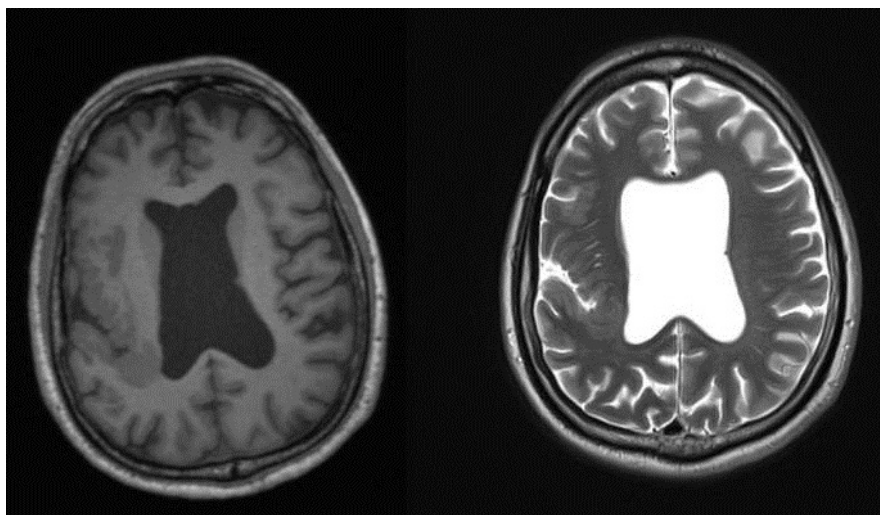


Siti Rozana ABDUL HAZIZ and Ian BICKLE



This 57-year-old man has a 17-year history of complex partial seizures on treatment. On neurological review, he states he had a recent single episode of sudden loss of consciousness with no post-ictal state. Computed tomography (CT) scan of the brain at the time of diagnosis was reported to be normal. A magnetic resonance imaging (MRI) of the brain was undertaken.

What abnormality on MRI is responsible for the patient's epilepsy?

Answer: refer to page 125

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(Refer to page 116)

Answer: Polymicrogyria

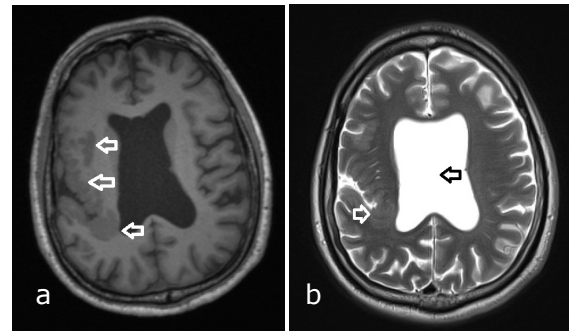
The MRI images show right peri-Sylvian polymicrogyria (white arrow) and also absent septum pellucidum (black arrow), a condition associated with seizure disorder.

Polymicrogyria is one of the most common malformations in cerebral cortical development.^{1, 2} Although there is still uncertainty as to its pathogenesis, the causes of polymicrogyria are thought to include congenital infection, localised or diffuse in-utero ischaemia or genetic mutations.³ The effects of these occur in the late neuronal migration or early post-migrational development periods of the brain.¹

The cerebral cortex can be involved to various degrees, unilateral or bilateral and focal or generalised.⁴ The most commonly involved location is the peri-Sylvian area in 80%.^{1, 3}

There are three specific characteristics; an abnormal gyral pattern, increased cortical thickness, and irregularity of the cortical-white matter junction due to packing of microgyri.^{1,3}

MRI is the preferred imaging for this condition using an epilepsy protocol. Multiple



a) Axial T1 brain: right peri-Sylvian polymicrogyria (white arrows); b) Axial T2 brain: right peri-Sylvian polymicrogyria (white arrow) and absent septum pellucidum (black arrow)

small delicate gyri are evident in the right peri-Sylvian region, with a thickened cortex (Panels). The septum pellucidum is also absent.

The clinical manifestations associated with polymicrogyria are aside from epilepsy include intellectual disability, motor and speech disturbance and hemi or quadripareisis.^{2, 3} The nature of the disability associated will be dependent on the portion of the brain involved, the type and extent of polymicrogyria and the addition of any associated anomalies.³ Treatment of polymicrogyria is symptomatic. Those with medication resistant seizures may be candidates for epilepsy surgery.⁵

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