sigmoid sinus or superior sagittal sinus anatomy (Katz et al., 2003; Nakagawa et al., 2012). The question therefore arises as to the precursor of this difference between our study groups in terms of skull base anatomy and vasculature. For example, it has been shown that significant relative enlargement of the supratentorial volume during development, relative to infratentorial volume, is accompanied by a rotation of the midline section of the tentorium towards the posterior cranial base (Erdoglija, 1989). Jeffrey (2002) also found that increases of supratentorial volume relative to infratentorial volume affect an interposterior rotation of the human foetal tentorium cerebelli. While anatomical variation of brain anatomy following vascular anatomical variation is accepted, it does not explain the increased incidence of occipital bending in depression that we have described.

References