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Hemoptysis and Severe Thrombocytopenia in Adult Dengue Fever: Spontaneous Platelet Recovery with Conservative Management: A Case Report

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Abstract

Dengue is hyperendemic in Bangladesh, and thrombocytopenia is among its most common laboratory findings; although a low platelet count is frequently alarming to patients and clinicians, it usually resolves spontaneously during the convalescent phase. A range of unproven "platelet-boosting" measures including vitamin K, tranexamic acid and herbal preparations are widely used in the region despite the absence of a supporting mechanism or controlled evidence. We report a 55-year-old man who presented with fever, headache, nausea, arthralgia and hemoptysis. Dengue NS1 antigen was positive, and complete blood count showed severe thrombocytopenia (18,000/µL) with hemoconcentration (hematocrit 48.7%). He managed conservatively with paracetamol, oral fluids and monitoring; tranexamic acid and injectable vitamin K1 were also administered on clinical grounds. He recovered uneventfully, with the platelet count rising to 453,000/µL and the hematocrit normalizing to 39.6% approximately two weeks after symptom onset. The platelet recovery in this patient followed the well-recognized natural history of dengue and cannot be causally attributed to vitamin K or tranexamic acid. Vitamin K has no role in thrombopoiesis, and this case is best read as a reminder that spontaneous recovery in a single, uncontrolled case must not be mistaken for treatment effect. Adult dengue with mucosal bleeding nonetheless warrants close monitoring for warning signs.

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Introduction

Dengue fever remains a significant public health concern in tropical and subtropical regions, characterized by a spectrum of clinical manifestations ranging from self-limiting febrile illness to life-threatening complications (Das *et al*., 2022; Hasan *et al*., 2021) [6, 8]. While severe thrombocytopenia is a frequent hematological hallmark of the infection, it is typically self-limiting and follows a predictable recovery trajectory (Adarsh *et al*., 2021; Ali *et al*., 2021) [1, 2]. Despite this, the clinical management of severe dengue is complicated by the fact that patients often exhibit warning signs, such as abdominal pain or vomiting, which necessitate rigorous monitoring for hemodynamic stability (Anika *et al*., 2024) [4]. Although bleeding manifestations correlate with declining platelet counts in many patients (Arshad *et al*., 2022) [5], clinicians must remain cautious, as activation of the coagulation and fibrinolytic pathways often complicates the clinical course (Islam *et al*., 2022) [11]. Effective management requires precise clinical and laboratory assessment to identify the onset of severe plasma leakage, which may lead to dengue

shock syndrome and multi-organ involvement (Hossain *et al*., 2025) [9]. Establishing early warning based on independent risk factors such as hemorrhage and dyspnea is therefore essential for improving triage in endemic areas (Yang *et al*., 2023) [18].

While supportive care remains the cornerstone of treatment, some research into pharmacological interventions has suggested that adjuncts such as vitamin E or papaya leaf extract might assist in managing hematological derangements (Kala *et al*., 2023) [12]; however, the clinical utility of such interventions remains highly debated. Respiratory symptoms and hemorrhagic events in endemic regions may also indicate coinfection with other pathogens, such as SARS-CoV-2 (Amin *et al*., 2022) [3], so differentiating dengue-associated atypical manifestations from complications arising from coinfection is important for guiding therapeutic decisions (Htun *et al*., 2021; Keshav *et al*., 2024) [10, 13]. Analyzing clinical patterns of atypical, non-hemorrhagic and hemorrhagic presentations during outbreaks helps refine evidence-based supportive-care protocols, within which adherence to fluid-resuscitation protocols and judicious use of intravenous isotonic solutions remain the primary strategies for preventing hypovolemic shock in patients with significant plasma leakage (Tejashree *et al*., 2024) [17]. Persistent monitoring is critical, because fluid accumulation, mucosal bleeding and severe organ impairment characterize progression to severe disease and may necessitate intensive care (Merakou *et al*., 2023; Paz-Bailey *et al*., 2021) [14, 16].

We report an adult case of dengue fever presenting hemoptysis and severe thrombocytopenia that recovered fully on conservative management. We present it partly for its clinical features a bleeding manifestation in an older adult and partly as a cautionary illustration of how easily spontaneous recovery can be misattributed to an adjunctive agent.

Case Report

This case was managed in October–November 2024 at GP-Clinic, Narayanganj, Bangladesh. Written informed consent for publication of this case report and the accompanying data was obtained from the patient. In accordance with institutional guidelines, formal ethics committee approval was not required for the publication of this single case report.

A 55-year-old man from Narayanganj, with no documented significant comorbidities, presented with a several-day history of fever, headache, nausea and a subjective sense of rising temperature. He also reported generalized joint pain and episodes of coughing up blood (hemoptysis). On examination, he was febrile; the recorded findings included fever, hemoptysis and arthralgia.

