

DENGUE FEVER COMPLICATED WITH PULMONARY EMBOLISM

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ABSTRACT

Dengue fever is a clinical entity well known for its hemorrhagic complications whose pathophysiology, though not completely understood, may be linked to a systemic inflammatory state caused by the infection itself. Even if rarely described, inflammation may lead as well to thromboembolic manifestations.^[1]

INTRODUCTION

The main concern in dengue fever has been the severe forms, i.e. Deng hemorrhagic fever and Deng shock syndrome. Deep venous thrombosis and pulmonary embolism is uncommon complication following severe Deng viral infection. Complication such as these could be overlooked in the overall management of dengue fever, given that the major concern is the hemorrhagic event in Deng hemorrhagic fever. Although therapeutic anti-coagulant is recommended for management of Deep Venous Thrombosis/pulmonary embolism, this treatment may be questionable when the patient has an associated diathesis due to Deng of virus infection. Awareness of these kinds of complications is necessary among all a clinician who treat patient with dengue fever.

Dengue fever is a clinical entity well known for its hemorrhagic complications whose pathophysiology, though not completely understood, may be linked to a systemic inflammatory state caused by the infection itself. Even if rarely described, inflammation may lead as well to thromboembolic manifestations, as in the case we report here.

In Dengue hemorrhagic fever, hemorrhagic manifestations are common but thrombotic events are uncommonly reported, despite the wide range of increase pro coagulant activity during dengue fever illness.

Hemorrhagic events of different degrees have often been described in dengue, but thrombotic events have not been extensively reported, despite the wide range of increased procoagulant activity during illness.^[2]

More than 50 years of research on dengue has resulted in a host of literature, which strongly suggests that the

pathogenesis of Dengue hemorrhagic fever and **Dengue shock syndrome** involves viral virulence factors and detrimental host responses, collectively resulting in abnormal hemostasis and increased vascular permeability.^[3]

We report a case of 26 year old man of Asian ethnicity who developed acute pulmonary embolism in the acute phase of Dengue hemorrhagic fever. His condition was further complicated by associated thrombocytopenia. Pulmonary embolism treatment dilemmas posed in treating a patient of dengue fever with a risk of bleeding discussed.

CASE PRESENTATION

A 26 years-old gentleman presented with high grade fever for 6 days, headache, arthralgia, myalgia, nausea, abdominal pain and shortness of breath. Examination revealed stable vitals, oxygen saturation 88%, clinical examination unremarkable. His hemogram revealed normal hemoglobin, hematocrit 44%, TLC 7.84x10E3/ul and platelet count of 175,000/mcL. His liver function tests showed mildly increased transaminases (SGOT 119 U/L, SGPT 68 IU/L); serum urea and creatinine levels were normal. Chest xray done revealed-Left lower reticulation .Prominent both hilar shadows with accentuated bronchovascular markings.CT Angiography done showed Pulmonary embolism: Bilateral lung lower lobe pulmonary artery distal branches embolism showing as partial filling defects.no right heart strain,normal Pulmonary arteries:no history of venous catheter placement or any past history or family history suggestive of venous thromboembolism. D-dimer was increased (15.43 mg/L FEU). Malaria parasite antigen test, blood culture were negative. Coagulation studies and routine stool examination yielded normal results.

Hepatitis A, B, C virus infections were ruled out serologically. But, he was serologically confirmed positive for dengue polymerase chain. Screening for inherited thrombophilia did not reveal any abnormality. He was screened for Protein C, S deficiency and prothrombin mutation analysis done. Doppler ultrasonography of legs was normal.

Keeping in view the risks of life-threatening pulmonary embolism and because his PT, APTT and TT reports and platelet counts were in lower range, he was started on subcutaneous enoxaparin 1 mg/kg/day in 2 divided doses with twice weekly monitoring of platelet counts, APTT levels. After one week of subcutaneous heparin, he was started on oral apixaban. Discharge in stable condition asymptomatic.

DISCUSSION

Dengue fever is a disease may be completely asymptomatic or present with symptoms ranging from mild fever to severe hemorrhagic manifestations. Although the pathogenesis and alterations in the hemostatic pathophysiology are not fully understood, some data in the literature indicate that Dengue fever may increase the risk of thrombotic events.^[4]

In Samarasekara et al.^[5] The authors hypothesized that Dengue virus interferes with the components of the anti-clotting pathway, such as thrombomodulin-thrombin-protein C complex. It also activates endothelial cells and increases the expression of procoagulant factors. These factors may predispose patients with dengue viral infections to develop thrombotic complications.

Agarwal et al.^[6] described the case of a 55-year-old man with Dengue who developed a venous thromboembolic event. The authors argued that the state of hypercoagulability underlying the development of thrombotic complications may stem from endothelial damage caused by the virus itself. Another case report by Roy et al.^[7] of an Indian pediatric patient who developed deep vein thrombosis during Dengue infection—and successfully treated with enoxaparin—revealed the presence of no procoagulant factors other than the infection itself.

CONCLUSION

The present Case brings to the fore one of the rare complications of dengue fever, i.e. Thrombotic complications of Deng hemorrhagic fever. Management of a patient with blood clot who is also at risk of bleeding is a difficult situation and balancing between two life-threatening conditions can be challenging. Moreover, there are no guidelines in literature on management of such patients and therefore it becomes important that clinicians share their experiences in managing such difficult patients. Practicing clinicians should be aware of these kinds of complications in dengue fever.

REFERENCES

1. Poletto F, Cerruti L, Spiezia L. Dengue fever as a rare cause of pulmonary embolism. *J Thromb Thrombolysis.*, 2020 May; 49(4): 690-693. doi: 10.1007/s11239-020-02082-y. PMID: 32170526.
2. da Costa PS, Ribeiro GM, Junior CS, da Costa Campos L. Severe thrombotic events associated with dengue fever, Brazil. *Am J Trop Med Hyg.*, 2012 Oct; 87(4): 741-2. doi: 10.4269/ajtmh.2012.11-0692. Epub 2012 Sep 4. PMID: 22949517; PMCID: PMC3516329.
3. Martina BE, Koraka P, Osterhaus AD. Dengue virus pathogenesis: an integrated view. *Clin Microbiol Rev.*, 2009 Oct; 22(4): 564-81. doi: 10.1128/CMR.00035-09. PMID: 19822889; PMCID: PMC2772360.
4. Poletto F, Cerruti L, Spiezia L. Dengue fever as a rare cause of pulmonary embolism. *J Thromb Thrombolysis.*, 2020 May; 49(4): 690-693. doi: 10.1007/s11239-020-02082-y. PMID: 32170526.
5. Samarasekara K, Munasinghe J. Dengue shock syndrome complicated with acute liver failure and kidney injury, infective endocarditis, and deep vein thrombosis: a case report. *J Med Case Rep.*, 2018 Oct 30; 12(1): 321. doi: 10.1186/s13256-018-1862-1. PMID: 30373645; PMCID: PMC6206890.
6. Agarwal A, Sharma S, Airun M. Life-Threatening Thrombo-embolic Events in a Case of Dengue Hemorrhagic Fever. *J Assoc Physicians India.*, 2016 Aug; 64(8): 87-89. PMID: 27762119.
7. Roy A, Chaudhuri J, Chakraborty S. Deep vein thrombosis associated with dengue fever. *Indian Pediatr.*, 2013 Nov 8; 50(11): 1053-4. doi: 10.1007/s13312-013-0269-8. PMID: 24382902.