Perinatal asphyxia or postnatal vasospasm, that is the question

Antonino **Santacroce** [1,*], Alfonso **Cerase** [2], Federica **Gironi** [3], Gennaro **Maccariello** [3], Angela **Di Lauri** [3], Barbara **Tomasini** [1]

[1] Neonatal Intensive Care Unit, Department of Women and Children, "Santa Maria Alle Scotte" University Hospital, Siena, Italy.
[2] Neuroimaging and Neurointervention Unit, Department of Neurological and Neurosensorial Sciences, "Santa Maria Alle Scotte" University Hospital, Siena, Italy.
[3] School of Specialization in Pediatrics, University of Siena, Siena, Italy.

DOI: 10.36129/jog.2022.S140

Objective. After a normal course pregnancy, a 41-week boy presented an unexpected depression at birth. Invasive ventilation was needed, and a 3-7 Apgar was scored. The cord arterial blood showed a Ph of 6.9 and a BE of -17. Intubation was discontinued within the first hour of life and hypothermia treatment was not indicated, according to Italian guidelines. At 30 hours of life, the baby manifested a sudden desaturation, diffuse cyanosis, and deep pallor in his right arm. The clinical presentation resolved gradually in 4-6 minutes. Cerebral ultrasound (cUS) and MRI scans were conducted (T0). 24 hours later, a clonic seizures cluster was seen, involving the left side. T1 cUS and MRI scans followed.

Materials and Methods. T0 scans and T1 scans were conducted respectively at day 2.5 (after cyanosis) and day 7.

Results. T0 cUS showed an intense hyper-echogenicity in subcortical biparietal fields. T0 MRI resulted negative for perinatal stroke or sinus venous thrombosis. In T1 cUS examination, periventricular echogenicity became normal, but cortical highlighting was seen in the same areas. T1 MRI detected pre-rolandic cortical ischaemic injuries bilaterally, and a post-rolandic cortical ischaemic injury on the right side.

Conclusions. Bilateralism and lesions pattern at MRI oriented us towards sub-acute hypoxic-ischaemic aetiology, rather than cerebral vasospasms or multiple embolisms. The cyanosis and pallor were probably a subtle seizure manifestation. Brain ultrasound showed the injured areas involvement earlier than MRI, likely due to the venous outflow engorgement in subcortical fields, after a post-ischaemic hyper-perfusion.