CLINICAL IMAGE

# A 33-year-old in puerperium with posterior reversible encephalopathy syndrome in the course of severe COVID-19

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A 33-year-old woman in puerperium with COVID-19 was admitted to the hospital due to dyspnea, dry cough, and fevers. Four days prior to the admission, she developed high fever (39 °C) and underwent cesarean delivery due to impending perinatal asphyxia. The next day, she tested positive for SARS-CoV-2 using a polymerase chain reaction test (October 10, 2020). Her obstetric history was significant for 2 previous natural deliveries and 4 spontaneous miscarriages. During a recent pregnancy, she developed gestational diabetes mellitus. A healthy boy was born at 38 weeks' gestation and had no symptoms of COVID-19. The patient also had hypothyroidism and recurrent migraines. Before admission, she was started on amoxicillin and clavulanic acid, fluconazole, and prophylactic enoxaparin.

On admission, she presented with features of severe hypoxic respiratory failure: oxygen saturation as measured by pulse oximetry of 77% on room air, tachypnea (>30 breaths per minute), blood pressure of 132/79 mm Hg. Her laboratory test results showed elevated leukocytosis with high neutrophil count and lymphopenia, and elevated inflammatory markers: C-reactive protein (218.00 mg/l; reference range ≤5.00 mg/l), interleukin 6 (30.29 pg/ml; reference range ≤7 pg/ml), ferritin (552 µg/l; reference range, 13–400 µg/l), procalcitonin (9.05 ng/ml; reference range ≤0.1 ng/ml), and D-dimer (1.250 mg/l; reference range ≤0.55 mg/l). Chest X-ray and computed tomography angiography (angio-CT) displayed inflammatory pattern in the lungs, with no features of pulmonary embolism (FIGURE 1A and 1B). Lung ultrasound revealed multiple diffuse B-lines.

High-flow nasal oxygen therapy (50 l/min; fraction of inspired oxygen, 70%) was applied. She received systemic steroids, remdesivir, and empirical antibiotics (levofloxacin, meropenem) and fluconazole was continued. Blood and urine cultures were negative. To exclude postpartum complications, gynecological examination was performed and showed no abnormalities. Cabergoline was administered to inhibit lactation.

On day 4 of hospitalization, she presented with severe headache, confusion, and left homonymous hemianopsia. The laboratory test revealed extremely high levels of D-dimers (>35.20 mg/l fibrinogen-equivalent units); therapeutic enoxaparin was started. The patient was consulted neurologically and cranial CT, angio-CT of the head and neck, and brain magnetic resonance imaging (MRI) were performed and no abnormalities were found. Subsequent MRI obtained a few days later was suggestive of posterior reversible encephalopathy syndrome (PRES) (FIGURE 1C–1F).

In the next few days, neurological symptoms started to diminish. In the course of the treatment, no elevation of frequently measured blood pressure has been noted (highest, 132/79 mm Hg, and lowest, 95/63 mm Hg). On day 8 of hospitalization, the patient presented again with severe headache, confusion, homonymous hemianopsia (this time on the right side) with nausea and vomiting. On the third MRI, there was an almost complete regression of earlier pathologies, with some new lesions in other localizations. The evolution of these lesions again suggested the diagnosis of PRES (FIGURE 1G and 1H).

Within the next few days, neurologic symptoms started to subside, a clinical improvement was seen with an improvement in respiratory function. In laboratory tests, the levels of inflammatory markers and D-dimer were decreasing. There was a significant regression of pulmonary lesions on a control chest X-ray. Eventually,

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Received: May 27, 2021.
Revision accepted: July 27, 2021.
Published online: September 28, 2021.
Pol Arch Intern Med. 2021; 131 (11): 16097
doi:10.20452/pamw.16097

