APCRI Journal
Volume 28, Issue 1- 2026, Pg. No. 34-37
Peer Reviewed & Open Access Journal

Case Report

Adverse Cutaneous Reaction Following Intradermal Rabies Vaccination with PVRV in a Category III Monkey Bite Exposure: A Case Report

Piyush Sahu[1], Tapas Ranjan Behera[2]

[1]Senior Resident, [2]Professor and Head of Department, Department of Community Medicine, PMP Medical College, Talcher, Odisha, India
DOI: https://doi.org/ 10.24321/0973.5038.202608

I N F O

Corresponding Author:
Piyush Sahu, Department of Community Medicine, PMP Medical College, Talcher, Odisha, India
E-mail Id:
piyush.pintu.007@gmail.com
Orcid Id:
https://orcid.org/0009-0002-4528-9816
How to cite this article:
Sahu P, Behera T R. Adverse Cutaneous Reaction Following Intradermal Rabies Vaccination with PVRV in a Category III Monkey Bite Exposure: A Case Report**.** APCRI J. 2026; 28(1): 34-37.

Date of Submission: 2026-05-01
Date of Acceptance: 2026-06-08

A B S T R A C T

Rabies continues to be a major public health concern in India, and timely post-exposure prophylaxis (PEP) remains the cornerstone of prevention. Although intradermal rabies vaccination (IDRV) is considered safe and cost-effective, clinically significant adverse reactions may occasionally occur. We report a case of a 59-year-old female who developed severe pruritic vesicular eruptions over both deltoid regions following intradermal administration of purified vero cell rabies vaccine (PVRV) and human rabies immunoglobulin (HRIG) after a category III monkey bite exposure. The patient initially received standard anti-rabies prophylaxis but subsequently developed marked local cutaneous reactions characterized by erythema, itching, and blister formation at the injection sites. In view of the adverse reaction, the vaccination regimen was shifted from the intradermal to the intramuscular route and from PVRV to the Purified Chick Embryo Cell culture Vaccine (PCEC), and symptomatic treatment was provided. The patient tolerated subsequent doses well with PCEC and recovered without complications. This case highlights the importance of recognizing uncommon adverse events following rabies vaccination while ensuring uninterrupted completion of life-saving post-exposure prophylaxis.

Keywords: Rabies, Monkey bite, IDRV, PVRV, HRIG, Adverse event following immunization, Case report

Introduction

Rabies is a lethal viral infection causing nearly total mortality once patients show clinical signs. Even with access to vaccines and immunoglobulins, this disease creates a heavy burden for public health across Asia and Africa. India contributes significantly to global rabies mortality because of high exposure to animal bites and inconsistent access to post-exposure prophylaxis (PEP).[1] The majority of rabies exposures are caused by dog bites, but bites from non-human primates like monkeys are becoming more common, particularly in cities, pilgrimage sites, and tourist attractions. Guidelines from the World Health Organization (WHO) and the Government of India state that immediate wound care, rabies immunoglobulin administration, and rabies vaccination are necessary for category III exposures from monkey bites.[2]

Due to its affordability and adequate immunogenicity, intradermal anti-rabies vaccination (IDRV) has been in widespread use in India in all govt. health facilities. The intradermal regimen maintains a sufficient protective antibody response while significantly lowering vaccine consumption.[3] The majority of rabies vaccination side effects, such as pain, redness, itching, and swelling at the injection site, are mild and self-limiting. Exaggerated local hypersensitivity reactions or severe systemic hypersensitivity reactions are rather rare.[4]

In order to improve vaccine safety surveillance and direct clinical management, it is crucial to report unusual adverse events following immunization (AEFI). Here, we describe a patient receiving post-exposure prophylaxis for a category III monkey bite exposure who experienced a significant vesicular cutaneous reaction after receiving an intradermal purified vero cell rabies vaccine (PVRV).

Case Profile

A 59-year-old female resident of Salipur, Cuttack district, Odisha, presented to the anti-rabies clinic of SCB Medical College and Hospital, Cuttack, on 8th May 2026 with a history of a monkey bite over the right forearm sustained on 7th May 2026 at around 7:30 PM. The injury was associated with bleeding and was categorized as WHO Category III exposure. Immediately after the bite, the patient received a tetanus toxoid (TT) injection at District Hospital Puri. She subsequently attended the ARV clinic at SCB Medical College and Hospital, Cuttack, for further post-exposure prophylaxis. At the ARV OPD, she was administered the purified vero cell rabies vaccine (PVRV) through the intradermal route according to the updated Thai Red Cross regimen. Human rabies immunoglobulin (HRIG) was infiltrated locally into and around the wound as per standard recommendations. The patient was advised to continue the rest of the scheduled anti-rabies vaccination doses on days 3, 7, and 28.

