

Abnormal brain perfusion demonstrated by Tc-99m MAA total-body scan in two children with complex congenital heart disease

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This paper describes abnormal brain perfusion unexpectedly demonstrated by Tc-99m MAA total-body imaging in two children with intracardiac right-to-left shunt (RLS) associated with complex congenital heart disease. One child was a 12-year-old girl with asplenia cardiac syndrome and multiple cerebral infarctions caused by thromboembolism in the internal carotid artery, and the other child was a 6-month-old boy who developed focal cerebral infarction following shunt operation. In both children, the total-body imaging depicted the brain due to RLS, where radioactivity decreased unilaterally in the cerebral hemisphere. In the first patient, radioactivity also decreased in the contralateral cerebellum, suggesting the crossed cerebellar diaschisis phenomenon. These abnormalities in brain perfusion were confirmed by Tc-99m HMPAO brain SPECT. Careful review of the distribution of the radiotracer in the depicted brain on Tc-99m MAA total-body imaging may provide important information regarding brain perfusion in some patients with a high risk of stroke complication associated with RLS.

Key words: Tc-99m MAA perfusion scan, congenital heart disease, crossed cerebellar diaschisis, right-to-left shunt