

## Interest of multisite bacterial screening for the diagnosis of congenital listeriosis with negative blood culture: a case report

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### Results

#### INTRODUCTION

*Listeria monocytogenes* (LM) is known to cause severe invasive disease in pregnant women and in newborns. Fortunately, despite the wide natural distribution of this pathogen, clinically overt neonatal infections occurs rarely. As a consequence, listeriosis is not always considered for early onset neonatal infection, especially when blood culture is negative. Indeed, identification of listeria in the blood stream by conventional bacteriological methods remains the reference method for diagnosing listeriosis.

We report a case of congenital listeriosis with negative blood culture despite typical chorioamnionitis, where the pathogen was cultured in gastric aspirate.

#### CASE REPORT

A male baby of 28 weeks of gestational age presented with severe neonatal respiratory distress at birth requiring cardiac resuscitation, tracheal intubation and surfactant administration. The mother was admitted 3 days before with clinically suspected chorioamnionitis and treated by antibiotics. Emergency C-section was performed because of increasing biological features of inflammation and alteration in foetal heart rate.

On admission in the neonatal intensive care, the baby also presented fever and a petechial rash. He had biological signs of infection (CRP 103 mg/dl, leukocytes 32 000/mm<sup>3</sup> with thrombocytopenia). The pulmonary x-ray picture was compatible with congenital pneumonia. After routine blood sampling including bacteriological analyses, antibiotic treatment was initiated. Neither conventional blood culture, nor screening with polymerase chain reaction could show any pathogen. The culture of cerebrospinal fluid (CSF) also remained negative. However, listeria was identified on conventional culture of gastric fluid obtained at birth and on placental swabs. Moreover, the histological analysis of the placenta showed features of acute and severe chorioamnionitis with multiple abscesses as well as important funisitis. These findings were highly suggestive of listeria infection.

#### COMMENTS

*Listeria Monocytogenes* is a gram positive bacillus that may caused infection by the consumption of contaminated food. For the mother, infection is frequently asymptomatic or manifests as isolated fever and/or flu-like symptoms. Maternal infection may lead to spontaneous abortion, fetal death, premature rupture of membranes, premature labor, chorioamnionitis and neonatal infection. Often severe, LM neonatal infection account for 6% of all sepsis presenting in the first 48 hours of life and is associated with high case fatality rates (25-30%) even with an appropriate and early antibiotic treatment.

Thanks to strategies to improve prevention during pregnancy, listeriosis has become a rare disease in many countries and decreasing in the last decades. In Belgium, the incidence of neonatal listeriosis was about 0,8-5,5 every 100,000 live births between 2007 to 2013 but remain an important public health problem by his seriousness.

Neonatal listeria infection may be caused by ascending infection, transplacental passage or by inhalation of amniotic fluid. Early onset infection presents usually with bacteraemia (80 %), meningitis (24%), respiratory distress and pneumonia (38%) while late-onset neonatal listeriosis is most commonly associated with meningitis. Laboratory diagnosis requires isolation of LM from normally sterile clinical specimens (blood, CSF, amniotic fluid or placenta). According to the nature of the positive sample, some studies have classified LM infection in four categories, with decreasing mortality rate: invasive infection (blood or cerebrospinal fluid positive), maternal infection (placenta or blood's mother positive), infection with positive gastric liquid and only with positive superficial samples. PCR on CSF have a good sensitivity but the value in the blood is unknown. While blood culture remains gold standard, a negative result doesn't rule out infection but could be link with a better outcome.

#### CONCLUSION

Although the disease is rare, congenital listeriosis still remain a possible challenging condition in neonatal practice as revealed by this case report. This also shows the importance of multisite bacterial culture beside conventional blood and CSF culture, in combination with histological examination of the placenta for the diagnosis of congenital listeriosis.

