CASE REPORT

Case of Near Fatal Massive Intracerebral Bleed Secondary to Cerebral Venous Thrombosis in a Patient with Dengue and Refractory Thrombocytopenia

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Abstract

We present a case of dengue with refractory thrombocytopenia who developed cerebral venous thrombosis (CVT) with intraparenchymal hemorrhage warranting surgical decompression. Patient was concluded to have secondary immune thrombocytopenic purpura (ITP) which remained refractory to high dose steroids, IVIg therapy, but responded to thrombopoietin receptor (TPO-R) agonist, eltrombopag.

Keywords: Cerebral venous thrombosis, Dengue, Eltrombopag, Thrombocytopenia.

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Case Description

We present to you a case of a 30-year-old female who was admitted to our hospital with complaints of fever and was diagnosed to have dengue. Her platelet count was 55,000/mm^3 on admission. The patient was started on fluid resuscitation. On the eighth day of admission, patient started complaining of severe headache with worsening sensorium and new onset right sided hemiparesis. MRI brain with contrast was done which showed large acute left temporal hematoma with mass effect with features of cerebral venous thrombosis (CVT) involving left transverse sinus, sigmoid sinus and left internal jugular vein.

She was managed with continued fluid resuscitation. Thrombocheck panel, an antinuclear antibody test was done to look for any predisposing prothrombotic factors. Anticoagulation could not be considered in view of severe thrombocytopenia. She required repeated platelet transfusions to keep platelet count above 50,000/mm^3. On 11th day patient deteriorated neurologically, with CT brain showing an increase in mass effect and midline shift.

She underwent left front temporoparietal decompressive craniectomy. Because of refractory thrombocytopenia, she was started on dexamethasone 40 mg/day. Follow up CT brain showed acute hematoma in the left temporal occipital lobe with perilesional edema and mass effect (Fig. 1). Thrombocheck panel, LDH, peripheral smear, ADAM TS 13, C3 C4 were done to rule out secondary causes of thrombocytopenia which were normal. Eltrombopag and high dose methylprednisolone (1 g/kg × 3 days) was started because of refractory thrombocytopenia with intracranial hematoma, however, her platelets continued to be low. Bone marrow biopsy showed a normocellular marrow. IVIg 1 g/kg was given as a single dose on day 17 as her platelet trends didn't show any improvement. After 23rd day patient's platelet count showed an increasing trend and she was taken for a relook craniotomy and hematoma evacuation. Therapeutic anticoagulation was started after 72 hours of surgery. Eltrombopag was stopped subsequently. The patient improved neurologically.

Discussion

Dengue can be present as a wide range of clinical phenotypes.

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Although, hemorrhagic complications are more common in dengue, thrombotic complications are not unreported. da Costa et al. reported five cases with nonneurological thrombotic complications in patients with dengue fever (DF).[1] We were able to

