Posterior encephalopathy is characterised by headache, impairment of consciousness, seizures and progressive visual loss. MRI shows bilateral, predominantly posterior, cortical and subcortical lesions with a distribution. Our aim was to analyse the MRI lesion pattern and angiographic findings because the pathophysiology of posterior encephalopathy is incompletely understood. We report three patients with clinical and imaging findings consistent with posterior encephalopathy who underwent serial MRI including diffusion-weighted imaging (DWI) and construction of apparent diffusion coefficient (ADC) maps, and four-vessel digital subtraction angiography (DSA). DWI revealed symmetrical subcortical and cortical parieto-occipital high signal. High and also low ADCs indicated probable vasogenic and cytotoxic oedema. On follow-up there was focal cortical laminar necrosis, while the white-matter lesions resolved almost completely, except in the arterial border zones. DSA revealed diffuse arterial narrowing, slightly more marked in the posterior circulation. These findings suggest that posterior encephalopathy may in some cases be due to diffuse, severe vasospasm affecting especially in the parieto-occipital grey matter, with its higher vulnerability to ischemia. Cerebral vasospasm due to digitoxin intoxication, resulting in posterior encephalopathy, has not yet been described previously.