International Journal of Science and Healthcare Research
Vol. 9; Issue: 1; January-March 2024
Website: ijshr.com
Case Report *ISSN: 2455-7587*

Floppy Neonate as a Case of Congenital Cytomegalovirus Infection with Multisystemic Involvement

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DOI: https://doi.org/10.52403/ijshr.20240104

ABSTRACT

Cytomegalovirus infection is the most common infection worldwide. Majority of the neonates infected in utero have long-term consequences which can lead to hearing loss, developmental delays and even death. Early diagnosis and treatment are very critical. Most of the cases being asymptomatic poses an additional challenge in early identification of the cases. This is a case of neonate presenting with cryptorchidism, hypotonia due to cCMV. The initial diagnosis made was early onset neonatal septicemia and not cCMV. This case report highlights the importance of including TORCH panel in neonatal screening as well as in antenatal period.

Keywords: congenital cytomegalovirus infection, screening, congenital infection, hypotonia

INTRODUCTION

About 1% of babies[1] are born with a maternal-fetal infection with the cytomegalovirus (CMV), which is one of the main causes of congenital deformity, mental retardation, and deafness[2]. Infants with congenital CMV (cCMV) can experience hearing loss, vision loss, intellectual disability, cerebral palsy, epilepsy, autism, and developmental delays[3,4,5]. Hearing loss is the most common long-term sequelae. Human cytomegalovirus (CMV) is ubiquitous in the population, and individuals who become infected remain persistently infected for life, with intermittent shedding of infectious virus from mucosal surfaces[6]. The most effective tool to stop this virus from spreading is prevention[7]. Yet there is low public and healthcare provider awareness[8]. Recent work has shown that cCMV is underdiagnosed[9]. This could be the case since only a small percentage of newborns with cCMV present as the stereotypical "blueberry muffin baby," with the majority presenting with a range of modest systems[10]. Moreover, even healthy newborns frequently exhibit several of the early symptoms of congenital CMV (e.g., jaundice and petechiae)[11]. One of the clinical symptoms of cCMV can be hypotonia. Hypotonia that may indicate either an underlying systemic illness or neurological problem in a newborn presents a diagnostic challenge for clinicians. Though the list of differential diagnosis is vast, it can be narrowed down considerably by taking good history. We present a case of Floppy neonate as a case of congenital CMV with multisystemic involvement.

CASE PRESENTATION

A male baby weighing 2.3kg born to a 23-year-old primigravida at 35 weeks of gestation via spontaneous vaginal delivery. Baby cried immediately after birth. APGAR score was 7 and 8 at one and five minutes, respectively. Mother was HIV-, Hepatitis

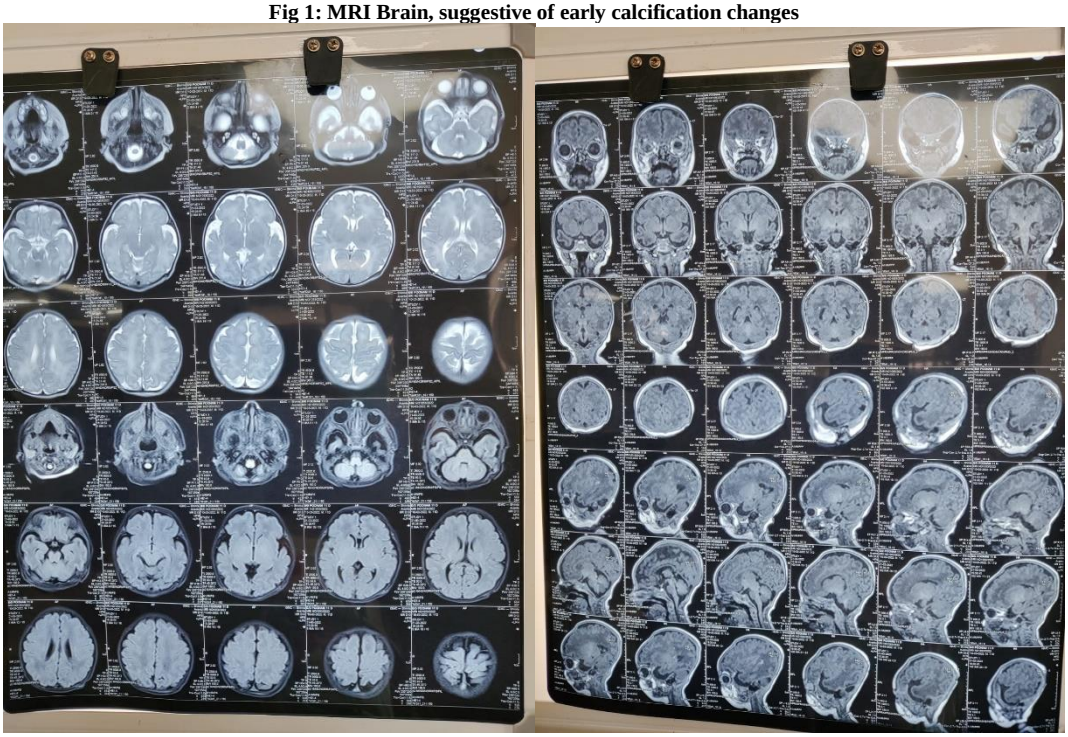
B-. The antenatal period was uneventful. On day of life 2, baby was referred to higher centre in view of undescended testis. On first examination, patient's vitals were HR: 142/min, RR: 33/min, SpO2: 90%and CRT: <3 sec. OFC was 31 cm (<-3Z score). Physical examination reveals weak neonatal reflexes (Moro's-weak, rooting-absent, sucking-absent). CNS examination revealed generalized hypotonia, poor cry, decreased activity, and poor suck. Scrotum empty with no palpable testis in the inguinal region. Chest examination revealed crepts in right infra-axillary region. Initial diagnosis of early onset neo-natal septicaemia was kept and patient was put on antibiotic ampicillin and gentamycin.

