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LUNG LESIONS REVEALING PERINATAL CYTOMEGALOVIRUS IN A MOROCCAN NEWBORN

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ABSTRACT

We present the case of a preterm neonate aged 1 day hospitalized for respiratory distress. The clinical and radiological examination revealed a pneumonia. Before conventional treatment failure, we decided to perform PCR cytomegalovirus which was positive. The outcome was favorable under antiviral treatment. Cytomegalovirus pneumonia can be expressed on early postpartum especially in the preterm. The diagnosis remains difficult. The prevention is important.

Key words: Pneumonia, CMV, preterm.

INTRODUCTION

Cytomegalovirus (CMV) is one of the most common causes of congenital infection in the developed countries. Cytomegalovirus (CMV) is the largest member of the herpesvirus family, with a double stranded DNA genome, capable of encoding more than 200 potential protein products.

CMV is the most common congenital viral infection, occurring in 0.4%–2.3% of all live births, and is probably a common cause of mental retardation and nonhereditary sensorineural deafness in children [1].

Symptoms include growth restriction, microcephaly, seizures, cerebral ventriculomegaly, chorioretinis, hepatitis syndrome, thrombocytopenia, anemia, and pneumonia [2]. We present a case of congenital cytomegalovirus infection manifesting a neonatal pneumonia with in a neanate aged 1 day.

CASE REPORT

A female neonate was born at 34 weeks gestational age to a multiparous healthy woman. The mother was aged 25 years without significant history. Maternal serologies (toxoplasmosis, rubella, syphilis, hepatitis B) were negative. There is no parental consanguinity. The membranes ruptured 3 hours before delivery. After good primary transition, the infant developed clinical signs of respiratory distress with oxygen dependency and respiratory acidosis (6 hours post partum). The infant was transferred to our NICU.

On admission, the neonate showed signs of respiratory distress with apneas, grunting and an oxygen demand of FiO2 >0,3, the newborn was pink toned, responsive and a febrile, blood pressure BP was 40/23 mmHg. The weight was 1600g with a size of 33 cm and a

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head circumference HC of 31 cm. Cardiovascular and neurological examination were without abnormalities.

Chest-X showed diffuse interstitial pneumonia (Figure 1). A septic workup was normal above all procalcitonin, CRP values and blood count. Blood cultures and tracheal aspirates were negative.

The patient was first placed on nasal CPAP but had to be intubated and ventilated mechanically due to respiratory deterioration with an increasing oxygen demand up to an FiO2 of 1,0 and persistent respiratory acidosis. Inotropic support was necessary. After initiation of our standard antibiotic therapy the infant the baby appeared septic with skin pallor, poor peripheral perfusion, metabolic acidosis and hypotonia. Another septic workup 48hours later was negative. Tranfontanellar and abdominal ultrasound and echocardiography were normal. CT scan revealed sequelae of viral diseases (Figure 2).

Polymerase Chain Reaction PCR CMV was positive (6000 copies/105 L). After initiation of ganciclovir 10mg/kg/24h in perfusion, the infant recovered quickly and was extubated on day 3 of antiviral treatment. Ganciclovir was given for a total of 6 weeks. HIV serology was negative at 4 weeks of life. The child had a full recovery. Neurological outcome was satisfactory and PCR CMV control and was negative after 3 months

Fig 1. Diffuse interstitial pneumonia

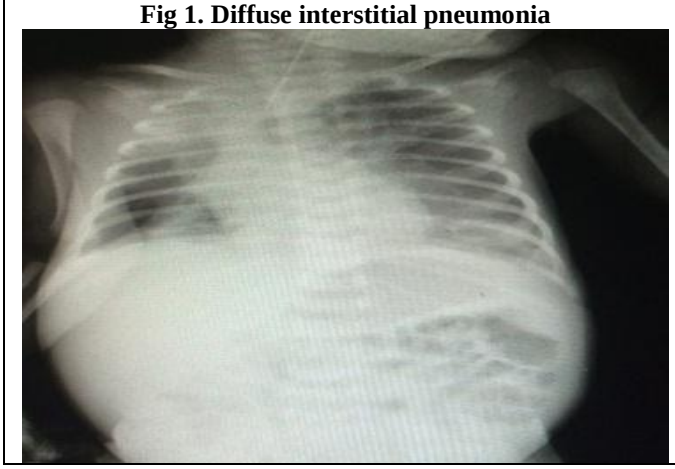
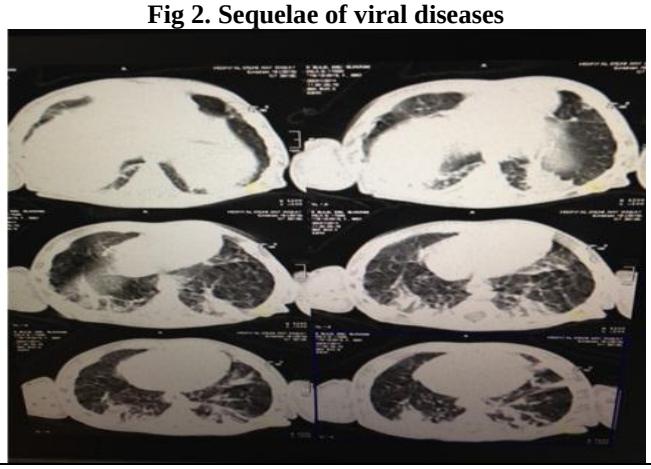


Fig 2. Sequelae of viral diseases



DISCUSSION

Systemic infection in the mother, such as Rubella, CMV, Treponema pallidum, Listeria monocytogenes, tuberculosis, and human immunodeficiency virus may cause intrauterine pneumonia. These infections may be asymptomatic in the mother [1-3].

