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Case Report

Immune Thrombocytopenia Following Rabies Vaccination in a 6-Year-Old Boy: A Case Report

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Abstract

Background: Immune thrombocytopenia (ITP) is a rare but recognized complication following certain vaccinations. Although widely reported with MMR, influenza, and varicella vaccines, post-rabies vaccine-induced ITP remains extremely rare, particularly in children.

Case Presentation: We report the case of a previously healthy 6-year-old boy who developed severe thrombocytopenia 1 day after third dose of rabies vaccination series for post-exposure prophylaxis. He presented with progressively increasing petechiae, bruises and ecchymotic patches all over body and extremities.

Laboratory investigations confirmed isolated thrombocytopenia (platelet count 0.10 lakh/cumm. Other causes of thrombocytopenia were excluded. He was successfully treated with intravenous immunoglobulin (IVIG) and corticosteroids, with complete recovery.

Conclusion: This case highlights the need for awareness of vaccine-induced ITP as a potential adverse event even with uncommon vaccines such as rabies. Early diagnosis and standard immunomodulatory therapy can lead to favorable outcomes.

Keywords: Immune thrombocytopenia, rabies vaccine, adverse event, IVIG, child, case report.

Introduction

Immune thrombocytopenia (ITP) is an acquired autoimmune disorder characterized by isolated thrombocytopenia (platelet count <100,000/µL) and increased risk of bleeding. It often occurs following viral infections or, less commonly, after vaccinations. While post-vaccination ITP is well documented with the measlesmumps-rubella (MMR) vaccine and others, rabies vaccine-induced ITP is exceedingly rare, especially in children. We present the case of a 6-year-old boy who developed severe ITP following the third dose of post- exposure rabies vaccination.

Case Presentation

A 6-year-old previously healthy boy presented to the emergency department with a 12 days history of progressively increasing bruising and ecchymotic patches all over body & extremities. 12 days prior, he had

3rd dose of vaccination series (purified chick embryo cell vaccine, PCECV) following a category II dog bite. He had no recent history of fever, viral illness, or medications. Immunization records were up to date, and there was no personal or family history of autoimmune disease or bleeding disorders.

Physical Examination

- Vital signs: stable
- General: alert, no pallor or lymphadenopathy
- Skin: multiple petechiae and ecchymoses on limbs and trunk
- Oral: no bleeding
- No hepatosplenomegaly or joint swelling

Laboratory Investigations

- Platelet count: 0.10 lakhs/cumm
- Hemoglobin: 11.4 g/dL
- WBC count: 6940 /cumm
- Peripheral smear: marked thrombocytopenia, no blasts or schistocytes
- Reticulocyte count: normal
- Coagulation profile: normal PT, aPTT, INR
- CRP and ESR: within normal limits
- Liver and renal function: normal
- Viral serology: negative for EBV, CMV, hepatitis B/C, HIV
- ANA and direct Coombs test: negative
- Immature Platelet Fraction (IPF): elevated (18.1%) — suggestive of active marrow response
- Bone marrow aspiration was deferred due to classic presentation and prompt treatment response

Diagnosis

Based on the temporal relationship with vaccination, isolated severe thrombocytopenia, exclusion of secondary causes, and elevated IPF, a diagnosis of immune thrombocytopenia likely triggered by rabies vaccination was made.

Treatment and Outcome

The child was admitted and treated with:

- Intravenous Immunoglobulin (IVIG): 1 g/kg/day over 12 hours

-Methylprednisolone

Platelet count rose to 38 000/cumm on day 2 of hospitalisation and increased to 110,000/cumm by 3 of hospitalisation. He was discharged in stable condition and remained asymptomatic at follow-up, with no recurrence of thrombocytopenia.

Discussion

Post-vaccine ITP is believed to result from an autoimmune response in which the immune system, potentially stimulated by vaccine antigens, produces antibodies that cross-react with platelet surface antigens. MMR is the most frequently implicated vaccine, especially in children, with an estimated incidence of 1 in 25,000–40,000 doses.

Rabies vaccine-induced ITP has only been reported in rare adult cases. In this case, the strong temporal association, absence of other causes, and rapid response to standard ITP therapy support a vaccine-related mechanism.

While the benefits of rabies vaccination far outweigh its risks, especially in postexposure scenarios, clinicians should remain vigilant for rare immune-mediated adverse events such as ITP.

Conclusion

This case illustrates a rare but important adverse event following rabies vaccination. Pediatricians and emergency physicians should consider vaccine-induced ITP in the differential diagnosis of acute thrombocytopenia in children post-vaccination. Early recognition and prompt treatment with IVIG and corticosteroids can lead to rapid recovery.

Learning Points

- Although extremely rare, ITP can occur after rabies vaccination, including in children.
- A temporal link to vaccination and exclusion of other causes are key to diagnosis.
- IPF can help confirm active platelet production in immune-mediated thrombocytopenia.
- IVIG and corticosteroids remain the mainstay of treatment with excellent prognosis.
- Rabies vaccination should not be discouraged but monitored carefully in high-risk individuals.

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