

DOs & DON'Ts

UNDERSTANDING DOG BITES

Dog bites can range from minor to severe, and it's crucial to recognize the symptoms. Common signs include puncture wounds, broken skin, bleeding, pain, and swelling around the affected area. In some cases, infection risk is a concern due to bacteria in the dog's mouth. In India, the biggest problem is lack of awareness. That's also why so many people die of rabies. Street dogs are not vaccinated and the vaccines used for treatment are not in a good condition. The place of the bite matters, too. If it's on the shoulder, the treatment is different. If it's below the shoulders, the line of treatment changes.

DOs

CLEAN THE WOUND: Rinse the wound gently with clean water and mild soap .

Cleaning helps reduce the risk of infection. When a dog bites, most people don't clean it – which leads to complications. Clean the area with running water and soap.

DON'T BANDAGE THE WOUND: Let the doctor decide what needs to be done. Only a doctor must judge the severity and depth of the bite.

ELEVATE IF NEEDED: If the bite is on a limb, elevate it to help reduce swelling.

USE ANTIBIOTIC LOTION: After washing, you can also apply betadine or an antiseptic liquid to prevent infection.

SEEK MEDICAL ATTENTION: Even if the bite seems minor, it's advisable to consult a healthcare professional to assess the risk of infection, especially if it's a deep or puncture wound. Complete the course of antirabies vaccination, as advised by your doctor.

In severe bites, combined antirabies serum and vaccine therapy is recommended

DON'Ts

After a bite, avoid provoking the dog further. Give it space to calm down and reduce the risk of further bites.

MEDICAL ATTENTION: If the wound is deep, bleeding heavily, or shows signs of infection like skin redness and warmth, seek medical care promptly. Even if it seems minor, don't dismiss a dog bite. Infections can develop, and complications can arise if left untreated, see a doctor immediately

HARSH CHEMICALS: Avoid using harsh disinfectants or hydrogen peroxide on the wound, as these can damage the tissues and delay healing.

TETANUS SHOTS: If your last tetanus shot was more than five years ago, consider getting a booster shot.

Do not apply chillies, mustard oil or any other irritant on the bite wounds.

FIRST AID

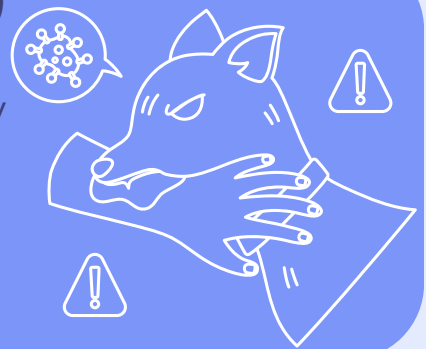
DECISION TO TREAT

1. In a rabies endemic country like India where there is sustained dog-to-dog transmission, every animal bite is suspected as a potentially rabid animal bite, and treatment should be started immediately after exposure.
2. Bite by all warm blooded animals necessitates post-exposure prophylaxis. As rabies is practically 100% fatal, bites by dogs and cats in particular must be considered as a "medical emergency" and the "life-saving" post exposure prophylaxis must be provided immediately.

POST-EXPOSURE PROPHYLAXIS (PEP)

The post-exposure prophylaxis is a three step-pronged approach. All three carry equal importance and should be done simultaneously as per the category of exposure.

1. Management of animal bite wound(s)
2. Passive immunization with Rabies Immunoglobulin (RIG)
3. Active immunization with Anti-Rabies Vaccines (ARV)



OBSERVATION OF BITING DOG: The PEP should be started immediately after the bite. The observation period of 10 days is valid for dogs and cats only. The natural history of rabies in mammals other than dogs and cats is not fully understood and therefore the 10-day observation period is not applicable. The treatment may be modified if dog or cat involved remains healthy throughout the observation period of 10 days by converting post-exposure prophylaxis to pre-exposure vaccination by skipping the vaccine dose on day 14 and administering it on day 28 while using Essen Schedule. While using ID administration complete course of vaccination should be given irrespective of status of animal.

VACCINATION STATUS OF THE BITING ANIMAL: Although unvaccinated animals are more likely to transmit rabies, vaccinated animals can also do so if the vaccination of the biting animal was ineffective for any reason. A history of rabies vaccination in an animal is not always a guarantee that the biting animal is not rabid. Animal vaccine failures may occur because of improper administration or poor quality of the vaccine, poor health status of the animal, and the fact that one vaccine dose does not always provide long-lasting protection against rabies infection in dogs/cats. Hence, appropriate documentation of vaccination status of dog/cat and proper history should be elicited before deciding to defer post-exposure prophylaxis after bite by vaccinated dog/cat.

PROVOKED VERSUS UNPROVOKED BITE: A provoked dog bite should also be managed as an exposure and PEP started immediately. A provoked bite does not mean that the biting animal is not rabid. It is difficult to understand what provokes a dog so it is prudent to start PEP at the earliest.

