

HEADACHE AND FOCAL NEUROLOGICAL DEFICITS: DIAGNOSTIC CHALLENGES BETWEEN HEMIPLEGIC MIGRAINE AND ISCHEMIC EVENTS IN AN ADOLESCENT

C. Brancaccio[1|2], P. Cattabiani[1|2], M. Celario[1|2], S. Genta[1|2], E. Rognone[3], A. Pichiecchio[1|3], S. Kalantari[4|5], V. De Giorgis[1|2]

[1]Dipartimento di Scienze del Sistema Nervoso e del Comportamento, Università degli Studi di Pavia, Italy; [2]U.O.C. Neuropsichiatria Infantile, Fondazione IRCCS Mondino, Pavia, Italy; [3]U.O.C. Neuroradiologia, IRCCS Fondazione Mondino, Pavia, Italy; [4]Unità di Genetica Medica, IRCCS Fondazione Policlinico San Matteo, Pavia, Italy; [5]Dipartimento di Medicina Molecolare, Università di Pavia, Italy

Background. Differential diagnosis between hemiplegic migraine and cerebral ischemic events remains a clinical challenge, even in the pediatric population, particularly when patients present with transient focal neurological deficits and initially inconclusive neuroradiological findings.

Methods. We report the case of a 14-year-old adolescent with a family history of migraine who presented to the Emergency Department following an episode of loss of consciousness, subsequently developing aphasia, focal neurological deficits, and headache with migrainous features. Initial investigations, including electroencephalography (EEG), brain computed tomography (CT), echocardiography, and carotid and vertebral Doppler ultrasonography, were unremarkable, whereas brain magnetic resonance imaging (MRI) revealed transient vascular abnormalities that were not confirmed on follow-up imaging. The patient was discharged with a diagnosis of migraine with atypical aura. Clinical follow-up required repeated reassessments over time, both in the outpatient setting and during subsequent hospital admissions. Recurrent paroxysmal neurological manifestations prompted serial laboratory and instrumental investigations, including neuroradiological, ultrasonographic, and electrophysiological studies. As part of the diagnostic work-up, genetic testing was also initiated and is currently ongoing. These investigations progressively clarified the clinical picture, occasionally yielding unexpected findings, ultimately leading to an effective therapeutic strategy.

Results. Brain MRI performed during the second hospitalization demonstrated multiple bilateral subacute cerebellar ischemic lesions. Transcranial Doppler ultrasound revealed a grade III right-to-left shunt, highly suggestive of a patent foramen ovale (PFO), which was subsequently confirmed by echocardiography. This finding, together with mildly abnormal coagulation parameters, supported the initiation of antiplatelet therapy, initially as monotherapy and later as dual antiplatelet therapy. The patient subsequently underwent successful percutaneous PFO closure.

Conclusions. Overall, the clinical and instrumental findings were consistent with a cerebrovascular etiopathogenetic mechanism. However, the semiology of the recurrent neurological episodes was not entirely explained by the ischemic lesions detected on neuroimaging, leaving the initial diagnosis of hemiplegic migraine as a plausible concomitant condition. This case highlights the diagnostic challenges posed by recurrent focal neurological manifestations in patients with a migrainous phenotype. Appropriate clinical management therefore requires continuous diagnostic reassessment, integrating clinical evolution with instrumental findings to guide timely therapeutic decision-making.