Lab investigations were sent which showed sterile blood culture, CPK and TFT within normal limit. Following this, the patient was managed as a case of floppy neonate. Baby's TORCH profile was sent, which showed raised IgG and IgM for CMV. Further, CMV DNA was detected in urine confirming the diagnosis of congenital CMV. He was on mixed breast and formula feed and never received blood transfusion throughout his hospital course, thus making postnatally acquired CMV infection unlikely. Further evaluation was obtained to determine the extent of his cCMV infection. MRI brain revealed early calcification changes. Hearing assessment showed bilateral no response on OAE and BOA. USG abdomen revealed testis in inguinal canal. In view of Cryptorchidism with raised 17 Hydroxy progesterone, Endocrinology consultation was taken and was advised follow up at 3 months of age. Karyotyping showed 46 XY. Patient developed respiratory distress during 2nd day of hospital stay and was started on oxygen therapy via nasal prongs @2-4L/min. Echocardiography was done which was suggestive of Persistent pulmonary hypertension of the newborn (PPHN secondary to CMV). Given the child's constellation of clinical findings with his laboratory abnormalities, he was determined to be symptomatic for cCMV infection and final diagnosis of floppy neonate as a case of congenital CMV with multisystemic involvement was made. Patient was started on oral valganciclovir 15mg/kg twice a day for 6 months and tab Sildenafil 2mg/kg thrice a day for 20 days for PPHN. On day of life 60, patient was discharged to home with his mother and instructed to follow up with paediatric subspecialities. Written consent was obtained from the patient's mother to share this information in the form of a case report.

Table1: Laboratory investigations

Investigations	**Result**
Hb	17.4 g/dl
TLC	18300/mm3
DLC	N58 L33
TSB/CB	11.7/0.36 mg/dl
SGPT	26 U/L
SGOT	35 U/L
ALP	142 U/L
BUN	23 mg/dl
Creatinine	0.47 mg/dl
Na	142 mmol/l
K	4.6 mmol/l
Ca	8.7 mg/dl
CRP	<6
CPK	45 U/L
17-hydroxyprogesterone	9.02 ng/ml
TORCH CMV IgG and IgM	>250 1.1 IU/ml

Fig 1: MRI Brain, suggestive of early calcification changes



DISCUSSION

CMV has emerged as one of the leading causes of viral congenital infection and is a neglected problem worldwide including India, mainly because of its asymptomatic nature[12]. Limited literature that is available in India shows 80-90% prevalence of IgG antibodies in women of childbearing age[13]. About 90% of children infected with cCMV do not exhibit any clinical abnormalities and are considered asymptomatic; the remaining 10% are symptomatic[14,15]. When a newborn has a symptomatic infection, they are extremely vulnerable to negative outcomes such as intrauterine growth restriction (IUGR), cognitive and motor disability, hearing loss, visual impairment, and foetal/infant death. Also, early identification is important as the optimal treatment window is prior to 1 month of age, which poses an additional challenge.

In this case patient was referred in view of cryptorchidism. On examination, patient showed signs of hypotonia, which can have multiple differentials. Laboratory investigations revealed multisystem involvement as well. Relying purely on physicians' suspicion can lead to diagnostic and treatment delay. Improvement in healthcare system can be done via increasing clinician awareness as well as by screening in antenatal period.

CONCLUSION

Congenital cytomegalovirus is a common congenital infection that is under-recognised. The clinical spectrum of the cCMV infection is wide which poses a great challenge to the physicians for timely diagnosis as well as treatment. In our case, newborn had hypotonia, hearing loss, cryptorchidism. This case highlighted the importance of including TORCH workup in neonates.

Declaration by Authors

Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Naveen Sharma, Pratyaksha Pandit. Floppy neonate as a case of congenital cytomegalovirus infection with multisystemic involvement. *International Journal of Science & Healthcare Research.* 2024; 9(1): 15-18. DOI: *10.52403/ijshr.20240104*

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