Within 2 days of vaccination, the patient developed intense itching, erythema, and multiple vesicular eruptions over both deltoid regions corresponding to the intradermal injection sites.

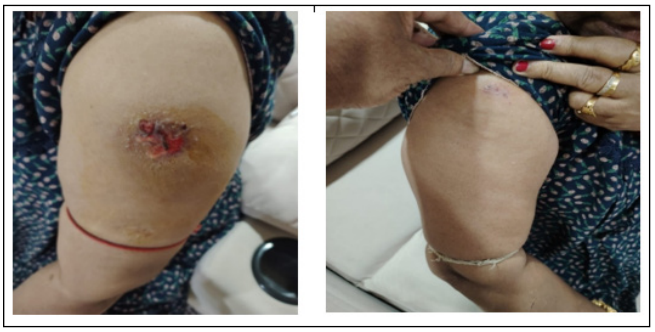

Figure 1.Pruritic Eruptions with blisters over both Deltoids on Day 2

On Day 3, the patient reported to the private clinic of the second author at Cuttack. On examination, multiple pruritic eruptions with blister formation were observed over the bilateral deltoid areas, more pronounced over the left deltoid region, and were associated with discomfort and local irritation. There was no history of fever, respiratory distress, mucosal involvement, hypotension, or generalized anaphylaxis. The patient had a significant past medical history of breast carcinoma treated with chemotherapy in 2017. She was also a known case of coronary heart disease and hypertension and was on regular medications. Considering the temporal relationship with vaccine administration and the localized nature of the lesions, a diagnosis of localized adverse cutaneous reaction following intradermal rabies vaccination was considered.

In view of the exaggerated local reaction, the anti-rabies vaccination regimen was modified from the intradermal to the intramuscular route using the Vaxirab-N vaccine (PCEC, BN-RV30067). The schedule was then changed according to the Essen regimen, and the patient was advised to come for follow-up and vaccine administration on Days 7, 14 & 28. Symptomatic management included oral antihistamines (Hydroxyzine 25 mg BD), analgesics, proton pump inhibitors, oral antibiotics (Linezolid 600 mg BD for 5 days, Cefuroxime Axetil, and Potassium Clavulanate 500 mg BD), topical antibiotic powder (Neomycin Sulphate, Polymyxin B Sulfate, and Bacitracin Zinc), and local ointment Fheal (Triticum Vulgare extract and Phenoxyethanol) application. The patient was advised of local wound care and follow-up.

Gradual improvement in the cutaneous lesions was observed over subsequent visits on Day 7 and Day 14.

ISSN: 0973-5038
DOI: https://doi.org/10.24321/0973.5038.202608

No severe systemic complications developed, and the patient tolerated the remaining intramuscular vaccine doses without recurrence of significant adverse reactions.

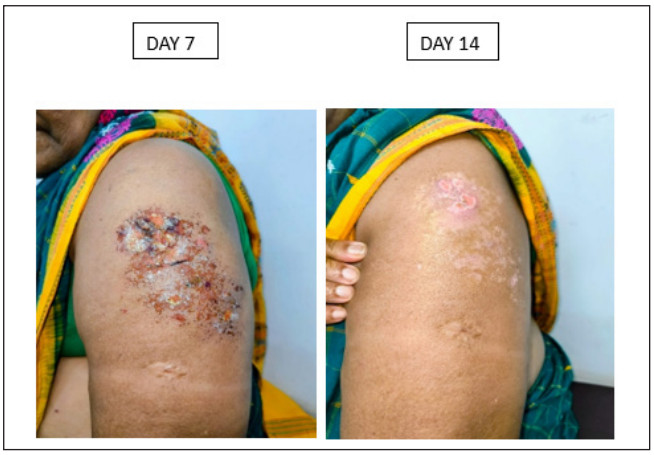

Figure 2.Improvement of the lesions on follow visit on Day 7 and Day 14

Discussion

Intradermal rabies vaccination (IDRV) has been promoted widely in resource-constrained settings because it is economical and immunologically effective. Several studies have demonstrated that intradermal PVRV provides adequate protective antibody response comparable to intramuscular regimens.[5] Common adverse reactions reported with intradermal rabies vaccination include pain, erythema, itching, induration, and swelling at the injection site. These reactions are generally mild and transient.[6]

The present case is clinically significant because the patient developed marked vesicular eruptions with blister formation over both intradermal injection sites. Such exaggerated localized reactions are relatively uncommon and may represent hypersensitivity responses to vaccine components or immune-mediated inflammatory reactions.

