ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 04 | April - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CT BRAIN IMAGING FINDINGS IN CONGENITAL CYTOMEGALOVIRUS INFECTION OF BRAIN IN NEWBORN.

Radio-Diagnosis

Dr. Udita Wadhwani Department of Radiodiagnosis, Government Medical College, Surat

Dr. Dhara Savaliya Department of Radiodiagnosis, Government Medical College, Surat

Dr. Purvi Desai Department of Radiodiagnosis, Government Medical College, Surat

ABSTRACT

Learning Objective: To evaluate the CT brain imaging findings in congenital cytomegalovirus infection of brain in newborn. **Case Summary:** A 20 year old primigravida female presented in third trimester with antenatal ultrasound findings showing reduced biparietal diameter and head circumference at 3 percentile on fetal growth chart. Premature fusion of sutures and closure of fontanelle limited the Neurosonogram study. Oligohydramnios with fetal and maternal doppler showing high resistance flow was noted. Also incidentally noted was interrupted inferior vena cava with hemiazygos vein draining into right atrium. Maternal blood sample's TORCH panel was positive for IgG for cytomegalovirus. On postnatal CT head of the newborn, microcephaly with over-riding of calvarial bones at the suture sites in the fronto-parieto-occipital regions was noted with multiple foci of calcification seen within the subcortical fronto-parietal regions bilaterally as well as periventricular and right basal ganglia. Mild colpocephaly was seen with widely divergent bilateral frontal horns of lateral ventricles. Cerebral atrophy and anterior temporal cyst were noted. **Conclusion:** Fetuses with congenital cytomegalovirus infection may present with a wide range of brain pathologies. The presence of the described findings, particularly if two or more are present in the newborn, is mostly suggestive congenital cytomegalovirus infection.

KEYWORDS

INTRODUCTION

Neonatal congenital infections are an important cause of mortality, morbidity and long-term neurodevelopmental and sensorineural sequelae. Many pathogens can cause in utero infection, and among them, cytomegalovirus (CMV) plays a prominent role. CMV poses major health problems as it is the most common pathogen leading to congenital infection, and the leading cause of nonhereditary deafness in children. Evaluation of central nervous system (CNS) involvement in congenital CMV infected newborns is mandatory to better assess the severity of the disease, to guide adequate treatment, to define prognosis, and to tailor follow-up observations and parents' counselling.[1]there is limited regarding the optimal imaging modalities to identify CNS involvement.[2] Cerebral ultrasonography (cUS), Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) are the currently available techniques to evaluate infants with suspected or proven congenital CMV infection. CT is highly sensitive for depiction of intracranial calcifications

AIMS&OBJECTIVES

To evaluate the NCCT brain imaging findings in congenital cytomegalovirus infection of brain in newborn and study the typical pattern of cerebral involvement and extent of the disease

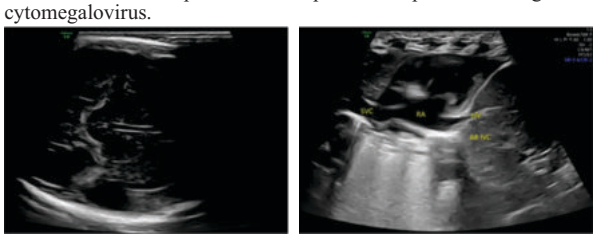
CASE SUMMARY

A 20 year old primigravida female presented in third trimester with antenatal ultrasound findings showing reduced biparietal diameter and head circumference at 3 percentile on fetal growth chart.

Cystic areas were noted in brain parenchyma.
Premature fusion of sutures and closure of fontanelle limited the Neurosonogram study.

Oligohydramnios with fetal and maternal doppler showing high resistance flow was noted. Also incidentally noted was interrupted inferior vena cava with hemiazygos vein draining into right atrium.

Maternal blood sample's TORCH panel was positive for IgG for cytomegalovirus.