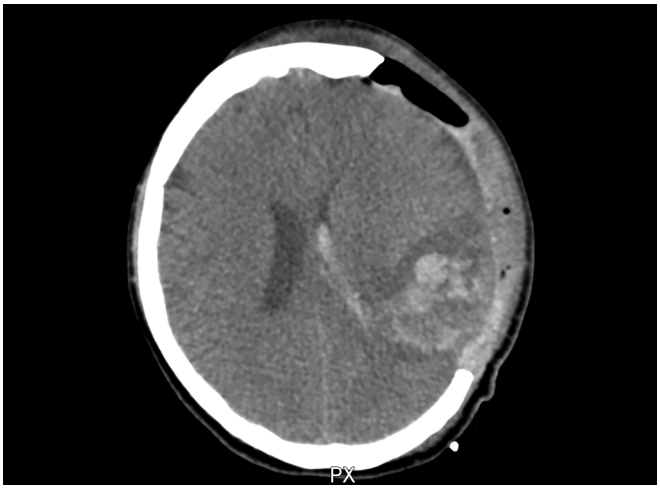
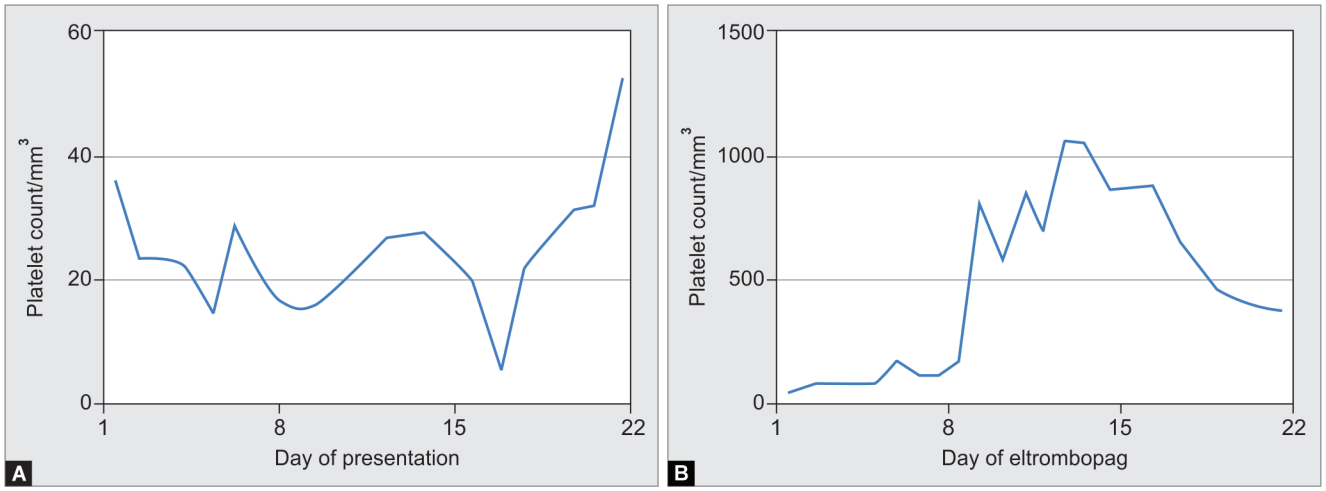


Fig. 1: CT brain showing postoperative status with acute left temporal hematoma



Figs 2A and B: Platelet count trends before and after eltrombopag

find two case reports of CVT in dengue in literature.[2,3] In both these reports, patients improved subsequently with adequate fluids and anticoagulation, with none of them requiring surgical intervention. Our patient had normal hematocrit values and she was being adequately hydrated. So, it looks unlikely that alone dehydration was the cause of her prothrombotic state. Her thrombocheck panel was normal, and she did not carry any prothrombotic risk factors like OCP use or smoking. Several mechanisms have been described in literature for the association between DF and thrombotic processes.[4,5]

Thrombocytopenia is one of the hallmarks of DF. It usually starts on day 3rd of fever while starts improving beyond 8th–10th day.[6–8] The mechanisms involved in thrombocytopenia in dengue are not fully understood and several hypotheses have been suggested to elucidate it.[4,9–11] Our patient continued to have low platelet counts in the 3rd week of her illness which was refractory to any transfusion. We treated her as immune thrombocytopenic purpura (ITP) after ruling out other possible causes for thrombocytopenia. There have been case reports of secondary ITP in DF.[12,13] High dose dexamethasone 40 mg/day although effective in ITP, has not shown the same results DF.[14,15] There are reports in the literature showing success with IVIg for increasing the platelet count in DF.[16] Our patient however, remained refractory to these therapies. Lack of response to IVIg was similar to observation by Dimaano et al.[17] Eltrombopag is a nonpeptide thrombopoietin receptor (TPO-R) agonist.[18] It has been shown to effectively increase platelet counts with chronic ITP with an overall response rate of 60–80%. Platelet counts start to increase after the first week of therapy and peak in the second week.[19] Looking at the trends of platelet counts (increase after the first week of therapy followed by thrombocytosis and stabilization after withdrawing the drug), it is quite obvious that our patient responded to eltrombopag (Fig. 2).

It can thus be considered as a potential therapy for life-threatening thrombocytopenia in DF however, further research is needed to prove its efficacy owing to the heterogeneity of mechanisms involved in thrombocytopenia in DF.

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