

Large Artery Stroke in a Child With Hypoparathyroidism

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Abstract

The association of hypoparathyroidism and ischemic stroke is rare in childhood. We report an interesting case of an 11-year-old girl diagnosed to have hypoparathyroidism and presented with an acute-onset right hemiparesis. Investigations revealed large artery ischemic stroke and uncontrolled hypoparathyroidism. Pediatricians and pediatric neurologists should be aware of this association in view of its potential preventive nature.

Keywords

stroke, hypoparathyroidism

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Hypoparathyroidism is a rare cause of stroke. We hereby present a child who received a diagnosis of hypoparathyroidism and who had presented with acute hemiparesis.

An 11-year-old girl diagnosed to have hypoparathyroidism had an acute-onset right hemiparesis 5 days before presentation to our hospital. There was a history of death of 2 siblings in the neonatal period due to seizures. On examination, she had a weight of 20 kg, height of 133 cm, and head circumference 50 cm. The blood pressure values in all 4 limbs were normal. Trousseau and Chvostek signs were negative. Left-sided carotid pulsations were feeble compared with those in the opposite side. She was conscious but had expressive aphasia. In addition, she had right-sided upper motor neuron type of facial palsy with hemiparesis of the right upper and lower limb. The child's condition was diagnosed as hypoparathyroidism in infancy in view of recurrent seizures. She had bilateral cataracts that were operated on. The child was on calcium and antiepileptic drugs but with poor compliance and continued to have infrequent generalized tonic-clonic seizures. Investigations revealed random glucose 96 mg/dL, ionized calcium 0.27 mmol/L (range 1.12-1.23 mmol/L), total calcium 6.4 mg/dL (range 8.8-10.8 mg/dL), phosphorus 10.4 mg/dL (range 3.7-5.6 mg/dL), 25(OH) vitamin D3 32.23 ng/mL (sufficient ≥ 30 ng/mL), intact parathyroid hormone 2.76 pg/mL (range 15-65 pg/mL), and urinary calcium-creatinine ratio 1.1:1 (normal < 0.2). Ultrasonography of the abdomen showed bilateral nephrocalcinosis. Serum electrolytes, hemogram, liver function test, renal function tests, echocardiography, homocysteine, lipid profile, antinuclear antibody, antineutrophil cytoplasmic antibodies, protein C, and protein S levels were within normal limits. Noncontrast

computed tomographic scan showed bilateral basal ganglia calcification (Figure 1). Magnetic resonance imaging (MRI) showed acute infarcts in left basal ganglia and left parieto-occipital territory (Figure 2). Magnetic resonance angiography showed diffuse attenuation of left internal carotid artery (Figure 3). Child was started on aspirin, calcium carbonate, and calcitriol and phenytoin. The neurodeficits improved over the next 15 days and the child became ambulatory.

This case needs attention for a variety of reasons. First, it is worth reporting the association of hypoparathyroidism and large artery ischemic stroke. The association is probably causal because hypoparathyroidism has been postulated to cause vascular endothelial dysfunction. Gupta et al recently showed the increased carotid intima media thickness in adult patients with sporadic idiopathic hypoparathyroidism.¹ A state of accelerated atherosclerosis due to hypoparathyroidism leading to vascular calcification has been hypothesized.

Second, it is pertinent to sensitize pediatricians and pediatric neurologists about its potential preventive nature. This

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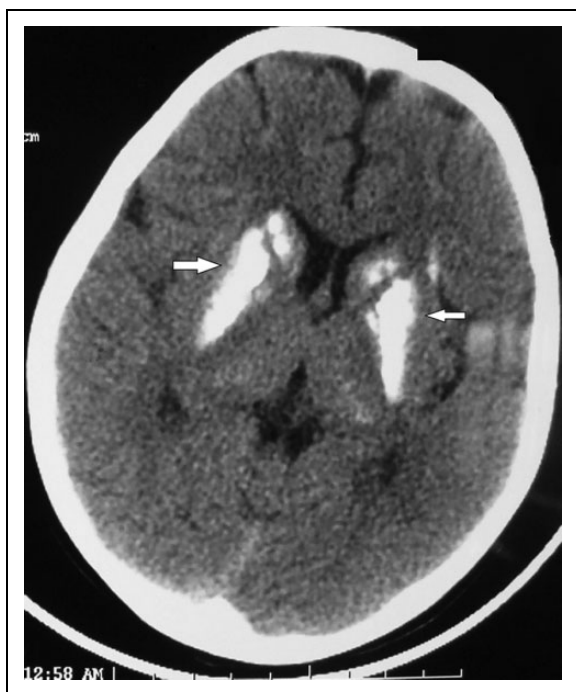


Figure 1. Noncontrast computed tomographic scan showing bilateral basal ganglia calcification (arrow).



Figure 2. Coronal fluid-attenuated inversion recovery image showing hyperintensity in left basal ganglia (arrow).

highlights the importance of strict control of calcium and phosphate balance to prevent seizure and carotid vascular abnormalities.

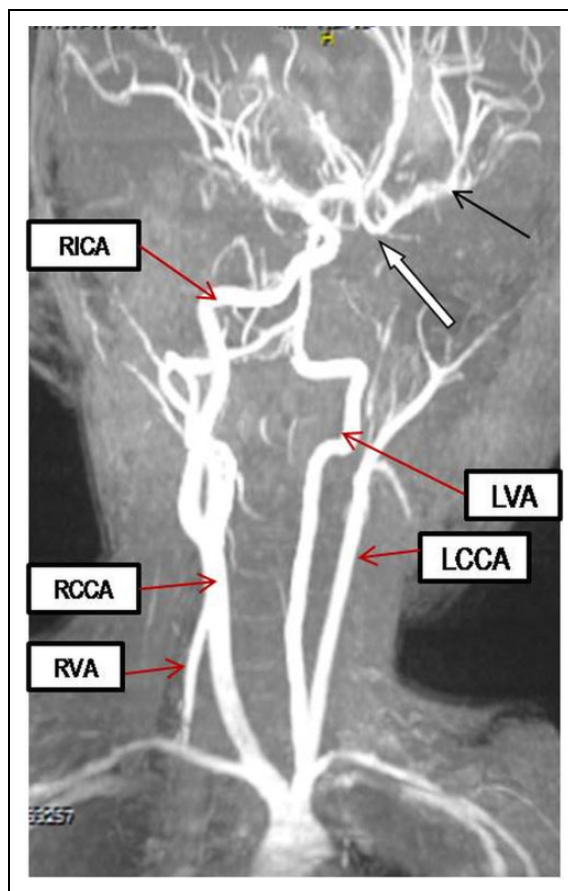


Figure 3. Coronal oblique maximum intensity projection magnetic resonance angiographic image showing nonvisualization of left internal carotid artery from its origin with reformation of terminal left internal carotid artery (white arrow) from collaterals and mildly attenuated left middle cerebral artery and its branches (black arrow). Abbreviations: LVA, left vertebral artery; LCCA, left common carotid artery; RICA, right internal carotid artery; RCCA, right common carotid artery; RVA, right vertebral artery.

Author Contributions

SD, SJ, JS, and PD were involved in patient management and preparation of the draft. SV interpreted radiologic data and approved the final manuscript.

Declaration of Conflicting Interests

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