Focal polymicrogyria: Planar-surface MRI

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A 22-year-old woman with drug-resistant complex focal seizures underwent stereotactic biopsy of a frontal lobe lesion, which revealed “gliosis.” Epilepsy-dedicated MRI1 with planar brain surface views2 reformatted from a sagittal three-dimensional T1-weighted gradient echo sequence with 1 mm³ isotropic voxel demonstrated focal polymicrogyria (figure 1). Following subdural grid implantation extended lesionectomy was performed. Two years after surgery the patient had worthwhile seizure improvement (Engel’s class IIIa). Correlation of MRI and histopathology explained why 5-mm-thick MRI slices are suited to display normal cortex but fail to characterize the lesion. If the brain is unfolded along its surface, however, polymicrogyria is clearly visible (figure 2).

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