Periventricular Heterotopia

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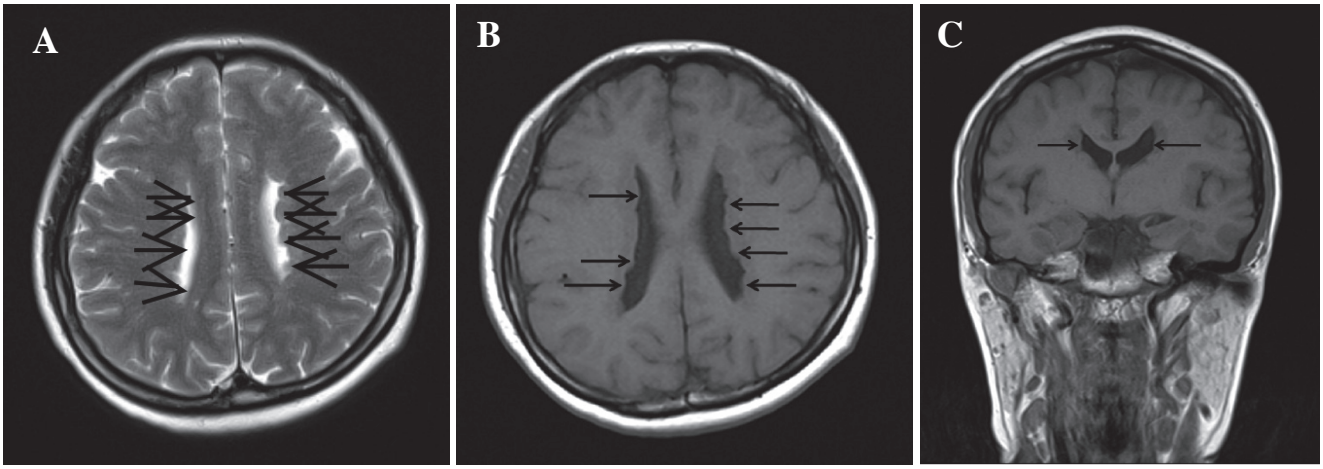

Figure 1. Axial brain MRI demonstrate multiple small nodular heterotopias lining ventricular wall, which are isointense to grey matter in T2 and T1 weighted image (arrows in A, B as well as coronal slice in C)

A 34-year-old epilepsy woman had first seizure when aged 14. Seizure patterns are mainly simple partial type, presented by a sense of air within chest wall rising to head or focal twitching of right hand. She also had generalized tonic-clonic seizures before. In recent four years, she did not experience generalized seizure although simple partial seizures were noted average four to five times a month. Her mentality is normal without family history of seizure. Birth history revealed full term with normal development milestone. Interictal scalp electroencephalography (EEG) showed focal spikes in left centrotemporal area and brief generalized sharp waves. Brain MRI without contrast demonstrated small subependymal nodules protruding into lateral ventricles, indicating periventricular heterotopias (Fig.).

Heterotopia is a neuronal migration disorder, classified as malformations of cortical development. It results from failure of neurons radially migrate to their proper cortex. The most common form is periventricular nodular heterotopias due to accumulation of these neurons in subependymal (periventricle) areas. Other subcategories encompass localized or generalized abnormalities of transmantle migration, which are mainly subcortical heterotopias and lissencephalies respectively; and terminal migration defects in pial limiting membrane[(1)]. Epilepsy is the invariable symptom. Cognitive function impairment is usually seen in bilateral diffuse group while less common in unilateral focal heterotopias[(2)]. Differential diagnosis include subependymal giant cell astrocytoma and hamartoma of tuberous clerosis. Subependymal

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Received July 1, 2013. Revised August 30, 2013.
Accepted October 4, 2013.
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giant cell astrocytoma are usually located at or near foramen of Munro and slightly enhanced. Hamartoma of tuberous sclerosis is usually calcified with iso- or hypointense on T1-weighted and hyperintense to grey and white matter on T2-weighted image in adults[3]. Periventricular heterotopias are small oval subependymal nodules isointense to grey matter in all MR pulse sequence.

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