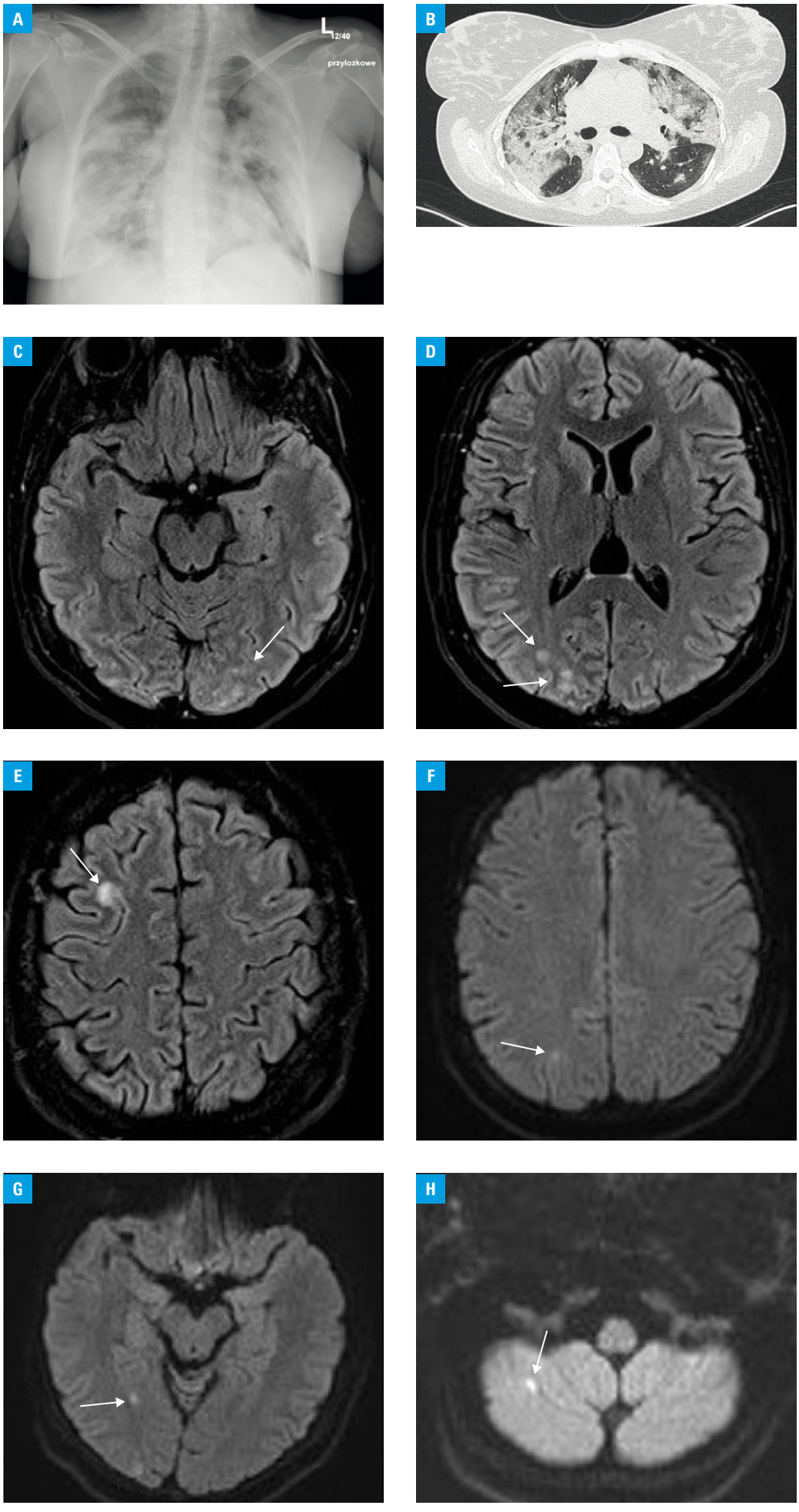


**FIGURE 1** **A** – chest X-ray showing bilateral, massive, confluent infiltrative-atelectatic lesions visible in the pulmonary fields (especially in the lower and middle fields and in the upper left field); a possible concomitant congestive component is present as well. **B** – computed tomography angiography of the chest showing extensive bilateral areas of ground glass opacities, consolidations, and "crazy-paving" pattern in the lungs, with no features of pulmonary embolism; **C**–**F** – the second magnetic resonance imaging (MRI) showing small areas of increased signal in the cortex and subcortex in both occipital lobes and on the occipital-parietal border, and small zones with increased signal intensity in the T2--weighted sequences around the cortical--subcortical frontal lobes (arrows), with a predominance of the right side; **G**, **H** – the third MRI showing an almost complete regression of previous lesions, with some new areas with high signal intensity in the diffusion-weighted susceptibility imaging sequence in another location in the cortex of the medial part of the right occipital lobe and in the right cerebellar hemisphere (arrows)

the patient was discharged from the hospital with no residual neurologic symptoms.

The described case suggests that PRES may be a rare neurological presentation in the course of severe COVID-19.[1,2]

## ARTICLE INFORMATION

**CONFLICT OF INTEREST** None declared.



**HOW TO CITE** Nosal D, Kowalska N, Stachura T, et al. A 33-year-old in puerperium with posterior reversible encephalopathy syndrome in the course of severe COVID-19. Pol Arch Intern Med. 2021; 131: 16097. doi:10.20452/pamw.16097

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