

Post-partum cerebral venous sinus thrombosis

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Abstract

Cerebral venous sinus thrombosis (CVST) is a rare neurological emergency occurring during pregnancy and puerperium. It is reported to be associated with varied symptoms ranging from isolated headache to profound coma. Herein, we report a case of a 39 year old woman on her eighteenth day of postpartum, admitted with dull headache and seizure. She was initially managed for eclampsia. Later, she was diagnosed as CVST and successfully treated by heparinization.

Key words: cerebral venous sinus thrombosis, seizure, puerperium, eclampsia, magnetic resonance venography

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Introduction

CVST is a rare but potentially fatal neurological complication, which is reported in women especially during puerperal period due to hypercoagulable state. According to literature, patients present with severe headache, neurological deficits and seizures. A high index of suspicion is needed to diagnose, treat and prevent this life threatening complication. Magnetic Resonance Venography (MRV) is the gold standard diagnostic test for CVST. Herein, we present a rare case of CVST, in which patient initially treated for

imminent eclampsia. The diagnosis was timely revised as CVST and successfully managed with a favourable outcome.

Case history

A 39 year old woman was admitted to Colombo South Teaching Hospital with dull headache for 3 days and an episode of short lasting left side tonic clonic seizures on the eighteenth day of her puerperal period. She (G1P1) had an emergency caesarean section due to delayed second stage of labour. Her medical history

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was unremarkable. Further, her pregnancy period was uneventful including the immediate postpartum period. Hence, she was discharged on 2nd post-operative day. There was no history of pre eclamptic symptoms, loss of consciousness, neck pain and fever.

On admission, she was conscious and well oriented. Her temperature was normal with no evidence of petechial rashes and peripheral oedema. Her blood pressure (BP) was 140/80mmHg and pulse rate was 88bpm. There was no focal neurological deficit and normal reflexes. Further, fundoscopy revealed no papilledema. Her gynaecologic examination was compatible with postpartum period. Blood investigations revealed normal complete blood count with haemoglobin 10.3g/dl and normal renal, hepatic, and coagulation profiles.

Further, she developed a short lasting partial seizures followed by secondary generalized tonic clonic seizure, few hours after admission. Hence, she was clinically

suspected as a case of imminent eclampsia and immediately treated. However, due to normal BP, urine albumin and blood investigations throughout hospital stay, other causes also had been considered.

Due to ongoing convulsions, antiepileptic was initiated. Non contrast computerised tomography (NCCT) brain was found to be normal. Magnetic resonance imaging (MRI) with MRV confirmed superior sagittal sinus thrombosis (SSST) and left transverse sinus thrombosis (LTST) up to sigmoid sinus with right parietal venous haemorrhagic infarction. Hence, it was diagnosed as cerebral venous sinus thrombosis. Upon conclusive diagnosis of CVST, she was managed by team of gynaecologist, neurologist and haematologist. She was admitted to intensive care unit (ICU) and LMW Heparin therapeutic dose was commenced. Her symptoms improved within a few days. LMW Heparin was continued and planned to do repeat MRI after 2 weeks to decide about oral anticoagulant.

