Clinical case: computed tomography and magnetic resonance imaging signs in posterior reversible encephalopathy syndrome in the cerebellum of a child

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Background. Posterior reversible encephalopathy syndrome (PRES) is characterized clinically by acute or subacute onset of neurological symptoms, most commonly headaches, visual disturbances, altered mental status and seizures, and radiologically by abnormalities characteristic of vasogenic oedema in predominantly posterior regions of the brain which are potentially reversible. Neuroimaging plays an important role in diagnosis of PRES because clinical presentation is not specific and the syndrome is associated with a wide variety of predisposing conditions. Typical imaging findings of PRES include bilateral cortical and subcortical parieto-occipital hyperintensities on FLAIR. Diffusion-weighted imaging allow differentiation from cytotoxic oedema. Involvement of the brain structures other than classical parieto-occipital region is not uncommon, including posterior frontal and temporal lobes, cerebellum, brain stem, basal ganglia, thalamus and deep white matter.

Aim. To present a clinical case of a child with atypical imaging manifestation of PRES and to review the literature about the atypical distributional patterns of PRES on imaging studies.

Material and methods. We report clinical and radiological data (CT and MRI of the head) of a 10-year-old boy with chronic renal failure who was admitted to Pediatric Intensive Care Unit at the Hospital of Lithuanian University of Health Sciences Kauno Klinikos on November, 2015 due to acute encephalopathy.

Results. On admission the patient presented with severe hypertension and coma. A CT of the head demonstrated oedematous cerebellar hemispheres with narrowing of the fourth ventricle. An MRI of the brain revealed vasogenic oedema mostly in atypical locations – cerebellum, left caudate nucleus and spinal cord, although bilateral parieto-occipital subcortical white matter was also involved. This case could be attributed to infratentorial-predominant variant of PRES. Although involvement of cerebellum is reported in about one-third of all PRES cases, predominant involvement of infratentorial structures with minimal involvement or complete sparing of classical parieto-occipital region is a rare distributional pattern. Involvement of the spinal cord is an extremely rare presentation and is described in only a few cases.

Conclusions. Delayed diagnosis of PRES can lead to permanent neurological sequelae or even death, therefore knowledge of both typical and atypical imaging features is important. Moreover, many studies of PRES cases demonstrate that atypical radiological features are not as rare as commonly perceived.