Previous literature suggests that adverse reactions following rabies vaccination may be influenced by host immune status, vaccine constituents, or previous sensitization.[7] In the present case, the patient had a prior history of breast carcinoma treated with chemotherapy, which may have altered immune responsiveness. Although direct causality cannot be conclusively established, underlying immune dysregulation may have contributed to the unusual cutaneous presentation.

Similar findings have been reported by Ashe et al., who described a case of serum sickness following equine rabies immunoglobulin (ERIG) administration in a child presenting with generalized pruritic rashes, fever, and malaise after anti-rabies prophylaxis for monkey bite exposure.[8] Although the present patient did not develop classical systemic manifestations of serum sickness, the intense localized vesicular reaction suggests a probable immune-mediated cutaneous response.

An important clinical challenge in such situations is balancing management of adverse reactions while ensuring uninterrupted completion of rabies prophylaxis. Since rabies is nearly always fatal after symptom onset, discontinuation of vaccination should generally be avoided unless severe life-threatening reactions occur. In this patient, shifting the route of administration from intradermal to intramuscular with PCEC from PVRV allowed successful continuation of prophylaxis without further major complications.

Conclusion

The present case describes an uncommon localized vesicular cutaneous reaction following intradermal PVRV administration in a patient receiving post-exposure prophylaxis for category III monkey bite exposure. Prompt identification of the adverse reaction, symptomatic treatment, and conversion to intramuscular vaccination from PVRV to PCEC enabled successful completion of anti-rabies prophylaxis without interruption.

Although intradermal rabies vaccination is generally safe and effective, clinicians should be aware of the possibility of unusual local hypersensitivity reactions. Careful monitoring, appropriate management, and reporting of adverse events are essential for improving vaccine safety surveillance and ensuring continued public confidence in rabies prevention programs.

Acknowledgement

We sincerely acknowledge the patient for providing informed consent for publication of this case report and for her cooperation in sharing detailed clinical history and follow-up information.

Conflict of Interest: None

References

1. World Health Organization. WHO expert consultation on rabies: third report. World Health Organization; 2018 Aug 31. [Google Scholar]
2. National Centre for Disease Control. National Guidelines for Rabies Prophylaxis. New Delhi: Ministry of Health and Family Welfare, Government of India; 2019. https://rabiesfreeindia.mohfw.gov.in/resources/uploads/PageContentPdf/171214085536.pdf
3. World Health Organization. Rabies vaccines: WHO position paper. Wkly Epidemiol Rec. 2018;93(16):201-20. https://www.who.int/publications/i/item/who-wer9316
4. Wilde H, Ghai S, Hemachudha T. Rabies: Still a silent killer targeting the poor. Vaccine. 2017 Apr 25;35(18):2293-4. [Google Scholar]

5. Sudarshan MK, Madhusudana SN, Mahendra BJ, Rao NS, Narayana DA, Rahman SA, Meslin FX, Lobo D, Ravikumar K. Assessing the burden of human rabies in India: results of a national multi-center epidemiological survey. International Journal of Infectious Diseases. 2007 Jan 1;11(1):29-35. [Google Scholar]
6. Bharti OK, Madhusudana SN, Wilde H. Injecting rabies immunoglobulin (RIG) into wounds only: a significant saving of lives and costly RIG. Human vaccines & immunotherapeutics. 2017 Apr 3;13(4):762-5.[Google Scholar]
7. Government of India. National Rabies Control Programme Operational Guidelines. New Delhi: Ministry of Health and Family Welfare; 2021. https://rabiesfreeindia.mohfw.gov.in/downloads
8. Ashe S, Routray D, Behera TR. Serum sickness following equine rabies immunoglobulin administration-a case study. [Google Scholar]

ISSN: 0973-5038
DOI: https://doi.org/10.24321/0973.5038.202608