# Reversible cerebral angiopathy after blood transfusion


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Sir,

Neurological complications have rarely been described after

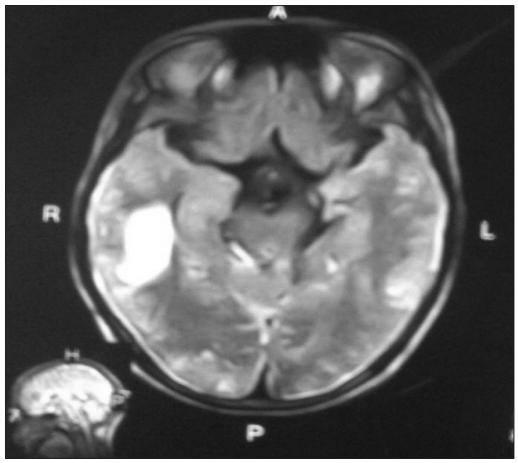


**Figure 1:** Multifocal cortical and sub-cortical hyperintensities in bilateral high convexity fronto- parietal lobe and occipital lobe with hemorrhagic lesion in the right posterior temporal lobe

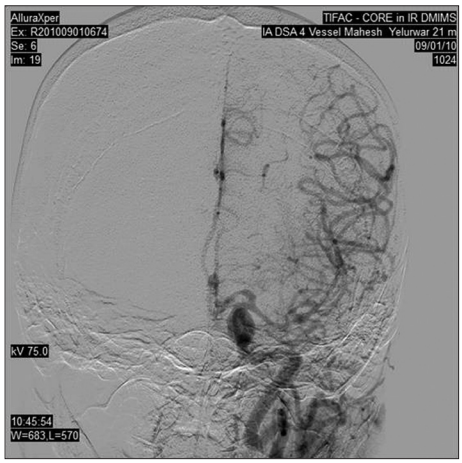


**Figure 2:** DSA showing Short segment stenosis in the A1 segment of left anterior cerebral artery

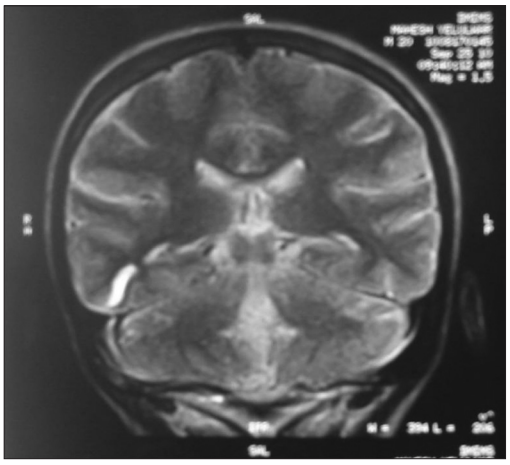

**Figure 3:** MRI showing right temporal bleed which was resolving as compared to figure 1

blood transfusion.[1,2] We report a case of reversible angiopathy and encephalopathy after a blood transfusion in a patient with severe anemia.

A 20 year old male presented to us with chief complaints of persistent headache since 15 days and seizures since 1 day. On asking the history, it was noted that before the onset of present symptoms he was treated for severe iron deficiency anemia because of bleeding piles with 4 units of blood transfusion within 3 days. Pre transfusion Hb was 3 gm% and it increased to 8 gm% after blood transfusion. Two weeks after blood transfusion, patient had an episode of generalized tonic clonic seizure for which patient was admitted in our hospital. Seizure responded to treatment with sodium valproate but headache continued.

Blood glucose, electrolytes, KFT, LFT, ESR, and coagulation tests were normal. Serum ANA, p ANCA, rheumatoid factor, and blood cultures were negative. ELISA for HIV was negative. Hemoglobin electrophoresis revealed AA pattern. EEG showed normal study. An MRI performed just before the admission showed multifocal cortical and subcortical hyperintensities in bilateral high convexity fronto-parietal lobe and occipital lobe with hemorrhagic lesion in the right posterior temporal lobe [Figure 1]. Digital subtraction angiography (DSA) scan showed short segment stenosis in the A1 segment of left anterior cerebral artery [Figure 2].

The patient spontaneously improved within 7 days of hospitalization. Repeat MRI performed after 20 days of hospitalization showed complete resolution of all lesions, except for the right temporal bleed which was slightly resolved [Figure 3]. Arterial stenosis was no longer visible after 3 months follow- up. A diagnosis of post- transfusion reversible cerebral angiopathy was made.

Neurological complication of blood transfusion are rare. A few cases of acute hypertensive leukoencephalopathy have been observed in anemic patients with chronic renal failure who received blood transfusion or erythropoietin therapy.[2-4] But to date, only one case of angiopathy, attributed to a vasospasm, associated with reversible posterior leukoencephelopathy syndrome has been reported after blood transfusion.[5] In our case, angiopathy was associated with encephalopathy which was not predominantly posterior. This observation underlines the fact that clinical and radiological features of transfusion- related neurological complications could be diverse and suggests that, a clinical and patho-physiological continuum exists between reversible benign angiopathy and reversible posterior leukoencephalopathy.

The two main mechanisms generally evoked in cases of reversible posterior leukoencephalopathy due to blood transfusion or erythropoietin administration include hypertensive encephalopathy and vasospasm. A rapid increase in the hematocrit level and viscosity may have exceeded the mechanisms of cerebral autoregulation and resulted in hypertensive encephalopathy despite normal systemic blood pressure.[1,2,4,6] Vasospasm could be the consequence of an acute vascular endothelium dysfunction due to rapid increase in viscosity.[7] The latter mechanism could have prevailed in our case.

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