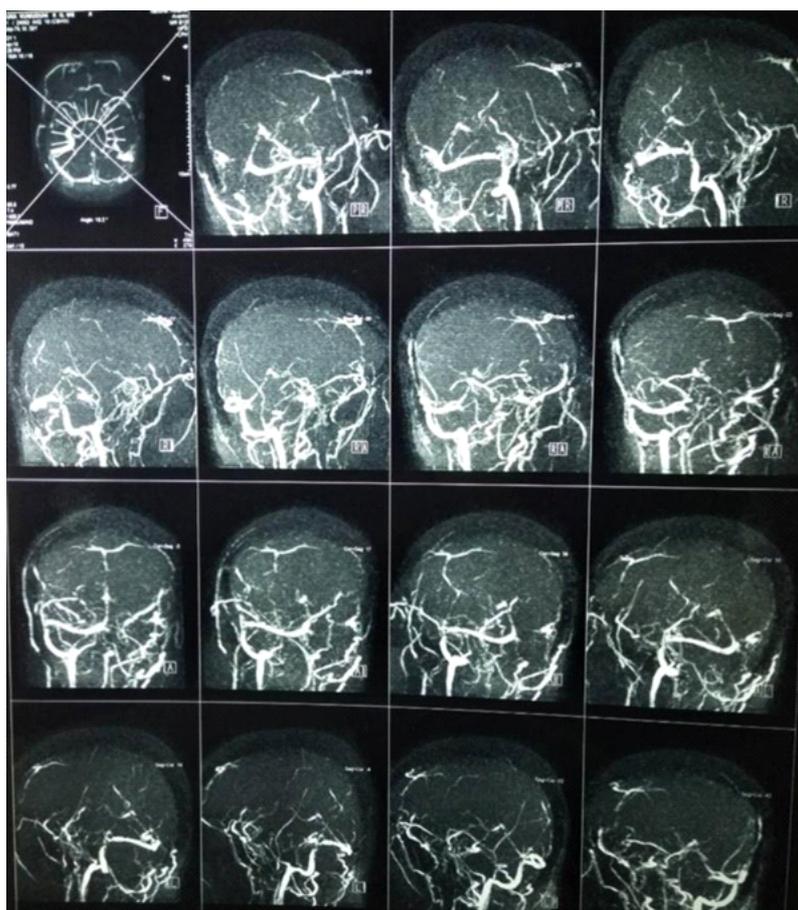


Figure 1. MRV image.

MRV shows superior sagittal sinus thrombosis (SSST) and left transverse sinus thrombosis (LTST) up to sigmoid sinus.

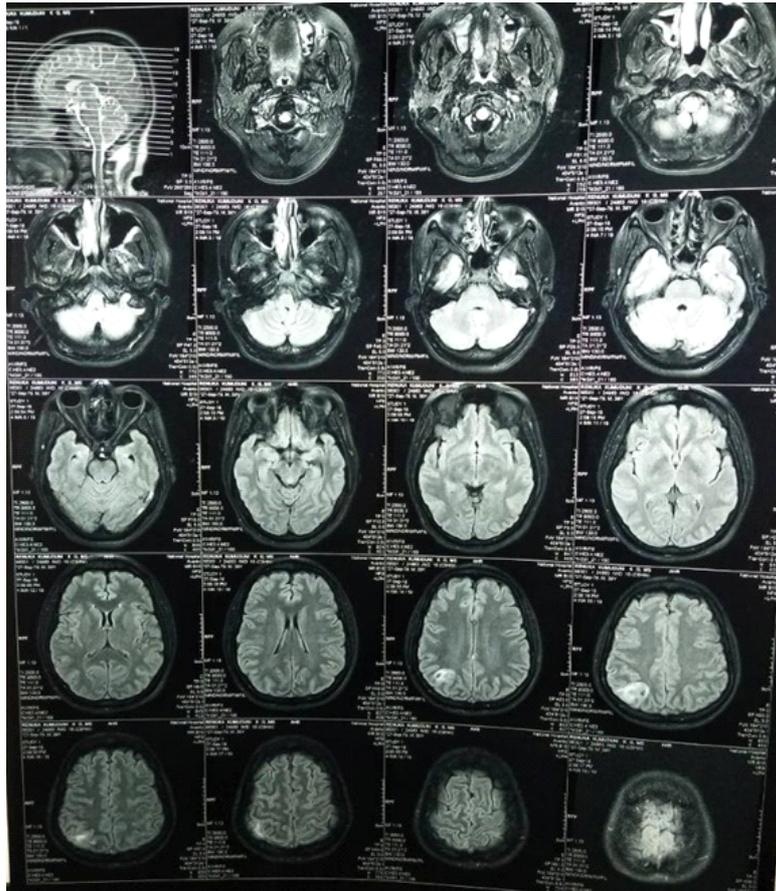


Figure 2. MRI image.

MRI shows right parietal venous haemorrhagic infarction.

Discussion

CVST is a rare form of venous thromboembolism (VTE). It is characterized by a highly variable clinical spectra, difficult diagnosis, variable aetiologies and prognosis. Its incidence varies between 1 in 11000 to 1 in 45000 pregnancies¹. Superior and transverse sinuses are commonly involved.