A B

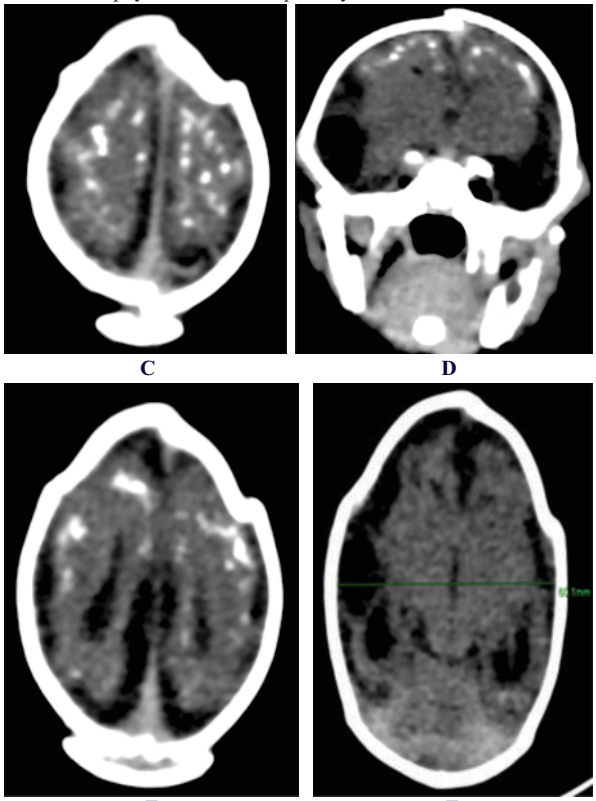
Fig A Antenatal fetal ultrasonography showing cystic areas within brain parenchyma.

Antenatal fetal ultrasound showing IVC with hemoazygous vein draining into right atrium.

On postnatal CT head of the newborn, microcephaly with over-riding of calvarial bones at the suture sites in the fronto-parieto-occipital regions was noted with multiple foci of calcification seen within the subcortical fronto-parietal regions bilaterally as well as periventricular and right basal ganglia.

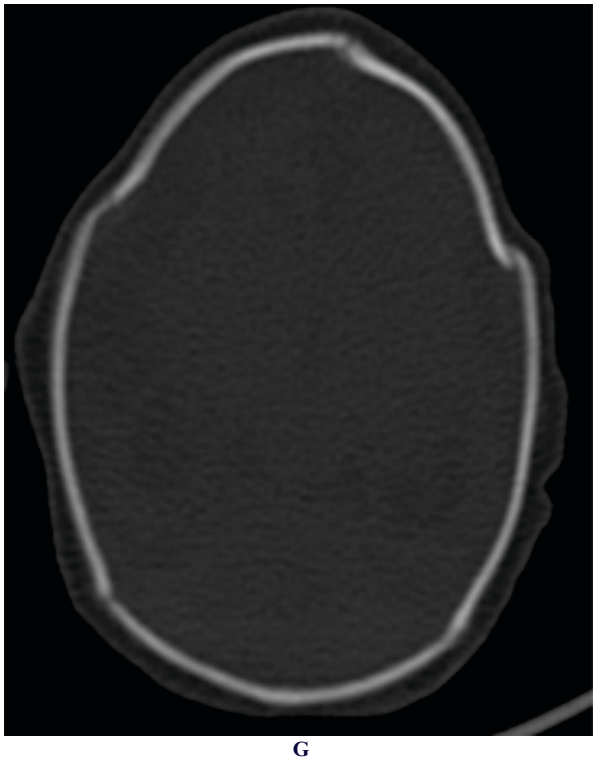
Mild colpocephaly was seen with widely divergent bilateral frontal horns of lateral ventricles.

Cerebral atrophy and anterior temporal cyst were noted.



C D

E F



G

Figure C to F -non contrast axial brain window images showing calcification within subcortical fronto-parietal regions bilaterally as well as periventricular regions.
Figure G axial contrast bone window showing microcephaly with over-riding of calvarial bones at suture sites in fronto-parieto-occipital regions.

CONCLUSION

Newborns with congenital cytomegalovirus infection may present with a wide range of brain pathologies. In congenital CMV infection, the role of imaging in early detection and confirmation of cerebral involvement within the first month of life is crucial to initiate specific treatment with antivirals and familiarity with the imaging findings of this common infection is important for accurate diagnosis.[5]

REFERENCES

1) Neuroimaging in CMV congenital infected neonates: how and when M Lanari 1, M G Capretti, T Lazzarotto, L Gabrielli, S Rizzollo, M Mostert, P Manzoni
2) Head ultrasound, CT or MRI? The choice of neuroimaging in the assessment of infants with congenital cytomegalovirus infection Mina Smiljkovic 1, Christian Renaud 2, Bruce Tapiero 3, Valérie Lamarre 3, Fatima Kakkar 4
3) Update on congenital cytomegalovirus infection: Prenatal prevention, newborn diagnosis, and management Michelle Barton, A. Michael Forrester, Jane McDonald; Canadian Paediatric Society Infectious Diseases and Immunization Committee
4) Imaging of central nervous system viral diseases Rakesh Kumar Gupta 1, Neetu Soni, Sunil Kumar, Niranjan Khandelwal
5) Educational Case: Infections during pregnancy: Congenital cytomegalovirus infection Jennifer A. Wintringham, BS and Richard M. Conran, MD, PhD, Jd*