RESEARCH PAPER

Beyond Dengue: Secondary Immune Thrombocytopenia Presenting as Persistent Mucocutaneous Bleeding-A Case Report and Narrative Review

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ABSTRACT

Background: Immune thrombocytopenic purpura (ITP) is an acquired immune-mediated disorder characterized by isolated thrombocytopenia and increased bleeding risk. Dengue fever is a recognized trigger for secondary ITP.

Case Presentation: A 42-year-old female presented with gum bleeding and oral purpura. She had a history of dengue fever three months earlier. Evaluation revealed severe thrombocytopenia, anemia, elevated LDH, and reactive lymphocytes. Autoimmune and infectious workup was negative.

Management: The patient received corticosteroids, supportive transfusions, and symptomatic management. Secondary ITP following dengue infection was considered the most probable diagnosis.

Conclusion: Persistent thrombocytopenia after dengue should prompt evaluation for secondary ITP.

Keywords: Immune thrombocytopenia; Secondary ITP; Dengue fever; Thrombocytopenia; Autoimmune hematology; Corticosteroids; Post-infectious immune disorder.

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INTRODUCTION

Immune thrombocytopenia (ITP) is an acquired autoimmune disorder characterized by isolated thrombocytopenia resulting from increased platelet destruction and impaired platelet production. It may be primary or secondary to infections, autoimmune diseases, immunodeficiency states, and malignancies. Dengue fever is increasingly recognized as a trigger for persistent immune-mediated thrombocytopenia. This report describes a patient who developed probable secondary ITP following dengue infection and reviews current evidence regarding its epidemiology, pathogenesis, and management.

CASE PRESENTATION

A 42-year-old female presented with spontaneous bleeding from the gums for five days. She subsequently

developed multiple purpuric lesions over the oral mucosa. There was no history of hematuria, melena, menorrhagia, fever, rash, photosensitivity, oral ulcers, or recent drug intake.

Three months prior, she had been diagnosed with dengue fever and received one unit of single donor platelets, four units of random donor platelets, and four units of fresh frozen plasma. Since recovery, she experienced intermittent gum bleeding and myalgias.

On examination, pallor and oral purpura were present. There was no lymphadenopathy, edema, or hepatomegaly. Mild splenomegaly was noted.

Laboratory investigations revealed:

Hemoglobin: 6.1–7.2 g/dL

Platelet count: 21,000–23,000/mm³

Total leukocyte count: Normal

Peripheral smear: Microcytic hypochromic anemia with severe thrombocytopenia

Reactive lymphocytes present

LDH: 1040 U/L

ANA profile: Negative

Viral serology: Negative

Direct Coombs test: Negative

The patient received intravenous vitamin K, dexamethasone, pulse methylprednisolone, cefotaxime, proton pump inhibitor therapy, fresh frozen plasma, and packed red blood cell transfusion. Following exclusion of alternative etiologies, a diagnosis of probable secondary ITP following dengue infection was considered.

NARRATIVE REVIEW

Epidemiology and Clinical Presentation

ITP affects approximately 2–5 individuals per 100,000 population annually. Secondary ITP accounts for nearly 20% of adult cases and may occur following viral infections including HIV, hepatitis C, Epstein-Barr virus, cytomegalovirus, and dengue fever.

Clinical manifestations range from asymptomatic thrombocytopenia to severe mucocutaneous bleeding. Common features include petechiae, purpura, ecchymosis, epistaxis, gingival bleeding, and menorrhagia. Severe internal bleeding is uncommon but may occur in profound thrombocytopenia

Pathophysiological Mechanisms

The pathogenesis of ITP involves both humoral and cellular immune dysfunction.

Key mechanisms included are-Autoantibody-mediated platelet destruction,Splenic macrophage phagocytosis of antibody-coated platelets,T-cell-mediated platelet destruction,Impaired megakaryocyte maturation and platelet production,Persistent immune activation following infections such as dengue.

Dengue-associated ITP is thought to result from molecular mimicry, immune complex formation, and prolonged immune dysregulation after viral clearance.

Medical Management

First-Line Therapy is corticosteroids,Prednisolone: 1–2 mg/kg/day and High-dose dexamethasone: 40 mg daily for 4 days

Benefits are rapid platelet recovery, they are widely available and cost effective

Intravenous Immunoglobulin (IVIg)

Used when:Rapid platelet increase is required,severe bleeding occurs,steroids are contraindicated

Second-line treatment options for ITP include rituximab, a monoclonal antibody directed against CD20-positive B lymphocytes that reduces autoantibody production through B-cell depletion; thrombopoietin receptor agonists such as romiplostim and eltrombopag, which stimulate platelet production and are particularly effective in chronic or refractory disease; and various immunosuppressive agents including azathioprine, cyclosporine, mycophenolate mofetil, cyclophosphamide, and dapsone. Splenectomy remains an important therapeutic option for patients with chronic ITP, steroid-dependent disease, refractory thrombocytopenia, or failure of medical therapy, providing durable remission in a substantial proportion of cases.

Clinical significance

Secondary ITP following dengue infection is uncommon but clinically important. Persistent thrombocytopenia after recovery from dengue should not automatically be attributed to residual viral effects. Early identification of immune-mediated mechanisms allows timely initiation of immunosuppressive therapy and prevention of bleeding complications.

DISCUSSION

This case highlights the diagnostic challenge posed by persistent thrombocytopenia following dengue infection. The temporal association with dengue, exclusion of autoimmune and malignant causes, and presence of reactive lymphocytes support an immune-mediated process. The favorable response to corticosteroid therapy further strengthens the diagnosis of secondary ITP. Early diagnosis is essential to prevent significant bleeding complications.

CLINICAL IMPLICATIONS

Clinicians should maintain a high index of suspicion for secondary ITP in patients with persistent

thrombocytopenia after dengue infection. Comprehensive evaluation and timely immunosuppressive therapy may reduce morbidity and improve patient outcomes.

LIMITATIONS

Bone marrow examination was not performed. Long-term follow-up data were unavailable because the patient opted for discharge against medical advice. A definitive causal relationship between dengue infection and ITP therefore cannot be conclusively established.

Future Perspectives

Further studies are required to determine the incidence, risk factors, and optimal management strategies for post-dengue ITP. Research into immunological biomarkers may facilitate earlier diagnosis and targeted therapy.

CONCLUSION

Secondary ITP should be considered in patients with persistent thrombocytopenia and bleeding manifestations following dengue infection. Prompt recognition, exclusion of alternative etiologies, and appropriate immunosuppressive therapy are critical for preventing complications and improving outcomes.

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