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IMAGES IN CLINICAL PRACTICE

AICARDI-GOUTIÈRES SYNDROME - A NEONATAL CLINICAL REPORT

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We present a case involving a male newborn born to healthy parents after a pregnancy with appropriate surveillance and no complications. Maternal serologic screening and blood tests showed normal results. The membranes spontaneously ruptured two hours before delivery, with clear amniotic fluid. The baby was delivered vaginally at 40 weeks gestational age, with Apgar scores of 9 at 1st minute and 10 at 5th minute. Birth measurements were within the 50th, 3rd, and 15th percentiles for weight, height, and head circumference, respectively. On the second day of life, multiple petechiae were noted, and hematological examinations disclosed thrombocytopenia with a count of 63 · 10^9 cells/L. Head ultrasonography indicated the presence of calcifications in the thalamic and periventricular regions (Figure 1). Due to suspected congenital TORCH infection, the newborn was transferred to the Neonatal Intensive Care Unit. Imaging studies showed abnormalities in cerebral white matter, subcortical atrophy, and calcifications around the basal ganglia and periventricular regions (Figure 2). The newborn underwent various tests, excluding intrauterine congenital infections, as well as disorders of calcium and phosphorus metabolism, cerebral folate deficiency and mitochondrial diseases. The results of the electroencephalogram showed no abnormalities. Ophthalmological, neurologic, and cardiac assessments yielded normal results

By the third week, thrombocytopenia had resolved, and the newborn was released for additional assessments in Pediatric Neurology, specifically involving genetic analysis and cerebrospinal fluid.

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Figure 1. Head ultrasonography suggested thalamic and periventricular calcifications.

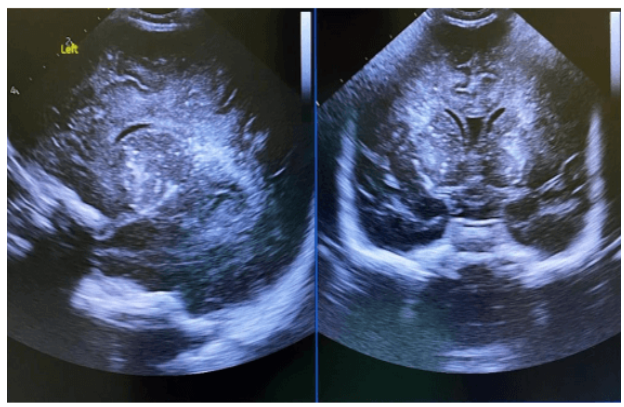
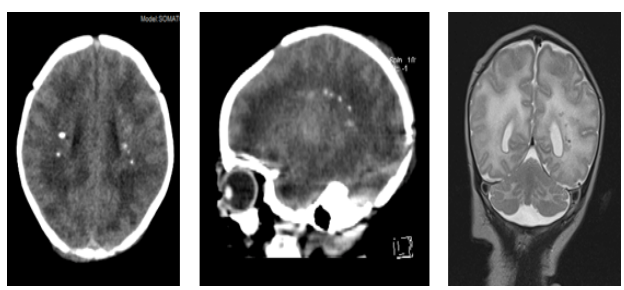


Figure 2. Computed tomography and magnetic resonance imaging of the brain showing attenuation of cerebral white matter, subcortical atrophy and basal ganglia and periventricular calcifications.



During the initial months of life, a mild lag in psychomotor development became apparent, leading to the performance of a lumbar puncture. At the four-month follow-up, findings included gastroesophageal reflux and feeding discomfort, notable delays in psychomotor developmental, spastic-dystonic tetraparesis, irritability and developed microcephaly characterized by a head circumference below the 3rd percentile. A follow-up electroencephalogram displayed a widespread

slowing pattern. Cerebrospinal fluid analysis identified lymphocytosis, elevated interferon alpha, and increased neopterin levels. Consequently, the patient commenced pulses of methylprednisolone. The genetic examination unveiled a homozygous mutation in the TREX1 gene, leading to the diagnosis of Aicardi-Goutières syndrome. Treatment with a JAK inhibitor (baricitinib) was initiated at nine months, resulting in clinical stabilization and cessation of developmental regression. The patient acquired head control, started smiling, displayed good interaction and irritability disappeared. A Percutaneous Endoscopic Gastrostomy was placed, and a Nissen fundoplication was performed, resulting in an improvement in gastroesophageal reflux.

What is the diagnosis?

Aicardi-Goutières syndrome represents an uncommon genetic neurological condition characterized by an overproduction of interferon, leading to systemic inflammatory damage.[1,2,3] This syndrome is marked by non-specific neurological symptoms and systemic manifestations, often linked to intracerebral calcifications, white matter abnormalities, cerebral atrophy, cerebrospinal fluid lymphocytosis, and elevated interferon alpha levels.[3,4,5] Due to the resemblance of its neurological symptoms to other disorders, diagnosing the syndrome is quite challenging.[6,7,8] Neonatal onset of this condition is exceedingly rare and is most frequently associated with the TREX gene.[9] This case underscores the importance of considering Aicardi-Goutières syndrome as a potential differential diagnosis in newborns presenting intracerebral and basal ganglia calcifications, particularly after excluding infections, calcium and phosphorus metabolism disorders, cerebral folate deficiency, and mitochondrial diseases.

Compliance with ethical standards
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