IMAGE

Intracranial calcification, microcephaly, and intrauterine growth restriction: a telltale sign of congenital cytomegalovirus infection

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A term newborn male, born to a 19-year-old mother, of poor socioeconomic status, presented with features of microcephaly and intrauterine growth restriction (Figure 1). Computed tomography (CT) of the brain was performed which showed multiple fine and coarse foci of calcification along sulci and in the periventricular white matter (Figure 2). Diffuse cerebral atrophy was also evident in the form of prominence of cerebral sulcal, cisternal, and ventricular spaces. Blood and urine samples of the baby were sent for DNA polymerase chain reaction analysis of cytomegalovirus (CMV) and were found positive. Mother's serum was also positive for CMV-IgG antibodies. A diagnosis of congenital CMV infection was made.

CMV is a ubiquitous virus that generally leads to benign manifestations. People with normal immune status are almost always asymptomatically infected by CMV. However, intrauterine infection with CMV can lead to substantial neurologic sequelae in the form of microcephaly, sensorineural hearing loss, chorioretinitis, mental retardation, and seizers. The severity and type of damage on developing brain depends on the stage of developing the nervous system at the time of fetal infection. Early infection leads to more severe neurological sequelae while infection in later stage causes less severe manifestations. The mechanism of neural damage by congenital CMV infection is due to

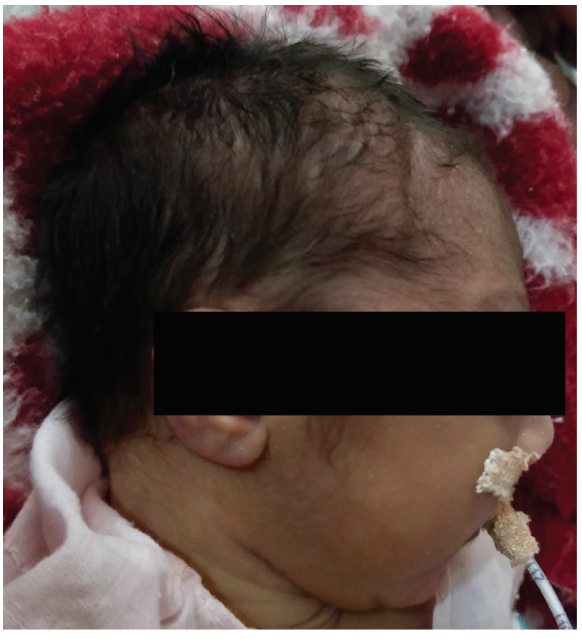

Figure 1 - Microcephaly manifesting with sloping forehead.

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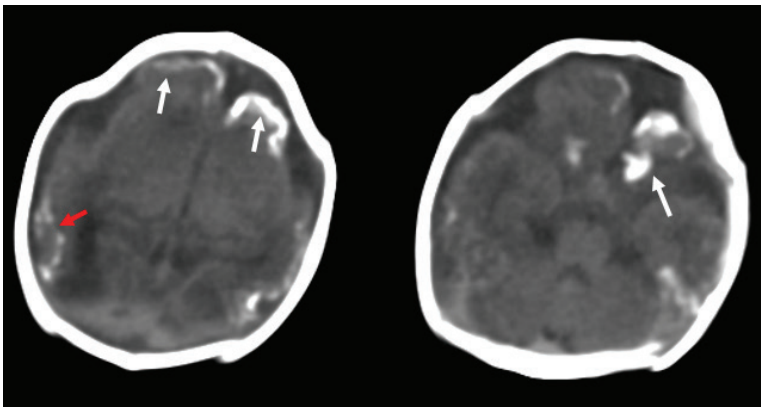

Figure 2 - Cranial CT scan showing multiple fine and coarse foci of calcification along sulci (white arrows) and in periventricular white matter (red arrow). Diffuse cerebral atrophy is also evident in the form of prominence of cerebral sulcal, cisternal, and ventricular spaces.

its neurotropic properties resulting in inhibition of neuronal differentiation and induction of apoptosis in neural precursor cells [1,2].

Imaging findings on ultrasonography and CT include microcephaly, intracranial calcification with periventricular distribution, intrauterine growth restriction, hydrocephalus, and abnormal appearing brain parenchyma. However, a major drawback of CT is the radiation exposure [3]. Magnetic resonance imaging may reveal additional findings related to neural migration like lissencephaly, pachygyria, microgyria, and schizencephaly [3].

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