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Spurious elevation of AST in a newborn due to a macroAST of maternal origin

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Background
Macro-aspartate aminotransferase (macroAST) is a high molecular mass form of AST, formed by immunoglobulin binding to circulating enzyme, that reduces clearance and increases AST activity, leading to diagnostic confusion and unnecessary procedures. MacroAST should be considered a benign finding, widely described in adults and occasionally in children.
Case Report
A 3450 g Caucasian female neonate (M) was born at 40+5 weeks of gestation by vaginal delivery. Apgar scores at 1 and 5 minutes after birth were 9 and 10. Since the last delivery, 4 years before, the mother had isolated AST elevation, without elevation of ALT. She was investigated by liver and heart ultrasound and blood testing for viral, metabolic and autoimmune hepatic diseases without finding any abnormality. Hemolytic, muscular and myocardial causes of elevated AST activity were excluded. Polyethylene glycol (PEG) precipitation test and AST isoenzyme electrophoresis detected a circulating macroAST. M was discharged from the neonatal department at 72 hours of life. After 2 days was readmitted for weight loss and jaundice due to maternal hypogalactia, solved after rehydration and phototherapy. As in the mother, blood testing showed isolated AST elevation in the absence of clinical and biochemical signs of organ disfunction. Being aware of the maternal macroAST, M was not subjected to any procedure except for a liver ultrasound which was negative. The PEG precipitation study confirmed the presence of a macroAST even in the newborn. A follow-up evaluation at 2 months revealed a progressive decrease of AST activity in the infant's serum, explained by the disappearance of macroAST of maternal origin (Table 1). The diagnosis of macroAST was added to the clinical file and the mother was reassured.
Conclusion
M showed an isolated AST elevation as a result of passively acquired maternal macroAST. Prompt diagnosis of macroAST let us to avoid unnecessary procedures in a neonate. To our knowledge, this is the first case of transplacental transfer of macroAST reported. Circulating macroenzymes should be suspected also in neonates whenever an isolated, unexplained increased enzyme activity is found, and the mother should be evaluated as source of that finding.
Informed consent to publish has been obtained from the parents.

Table 1 (abstract O3). Serum AST activity (U/L) in mother and daughter at birth (top) and two months later (bottom). Diagnostic cut-off for macroAST is a residual AST activity after PEG precipitation <30%

	Native sample	Sample after precipitation by PEG	% residual
Mother	762	36	**5%**
Daughter	940	62	**7%**
Mother	908	8	**1%**
Daughter	384	72	**19%**

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Non primary Citomegalovirus infection in pregnancy: an underestimated problem

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Background
Congenital Cytomegalovirus (cCMV) infection remains one of the major cause of hearing loss and neurodevelopment damage in developed countries, the neonatal treatment actually available has toxicity problems and limited efficacy. Congenital CMV infection can result not only from primary maternal infection but also from uncommon reactivation or re-infection. Therefore becomes important to individuate an universal neonatal screening to facilitate early detection and intervention.
Case Report
We describe two cases of cCMV infection caused by a virus reactivation or re-infection in immune women during first trimester of gestation and detected with Real-TimePCR on saliva samples. Case 1: C.S. female was born at term from CMV immune mother in first trimester. At 7 months of gestation her mother had a flu like syndrome. Neonatal course was uneventful.We founded two saliva samples positive for CMV DNA. Congenital infection was confirmed by urine test and maternal serologic exams. The newborn is actually symptomless. Case 2: C.F. male was born at 38+4 weeks of gestation from CMV immune mother in first trimester. At birth he showed axial hypotonia and mild jaundice. Also in this case two saliva samples resulted positive as blood and urine tests (data of newborns and mothers are shown in table 1and 2). Brain magnetic resonance imaging showed a subependimal hemorrhagic cyst and white matter alterations in both frontal cerebral hemispheres. Auditory Brainstem Response are in progress for suspected monolateral hearing loss. The two newborns were infected with CMV in utero in spite of maternal immunity before pregnancy. These infants are part of a bigger prospective study started on May 2019 in our department. Up to date 533 babies have been enrolled and in 3 of them (0,56 %) the congenital infection was diagnosed through saliva screening. It was possible to discriminate between primary infection (1 case) and nonprimary infection (2 described cases below) thanks to a retrospective analysis of serologic maternal data. The aim of our study will be to establish the prevalence of cCMV infection caused by a virus reactivation during pregnancy using saliva sample as diagnostic neonatal screening test.
Conclusions
Non primary cCMV infection is probably an underestimated problem**.** Universal neonatal screening for early detection of infected infants could improve early intervention for neurosensorial hearing loss and developmental delay specially for infants infected as a results of virus reactivation or re-infection in pregnancy.
Informed consent to publish has been obtained from the parents.