Abstract 1

Congenital CMV Infection Presenting with Massive Intracerebral Hemorrhage

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Cytomegalovirus (CMV) is among the most common of intrauterine infections against which we have no effective preventative or therapeutic options. The developing nervous system is a frequent target of CMV and while most injuries are subclinical, severe insults leading to microcephaly and migration defects are well known. A 20-week gestational age fetus was found to have several abnormalities on prenatal ultrasound, the most prominent of which was a large echogenic focus in one cerebral hemisphere. Congenital CMV infection was identified by amniocentesis and maternal serology. The pregnancy was ended by early induction of labour for a 368g stillborn infant. Postmortem examination revealed massive intracerebral hemorrhage as the correlate for the sonographic finding. The microscopic examination of the brain was also striking for extensive polymicrogyria, a high burden of CMV and abundant angiocentric CMV pathology. Catastrophic intracerebral hemorrhage has not been previously reported in association with congenital CMV infection. The present case expands the range of potential injuries the developing brain is subject to in the setting of CMV infection and raises the possibility of a direct vascular injury.

Learning Objectives

- Consider intracerebral hemorrhage in the range of potential outcomes in congenital CMV infection
- Describe how polymicrogyria may result from an insult during proliferation and migration
- Discuss possible mechanisms of injury to the developing brain by CMV

Abstract 2

Brain Toxoplasmosis Comorbid with Autoimmune Disease: Complicated Immune Response And Case Demonstration

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Toxoplasmosis is an opportunistic infection caused by Toxoplasma gondii (TG), commonly involving the brain. Symptomatic clinical disease of TG infection is much more commonly associated with immunodeficiency; clinicopathological manifestations of brain toxoplasmosis are linked to individual immune responses including brain infiltration of T-cells that are thought to fight against toxoplasmosis. In patients with autoimmune diseases, immune status is typically characterized by T-cell infiltration and complicated mainly by immunosuppressant and/or immunomodulatory treatment. In this study, we demonstrate clinical and radiological features correlated with pathological features of brain toxoplasmosis at different disease stages in a patient with coexisting autoimmune diseases, including systemic lupus erythematosus and autoimmune hepatitis. The infiltration of CD8+ T-cells in toxoplasma immunostaining-positive acute lesions was greater than that in toxoplasma immunostaining-negative chronic lesions. We also review previously reported cases of brain toxoplasmosis with comorbid autoimmune diseases. Our present case and literature review suggest that brain toxoplasmosis in patients with autoimmune diseases may be asymptomatic unless disease complications occur; it may present as an incidental finding at postmortem examination of rapidly developed lesions. T-cell infiltration in patients with autoimmune diseases and coexisting toxoplasmosis may be at least partially reduced; ultimately, the roles of T-cell infiltration in brain toxoplasmosis deserve further investigation.

Learning Objectives

- Discuss complicated immune response to toxoplasmosis in patients with autoimmune diseases.
- Describe clinical, radiological, and pathological features of brain toxoplasmosis in patients with autoimmune diseases.

Abstract 3

Small Vessel Vasculitis in Biopsies Of Anti-mog Encephalitis.

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We report the neuropathology of two pediatric brain biopsy cases associated with serum anti-myelin oligodendrocyte glycoprotein (MOG) positivity. Descriptions of anti-MOG associated neuropathology are limited, with initial reports describing various patterns of inflammatory demyelination. Our first patient presented with confusion, speech abnormalities and personality changes following a treated strep throat infection. Our second patient had a past medical history of neurofibromatosis type 1 (NF1) and presented with hypersomnolence and focal neurological deficits. MRI abnormalities included diffuse scattered T2 FLAIR hyperintensities +/- enhancement. CSF was positive for anti-MOG antibodies in both cases, while one case exhibited additional anti-NMDA-R antibodies. Brain biopsies revealed vasocentric mononuclear inflammation featuring a predominance of lymphocytes that included intramural forms, as well as diffuse microglial activation, but no evidence of microglial nodules or microorganisms. One case demonstrated mild perivascular demyelination. The prevailing pattern in both cases was suggestive of "small vessel childhood primary angiitis of the central nervous