The initial working diagnosis was febrile illness with a bleeding manifestation, and dengue was suspected clinically. Pending confirmation, he started on paracetamol (for fever), tranexamic acid and injectable vitamin K1 (phytomenadione), and advised maintaining oral fluid intake (oral saline and coconut water).

Dengue NS1 antigen testing was positive, confirming acute dengue infection. Serial complete blood counts are summarized in Table 1.

Table 1: Laboratory parameters at presentation and at convalescence.

Parameter	At presentation (24 Oct 2024)	Convalescent (05 Nov 2024)	Reference range
Hemoglobin (g/dL)	16.5	13.3	13–18 (male)
Hematocrit / PCV (%)	48.7	39.6	40–54 (male)
Total WBC (/µL)	6,600	9,100	4,000–11,000
Neutrophils (%)	61	64	40–75
Lymphocytes (%)	28	26	20–50
Platelet count (/µL)	18,000	453,000	150,000–450,000
ESR (mm/1st hr.)	10	30	0–20 (male)

Notable features were severe thrombocytopenia (18,000/µL) with relative hemoconcentration (hematocrit 48.7%, upper-normal hemoglobin) at presentation, consistent with early dengue. The patient was managed conservatively, with emphasis on antipyresis, oral hydration and monitoring for dengue warning signs and clinical bleeding. Paracetamol was used for fever; non-steroidal anti-inflammatory drugs and aspirin were avoided. Tranexamic acid and vitamin K1 had been commenced on clinical grounds at first presentation. His clinical course was uncomplicated. By the convalescent review approximately two weeks after symptom onset, the platelet count had risen to 453,000/µL and the hematocrit had fallen to 39.6%, consistent with resolution of hemoconcentration. He remained clinically well.

Discussion

The platelet recovery reflects natural history, not treatment effect. The trajectory observed here nadir-range thrombocytopenia in the acute phase, followed by recovery to a normal count over roughly two weeks is the expected, well-documented course of uncomplicated dengue (Das *et al*., 2022; Ali *et al*., 2021) [6, 2]. The concurrent fall in hematocrit from 48.7% to 39.6% independently signals resolution of the plasma leakage/hemoconcentration typical of the critical phase. In a single, uncontrolled patient, the fact that an agent was given before recovery does not establish that it caused recovery; this is a classic post hoc association.

Vitamin K has no plausible role in raising platelet counts. Vitamin K functions as a cofactor for the γ-carboxylation of coagulation factors II, VII, IX and X (and proteins C and S) in the liver; deficiency causes a coagulation-factor defect manifest as a prolonged prothrombin time, not thrombocytopenia, and its administration acts on the clotting cascade rather than on megakaryocyte-driven thrombopoiesis (Napolitano *et al*., 2010) [15]. There is therefore no mechanistic basis for expecting vitamin K to increase the platelet count in dengue, and this case should not be read as evidence that it does.

Tranexamic acidis an antifibrinolytic that may have a role in controlling established bleeding, but it does not increase platelet numbers, and randomized evidence in severe thrombocytopenia has not shown it to reduce bleeding or platelet-transfusion requirements (Estcourt *et al*., 2025) [7] its

routine use in dengue is thus not supported by strong evidence, and antifibrinolytics carry a theoretical thrombotic concern. Its administration here is best understood as a response to hemoptysis rather than as a platelet-directed therapy.

Clinical implications

Adult and older patients with dengue may present with, or develop, mucosal bleeding here, hemoptysis which should prompt assessment for warning signs and careful monitoring rather than reflexive use of agents marketed as "platelet boosters" (Htun *et al*., 2021; Keshav *et al*., 2024) [10, 13]. The practical message of this case is that reassurance, supportive care and observation are usually sufficient, and that clinicians should be cautious about attributing the expected spontaneous recovery of platelets to adjunctive drugs.

Limitations

This is a single case without control, and the recovery cannot be attributed to any specific intervention. Detailed daily platelet trends, coagulation profile and the etiological work-up of the hemoptysis were not available for this report [confirm/expand from the file]. The patient's age is recorded inconsistently across documents and should be verified before submission.

Conclusion

This case illustrates dengue fever in an older adult presenting hemoptysis and severe thrombocytopenia, with full spontaneous recovery on conservative management. The platelet counts normalized along the expected natural-history timeline of dengue and cannot be causally linked to the vitamin K or tranexamic acid that were administered vitamin K has no role in thrombopoiesis. In our view, spontaneous recovery of dengue platelets should not be mistaken for a treatment response, while genuine bleeding manifestations warrant vigilant monitoring for warning signs.

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