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Case Report

# Subcortical cysts in anterior temporal regions: Unusual imaging finding in congenital cytomegalovirus infection

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## Introduction

Cytomegalovirus (CMV) is one of the most common congenital infections, especially in developing countries like India, occurring due to transmission of the virus across the placenta.[1] Most significant consequences of the disease are neurological and include microcephaly, ventriculomegaly, cerebral atrophy, chorioretinitis, and sensorineural hearing loss. Anterior temporal cysts is an unusual imaging finding seen in congenital CMV infection[2] and associated with white matter disease and intracranial calcifications may lead to the specific diagnosis of CMV infection as reported in our case.

## Case report

A two and half years old male patient, second child of non-consanguineously married parents presented with developmental delay. The child could stand without support, however, was unable to walk. He could not speak double words and was unable to follow simple instructions given by mother. Birth history revealed uneventful pregnancy with full term normal home delivery and baby cried immediately after birth. No history of any immediate postnatal problem or hospital stay was present. The elder female sibling was clinically normal. Antenatal Maternal TORCH titers were not done. Abdomen palpation examination of the child revealed hepatomegaly (liver span 9 cm) and mild splenomegaly. There was no evidence of micro or macrocephaly, any rash or petechiae or purpura. Other systems examination did not reveal any obvious abnormality. Serological investigations did not reveal any hyperbilirubinemia or raised liver enzymes. CMV IgG titers were positive. However, CMV IgM titers were negative and fundus examination did not show any evidence of chorioretinitis. The mother gave history of inadequate response to verbal communication and delayed speech in the child. He was subjected to brainstem evoked response audiometry (BERA), which concluded presence of moderate hearing loss on right side and mild hearing loss on left side. Patient was subjected to magnetic resonance imaging (MRI) and computed tomography (CT) study of brain.

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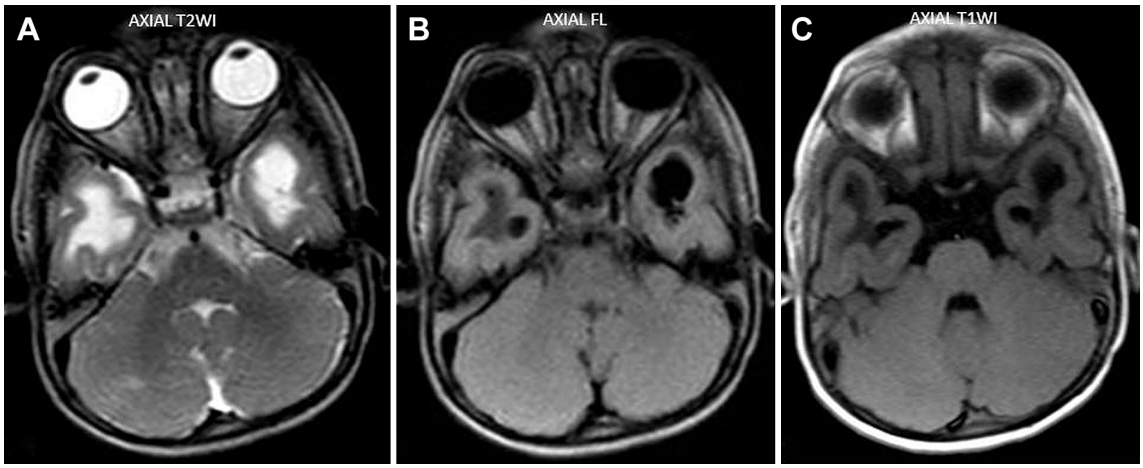


**Fig. 1 – MRI brain axial T2 weighted image (A) showing well defined hyperintense subcortical cystic lesions and white matter hyperintensities in bilateral anterior temporal lobes which are hypointense on FLAIR (B) and T1 weighted (C) images.**

