Postpartum convulsions—a diagnostic enigma

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Convulsions in the puerperium should be treated as eclampsia until proven otherwise. However, opportunities to identify other causes of convulsions should be vigorously pursued.

CASE HISTORY

A 40-year-old Caucasian woman, who had undergone three previous uneventful deliveries, presented on 14th day after the delivery of her fourth baby at term as an emergency with convulsions. On day four postpartum, she had developed constitutional symptoms, including headache and pyrexia. A diagnosis of pelvic infection was made and she was treated with antibiotics. Although her other symptoms resolved, the headache continued.

By the 14th day, headache became more severe and over a period of 2 hours she suffered three convulsions. These were characterized by generalized muscle spasm, which terminated spontaneously. There was no incontinence of urine or faeces. On examination immediately after the seizures, she went through a post-ictal phase but there was no residual focal neurological deficit. She was afebrile, normocardiac and normotensive. Neurological examination demonstrated bilateral hyper-reflexia and clonus of 3 beats. There were no clinical signs of deep venous thrombosis or pulmonary embolism. The uterine fundus was non-tender, with non-offensive normal lochia and the perineal sutures looked healthy.

Pulse oximetry demonstrated oxygen saturation (SpO₂) of 89% on air. The full blood count, clotting profile, liver function, renal function, serum calcium and random blood glucose tests were well within normal limits. The urine analysis initially demonstrated proteinuria at 3 gm/L which disappeared the following day. The D-dimer was positive, consistent with her post partum state. Both C-reactive protein at 20 mg/L and serum urate at 574 µmol/L were raised. Microscopic analysis of cerebrospinal fluid and culture was negative. Radiology confirmed a normal chest X-ray, Magnetic resonance imaging (MRI) of the brain was performed and demonstrated a multi focal cortical and

sub-cortical abnormality with symmetrical pattern involving both cerebral hemispheres. These findings were supportive of an infective encephalitic process or an acute hypotensive episode. A review of the MRI images later revealed that the cerebral veins looked normal, making thrombosis as the cause of the convulsions less likely.

The convulsions of the postpartum period raised the possibility of eclampsia despite the relatively late onset. The differential diagnoses also included, venous sinus thrombosis, encephalitic and infective bacterial or viral meningitis.

The following treatment regimen was commenced: intravenous magnesium sulphate infusion to prevent further convulsions, acyclovir and broad-spectrum antibiotic for possible encephalitis and low molecular weight heparin for thromboprophylaxis.

The Polymerase chain reaction (PCR) examination of the cerebrospinal fluid (CSF) was negative to herpes simplex, enterovirus and varicella virus. The oligoclonal band study to exclude multiple sclerosis was normal. The thrombophilia screen (antiphospholipid antibody, Lupus anticoagulant and factor V Leiden deficiency) was also negative.

She remained stable and had no further convulsions. The patient made an uneventful recovery and was discharged after day 25 postpartum. A follow up MRI after 8 weeks was normal.

DISCUSSION

This case posed a diagnostic enigma. Convulsions in the puerperium should be treated as eclampsia until proven otherwise. In this case the presentation was unusual and the differential diagnosis of cerebral venous thrombosis was also considered. The clinical picture was complicated by the pyrexia and the MRI findings which were suggestive of encephalitis. Infective meningitis was unlikely in view of normal CSF analysis.

In eclampsia, seizures are caused by the widespread endothelial cell damage. The site and the extent of the damage dictate the initial signs and symptoms caused by the syndrome. It is then logical that seizures may precede hypertension or proteinuria. Although our patient did not have sustained hypertension or proteinuria antenatally or post partum, we considered a diagnosis of eclampsia because these signs do not always have to be present in eclamptic patients.²

Pregnancy and the postpartum period are also times of unique risks for thrombosis.^{3,4} The tendency for the thrombosis results from changes in the vessel walls, hydration, blood flow and coagulability. Association of cerebral venous thrombosis with puerperium is well known. Incidence of cerebral venous thrombosis is difficult to determine and the incidence has been reported to be

4–7/100 000 hospital patients.⁵ It typically presents in 2nd or 3rd week postpartum. Cerebral venous thrombosis is characterized by varying clinical presentation and different underlying causes; when it is associated with pregnancy and puerperium it has a more acute onset and a better prognosis than thrombosis due to other causes. Cranial venous thrombosis should be considered in any pregnant woman who has severe headache, hemiplegia or convulsions.⁶

The fact that our patient had an episode of pyrexia on the fourth day postpartum along with the findings of the first MRI examination led us to suspect encephalitis as the possible cause of the convulsions. However this was not supported by the PCR test used for detecting the viral DNA. The MRI images were reviewed by three senior consultant radiologists from two hospitals. It was concluded that the MRI finding was suggestive of an infective aetiology rather than a thrombotic episode. The lesions resolved completely on antimicrobial therapy. She was seen again 2 months later with a follow up MRI which showed complete resolution of the previously reported lesions. There was no recurrence of convulsions after the initial presentation. Although the clinical picture and the investigation results were confusing she is likely to have been suffering from

encephalitis given complete resolution of her symptoms and the MRI appearance.

Greater awareness and knowledge of this condition by clinicians should improve the outcomes in these potentially life-threatening cases.

Competing interests None.

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