

Title: **MANAGEMENT OF DOG BITE IN A HIV POSITIVE PATIENT: A CASE REPORT**

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Keywords Dog Bite, HIV- Infection, Rabies Antibody titre test

Abstract The purpose of this case report is to create awareness about management of rabid dog bite to a HIV positive patient with the importance of immunodiagnostic test such as rabies antibody titre test. A forty two year old female presented herself in antirabies clinic 2 days after unprovoked, class III bite on right hand. In history she had been suspected to have HIV infection after 7 days of its clinical presentation.

Case Report

Management of Dog Bite in a HIV Positive patient: A Case Report

Anil Kumar Agarwal*

ABSTRACT

The purpose of this case report is to create awareness about management of rabid dog bite to a HIV positive patient with the importance of immunodiagnostic test such as rabies antibody titre test. A forty two year old female presented herself in antirabies clinic 2 days after unprovoked, class III bite on right hand. In history she had been suspected to have HIV-infection after 7 days of its clinical presentation.

Key Words : Dog Bite, HIV-infection, Rabies antibody titre test.

A forty two year old female presented with a history of unprovoked, rabid, stray dog bite on right hand after 2 days of the bite, when the dog died. The patient had not received anti rabies treatment in the form of active immunization as well as passive immunization.

We started anti rabies treatment for class III bite. Patient was passively immunized by infiltration of ERIG 40IU/Kg; total doses 1920 IU (for 48 Kg wt) infiltrated into the wounds after sensitivity test, followed by 3 doses of modern cell culture vaccine i/m in deltoid region at 0, 3 and 7 days as active immunization according to ESSEN (Standard WHO) immunization schedule.

After knowing about the history of HIV infection in the patient with symptoms of oral candidiasis, chronic diarrhoea and generalised weakness at 7th day of its presentation, we assessed the rabies-exposed patient with risk factors for HIV infection and invited her to participate in this study. This patient was counselled, and her permission was obtained to confirm the diagnosis of HIV infection by ELISA and serological testing for CD4⁺T lymphocyte count and Rabies neutralizing antibody titre test.

Blood sample was obtained from the subject. CD4⁺T lymphocyte counts were determined in venous blood collected from the patient. Serum sample was send to one SRL Ranbaxy virology lab, Mumbai after 7 day of 3rd dose and RIG administration when we found the report positive

Table 1
Showing patient history

Pt's age	Pt's sex	Pt's status for HIV (ELISA Test)	CD4 ⁺ T Lymphocyte count (Cells/ μ L)	Nab titres IU/ml	
				7 day after additional dose at day 20 th and double dose at 28 th day	7 Day after 3 doses 0, 3, 7 th day dose of PCV with RIG at 0
42 year	Female	Positive	180	0.3 IU/ml*	0.85 IU/ml**

for HIV-infection for quantitatively testing for rabies Nab by use of the rapid focus fluorescent inhibition test.

Thus the investigations were done and reports made available. (Table 1)

- Ø Patient's sample was positive for HIV-infection
- Ø Patient's CD4⁺T lymphocyte was 180
- Ø Rabies Antibody Titre test, showed inadequate antibody titres of 0.3 IU/ml (titres less than 0.5 IU/ml in the sample) suggesting susceptibility to rabies.

As the immunodiagnostic test after the passive immunization and 3 doses of antirabies vaccine was suggestive of inadequate antibody titres. For getting Nab at acceptable level and according to the WHO recommendations (1) We had given additional dose of tissue culture rabies vaccine at 21st day and double doses at 28th day. Subsequently after one week patient's sample was again subjected

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for rabies antibody titre test which revealed; Titres 0.85IU/ml (>0.5IU) suggesting protection against rabies but not significantly higher. (Table 1)

DISCUSSION

In the present case, serum sample collected after passive immunization and 3 doses of antirabies vaccine had inadequate antibody titres (Titre<0.5IU/ml in a sample). This suggested need to administer further additional dose of antirabies vaccine. The test then repeated showed adequate antibody titres. This helped to compensate the immune system mechanism by which a HIV patient was suffering and saved life without compromising the outcome.

However in this case the patient was suffering from HIV, hence rabies antibody titre test proved to be useful to detect her immuno protection against rabies. This is also recommended by WHO. Previous studies demonstrated that HIV-infected patient with low CD4⁺T lymphocyte counts had a poor or even undetectable Nab response to pre- or post exposure rabies vaccination with cell-culture rabies vaccine as recommended by WHO². The WHO Expert Committee on rabies recommends the use of a double-dose volume of rabies vaccine in HIV-infected patients potentially exposed to the rabies virus, although such use has little scientific evidence backing it³. Immuno suppressed persons who are at risk for exposure to rabies should be vaccinated and their virus neutralizing antibody titres checked.

We followed this recommendation and paid particular attention to determination of nabs titres to ensure that an acceptable antibody response developed in that HIV-infected patient who need post exposure vaccination.

Slow down of rabies Nab response in HIV-infected people with low CD4⁺T lymphocyte counts is the reason we continue to assess Nab titres after additional doses of tissue culture vaccine. If an acceptable antibody response is not achieved, a

second double-dose series of rabies vaccine should be given to successfully mount an adequate antibody response in the patient⁴

CONCLUSION

Conclusively, role of immuno diagnostic test such as rabies antibody titre should not be underestimated in management of suspected rabid animal bite and suspected Immunodeficiency disorders i.e., HIV-infection should be undertaken for immuno protection. Research is urgently needed into administering frequent booster injections, increasing the dose volume of vaccine administered either IM or ID, or using sequential doses of immunoglobulin for HIV-infected patients with low CD4⁺T lymphocyte counts who have unacceptable Nab response to post exposure vaccination and to determine whether this procedure results in a Nab titre above the minimal WHO recommended level of 0.5IU/ml for rabies protection⁵

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Abbreviations :

IU	International Unit
HIV	Human immunodeficiency virus
ERIG	Equine Rabies Immunoglobulin
WHO	World Health Organization
Nab	Neutralizing Antibodies