One percent of all newborns are infected with CMV. Prenatal infection is transplacental and perinatal infection is acquired by exposure to infected cervical secretions, breast milk, or blood products. Most exposed term infants are asymptomatic or not infected. CMV pneumonia is known to occur in immunocompromised children. Pneumonitis is rarely the only manifestation of congenital CMV disease in neonate [4] and its incidence is low [5].

CMV spreads into the lungs following fetal viremia. Usual pathological findings in congenitally infected fetal lungs are immature and dystelectatic lungs associated with interstitial oedema, the absence of cellular reaction, or purulent inflammation [6-8]. Vasculitis is another suspected pathogenic mechanism leading to neonatal demise [9,10].

Symptomatic neonates with CMV infection have a mortality rate of upto 30% and 70-90% of survivors have neurological impairment, including hearing loss, mental retardation, and visual disturbances. Close monitoring of these patients is hence required to identify these deficits, especially hearing defects.

Chest radiography is the first line of investigation and can take different forms especially in newborns (nodules, diffuse interstitial pneumonia). Symptomatic congenital CMV infection must be distinguished from other congenital infections, including toxoplasmosis, rubella, and syphilis.

In neonates, viral detection using culture or PCR of urine, saliva, or a tissue sample is the primary diagnostic tool; maternal diagnosis can also be made by serologic testing or PCR.

Currently, there are four licensed drugs for the systemic treatment of CMV infection: ganciclovir, valganciclovir (oral prodrug of ganciclovir), cidofovir and foscarnet. Ganciclovir and valganciclovir are the only two medications that have been employed in the treatment of congenital CMV infection to date [11-13].

Nonimmune pregnant women should attempt to limit exposure to the virus by washing their hands thoroughly after exposure to urine and oral or respiratory secretions from children. A vaccine to prevent congenital CMV is under development.

CONCLUSION

CMV infection can cause a lung lesions especially in preterm infants. We propose in the light of this observation to associate systematically ganciclovir for each neonatal respiratory distress refractory to conventional treatment in the absence of obvious etiology. The role of antiviral therapy remains to be clarified. The role of prevention remains important.

This study was approved by the Ethics and Research Committee of faculty of Medicine and pharmacy, Mohamed V University, Rabat, Morocco

COMPETING OF INTEREST

The authors declare that there are no conflicts of interest and shall disclose any potential conflicts of interest in the future.

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CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

REFERENCES

1. Hollier LM, Grissom H. Human herpes viruses in pregnancy: cytomegalovirus, Epstein-Barr virus, and varicella zoster virus. *Clin Perinatol*, 32, 2005, 671–96.
2. Malm G and Engman ML. Congenital cytomegalovirus infections. *Seminars in Fetal and Neonatal Medicine*, 12(3), 2000, 154–159, 200.
3. Adler SP, Nigro G, and Pereira L. Recent advances in the prevention and treatment of congenital cytomegalovirus infections. *Seminars in Perinatology*, 31(1), 2007, 10–18.
4. Shen Z, *et al.* The detection and clinical features of human cytomegalovirus infection in infants. *Ijcp*, 2, 2012, 24.
5. Buonsenso D, Serranti D, Gargiullo L, *et al*. Congenital cytomegalovirus infection: current strategies and future perspectives. *Eur Rev Med Pharmacol Sci*, 16(7), 2012, 919-35.
6. Akhter K. Cytomegalovirus. Medscape, 2011.
7. Stagno S, Britt W. Infectious Diseases of the Fetus and Newborn Infant, Sixth Edition. Philadelphia, Elsevier, 2006, 739-81.
8. Boppana SB, Pass RF, Britt WJ, *etal.* Symptomatic congenital cytomegalovirus infection: neonatal morbidity and mortality. *Pediatr Infect Dis J*, 11, 1992, 93-9.
9. Rozália Pusztai. Clin Microbiol Infect Dis, Szeged, Hungary, 2005.
10. Lombardi G, Garofoli F, Stronati M. Congenital cytomegalovirus infection : treatment, sequelae and follow-up. *J Matern Fetal Neonatal Med*, 23(3), 2010, 45-8.
11. QIgault E, Michel Y, Dehee A, Belabani C, Nicolas JC, Garbarg CA. Quantification of human cytomegalwirus DNA by real-time PCR. *J. Clin. Microbiol*, 39, 2001, 772-5.
12. Aujard Y. Congenital cytomegalovirus infection.The role of ganciclovir in new borns. *Archives de pediatrie*, 21, 2014, 121-123.
13. Lombardi G, Garofoli F, Stronati M. Congenital cytomegalovirus infection : treatment, sequelae and follow-up. *J Matern Fetal Neonatal Med*, 23(3), 2010, 45-8.