Thunderclap headache and boomerang sign in dengue encephalopathy

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An 18-year-old boy presented with high-grade fever with rashes over the body for 2–3 days followed by abrupt onset, severe holocranial headache associated with photophobia, phonophobia, nausea, and vomiting. Headache was so severe and sudden that the patient was immediately rushed to the emergency. The patient also developed slurring of speech and drowsiness later that day. On examination, the patient was febrile with a temperature of 101 F, his blood pressure was 100/60 mmHg, pulse rate was 110/min, and respiratory rate was 24/min. The patient was irritable, with irrelevant talking and restlessness. Cranial nerve, motor, sensory, and cerebellar examination were normal. His headache subsided with intravenous analgesics but fever and rashes persisted. Speech and sensorium improved along with headache. On investigation, his platelet counts were low (24,000/μL) and pyrexia workup showed dengue NS1 antigen positive. Brain magnetic resonance imaging (MRI) showed diffusion restriction in diffusion-weighted imaging images in the splenium of corpus callosum (Fig. 1a and b). Magnetic resonance angiography and venography were normal and no contrast enhancement was seen. The rest of the investigations were normal. The patient's fever, rashes, and platelet counts improved over a few days, and a repeat brain MRI after 2 weeks showed no diffusion restriction (Fig. 2a and b).

Transient splenium hyperintensity in MRI is called as Boomerang sign due to its resemblance with boomerang [1]. It can be seen in infective encephalitis/encephalopathy, post-ictal state, anti-epileptic drugs withdrawal, toxic or metabolic encephalopathy, and occasionally in few primary headaches such as migraine and hemicrania continua [2-4]. In this case, probably dengue encephalopathy associated with capillary leakage caused neuronal damage in the splenium of the corpus callosum and hence may have triggered the cortical spreading depression causing headache [5].

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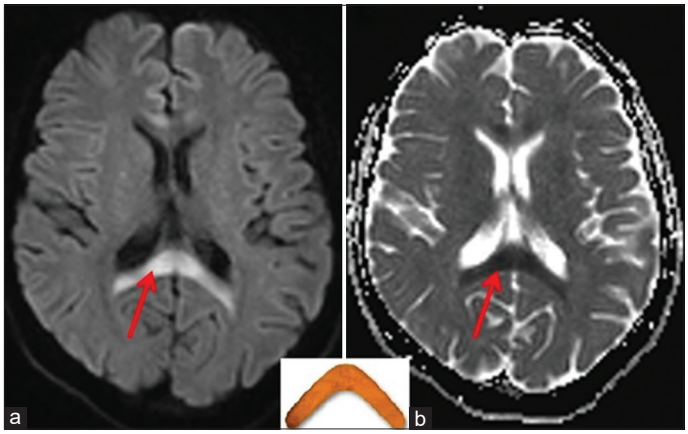

Figure 1: Diffusion-weighted imaging and apparent diffusion coefficient images showing diffusion restriction in splenium of corpus callosum (red arrows) at presentation (a and b). Inset image showing wooden boomerang, resembling restricted area in splenium of this patient

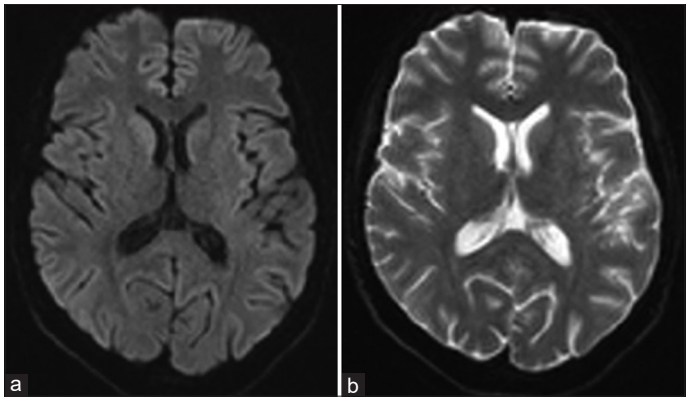

Figure 2: Diffusion-weighted imaging and apparent diffusion coefficient images showing disappearance of diffusion restriction from splenium of corpus callosum after 2 weeks (a and b)

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