MRI of brain revealed well defined T2 hyperintense (Fig. 1A) and FLAIR (Fig. 1B) and T1 (Fig. 1C) hypointense subcortical cystic lesions in bilateral anterior temporal regions, larger on left side with no post Gadolinium contrast enhancement. Confluent hyperintensities were seen in bilateral periventricular and frontotemporoparietal subcortical white matter on T2 weighted (Fig. 2A and B) and FLAIR (Fig. 2C) images, which were hypointense on T1W images (not shown in figures). Small round hypointense foci were noted in periventricular region on T2 weighted image (Fig. 2B), raising suspicion of calcification. Bilateral basal ganglia and periventricular calcification with bilateral white matter hypodensities were seen on non-contrast CT scan of brain (Fig. 3A and B), suggesting diagnosis of CMV infection.

## Discussion

Human cytomegalovirus (CMV) is a DNA virus in the herpes virus family,[3] which has a propensity to cause intrauterine infections by transmission of the virus across the placenta. Congenital CMV infection is one of the most common congenital viral infections resulting from intrauterine fetal infection[1] and fetal effects are most adverse where mother experiences a primary infection in first half of pregnancy.[4] Common manifestation of congenital CMV infection includes microcephaly, intracranial calcifications, hearing loss, hepatosplenomegaly, low birth weight, pneumonitis, and hematologic abnormalities.[5,6] The degree of neurological impairment varies from mild learning and behavioral problems to mental retardation and impaired physical skills. Neuroimaging findings of congenital CMV infection include intracranial calcification, ventriculomegaly, ventricular adhesions, white matter abnormalities, neuronal migrational disorders, microcephaly, lenticulostriate vasculopathy, and destructive encephalopathy.[7] Intracranial calcifications are the most frequently encountered imaging finding of congenital CMV infection[8] and occurs most commonly in the periventricular regions followed by basal ganglia and brain parenchyma. MRI is more sensitive in detection of the white

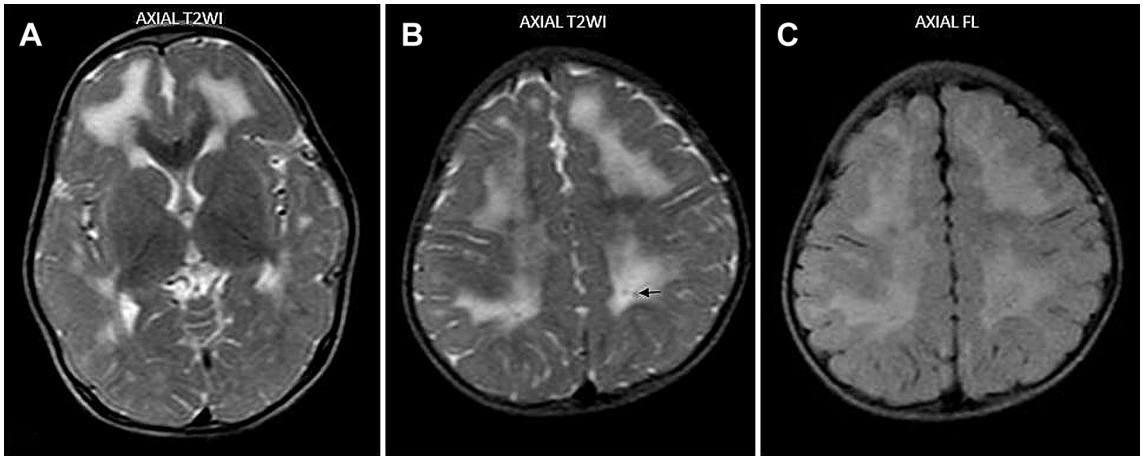


**Fig. 2 – Axial T2 weighted (A and B) and FLAIR image (C) show confluent ill defined hyperintensities in bilateral periventricular and subcortical white matter. Small round hypointense foci are seen in periventricular region (black arrow) on T2 weighted image (B), likely representing calcification.**