CVST refers to complete or partial obstruction of cerebral veins results in venous congestion, cerebral oedema caused by increasing the capillary hydrostatic pressure, venous infarction, petechial haemorrhages and occlusion of venous sinuses results in intracranial hypertension². Risk factors of CVST are associated with the classical Virchow triad of thrombogenesis: vessel wall damage, blood stasis and hypercoagulability. Hypercoagulability is the most important factor in development of cerebral venous thrombosis. Reported

risk factors of CVST are obesity, smoking, congenital or acquired thrombophilia, malignancy, oral contraceptive pills and pregnancy. Pregnancy related risk factors include sepsis, preeclampsia, thrombophilia and delivery by caesarean section¹. Risk factors in above case were caesarean section and post-partum period.

Headache (80-90%) is the common presenting symptom, which initially make it difficult to differentiate this rare complication from several common diagnoses such as eclampsia³. Focal or generalized seizures are reported in 40% of the cases: some have neurological deficit⁴. The specific presentation depends on location, extent of the thrombosis and the presence of associated cortical lesions. Patient presented in above case with seizures and dull headache on the eighteenth day of the postpartum period and managed as eclampsia. As the symptoms continued, other possible causes were considered.

Imaging studies remain the cornerstone of diagnosis.

The most sensitive diagnostic test is MRI with venography. If MRI is not available then high resolution CT is a useful investigation. However, it should be kept in mind that CT may result normal in 20-25% of cases but often abnormal in patients who do exhibit neurological signs⁵. In above case, NCCT brain was normal, but MRI and MRV revealed superior sagittal sinus thrombosis, left transverse sinus thrombosis and right parietal area haemorrhagic infarction. Above case highlights the importance of keeping a high index of suspicion to differentiate CVST from its several important differential diagnoses like eclampsia, cerebrovascular accidents, meningitis, post-dural puncture headache and posterior reversible encephalopathy syndrome (PRES).

Treatment strategies are aimed to control or resolve the underlying pathology, controlling ICH and treatment of seizures or focal deficits caused by cerebral oedema or infarction. Initial anticoagulation with adjusted-dose UFH or LMWH in therapeutic dose is recommended, followed by vitamin K antagonists, regardless of the presence of ICH⁶. In patients, with impending herniation, surgical decompression should be considered. Even though, recurrence rate in subsequent pregnancy is low, indication for thromboprophylaxis in next pregnancy is unknown⁶.

In conclusion, post-partum seizures should be evaluated in broader perspective to arrive at a diagnosis without undue delay. CVST is a potentially life threatening condition if it is undiagnosed. However, timely recognition and early treatment result in

favourable outcome.

References

1. Akhileshwar Singh, Sanjay Singh, Shakti Vardhan. A rare case of post-partum cerebral venous sinus thrombosis. *Int J Reprod Contracept Obstet Gynecol* 2018; 7(2): 762-65.
2. Hernando Raphael Alvis-Miranda, Sandra Milena Castellar-Leones, Gabriel Alcala-Cerra, and Luis Rafael Moscote-Salazar. Cerebral sinus venous thrombosis. *J Neurosci Rural Pract* 2013; 4(4): 427-38.
3. Rajlaxmi Mundhra, et al. Sagittal sinus thrombosis in puerperium. *J Emerg Trauma Shock*, 2015; 8(3): 173-4.
4. Yaseer Muhammad Tareq Khan, Houda Nasser Al Yaqoubi, Nishat Fatema. Complete Superior Sagittal Sinus Thrombosis Along With Subarachnoid Hemorrhage During Early Postpartum Period, Presented by Left Hemiparesis. *J Neurol Res* 2017; 7(4-5): 89-93.
5. Uzun Eilingir I et al. A case of postpartum cerebral venous thrombosis presented by convulsions. *Perinatal Journal* 2013; 21(2): 93-5.
6. Campbell Tait, Trevor Baglin, Henry Watson, Mike Laffan, Micheal Makris and David Keeling. Guidelines on the investigation and management of venous thrombosis at unusual sites. *British Journal of Haematology* 2012; 159: 28-38.