BITE BY WILD ANIMALS: Bite by all wild animals should be treated as category III exposure. All animal bites in forest or in the wild should be treated as category III exposure.

BITE BY RODENTS: Exposure to domestic rodents, squirrel, hare and rabbits do not ordinarily require PEP.

BAT RABIES: Bat rabies has not been conclusively proved in India and hence, at present, exposure to bats does not warrant PEP.

POST-EXPOSURE PROPHYLAXIS OF IMMUNE-COMPROMISED PATIENTS: Several studies of patients with HIV/AIDS have reported that those with low CD4 (<200 counts) will mount a significantly lower or no detectable neutralizing antibody response to rabies. In such patients and those in whom the presence of immunological memory is no longer assured as a result of other causes (patients on chemotherapy, long term steroid therapy, cancer patients, etc) proper and thorough wound management and antisepsis accompanied by local infiltration of rabies immunoglobulin followed by complete course of anti-rabies vaccination by intramuscular route in both category II and III exposures are of utmost importance. Preferably, if the facilities are available, anti-rabies antibody estimation should be done 14 days after the completion of course of vaccination to assess the need of additional doses of vaccine.

HUMAN-TO-HUMAN TRANSMISSION: The risk of rabies transmission to other humans from a human rabies case is very minimal and there is no well documented case of human-to-human transmission, other than the few cases resulting from organ/tissue (cornea) transplant. However, people who have been exposed closely to the secretions of a patient with rabies may be offered. Organ/tissue (cornea) for transplantation, should never be collected from suspected/confirmed rabies or rabies like encephalitis cases.

CONTRAINDICATIONS AND PRECAUTIONS: As rabies is nearly 100% fatal disease, there is no contraindication to PEP. Pregnancy, lactation, infancy, old age and concurrent illness are no contraindications for rabies PEP in the event of an exposure. PEP against rabies takes preference over any other consideration as it is a lifesaving treatment. Moreover, rabies vaccine does not have any adverse effect on pregnant woman, course of pregnancy, fetus or lactating mother. Hence, complete PEP should be given depending on the category of the exposure. People taking chloroquine for malaria treatment or prophylaxis may have a reduced response to ID rabies vaccination. These patients should receive the rabies vaccine intramuscularly

As with all other immunizations, vaccinated persons should be kept under medical supervision for at least 15–20 minutes following vaccination. Previous reaction to any component of a vaccine is a contraindication to the use of the same vaccine for PEP or (PrEP) Pre-exposure prophylaxis. Because of long and variable incubation period, which is typical of most cases of human rabies, it is possible to institute PEP to protect the individual. This must be started at the earliest to ensure that the individual is immunized or protected before the rabies virus reaches the nervous system. However, people who present for treatment even months or years after a possible rabies exposure should be evaluated and treated as if the event had occurred recently.

Risk assessment of potential rabies exposure can be complex and confusing. When in doubt post exposure prophylaxis should be initiated and the attending physician should consult specialist at Anti Rabies Centres.

To bring out uniformity globally, the classification of animal bite for postexposure prophylaxis has been based on WHO recommendations (WHO TRS 2013)

CATEGORY TYPE OF CONTACT

Touching or feeding of animals:

Licks on intact skin; Contact of intact skin with secretions/excretions of rabid animal/human case. PEP NOT REQUIRED if reliable case history is available.

Nibbling of uncovered skin; Minor scratches or abrasions without bleeding:

Wound management and anti-rabies vaccine required.

Single or multiple transdermal bites or scratches, licks on broken skin:

Wound management; Rabies immunoglobulin; Anti-rabies vaccine REQUIRED.

Contamination of mucous membrane with saliva:

Wound management; Rabies immunoglobulin; Anti-rabies vaccine REQUIRED.

It is re-emphasized that PEP should be started as early as possible after exposure. However, PEP should not be denied to person reporting late for treatment as explained previously.

ADVERSE EFFECTS FOLLOWING ADMINISTRATION OF ANTI RABIES VACCINE

The CCVs are widely accepted as the least reactogenic rabies vaccines available today. However, few studies have now shown that adverse effects can be either general in nature or allergic in origin. Mild systemic adverse events following immunization (AEFI) include headache, malaise, nausea and fever. Symptomatic treatment may be needed. Minor and transient erythema, pain and/or swelling may occur at the site of injection, particularly following intradermal administration. Serious AEFIs mainly of allergic or neurological nature rarely occur. Shifting from one brand/type of CCV to other brand/type should not be encouraged in routine practice. However, under unavoidable circumstances, available brand/type may be used to complete PEP.

Duration Of Immunity: The development of immunological memory after vaccination with CCVs and PDEV is critical for the establishment of long lasting immunity against rabies in humans. Individuals who had received their primary series 5–21 years previously showed good anamnestic responses after booster vaccination. Longterm immunity is also achieved with intradermal immunization, and may persist even when antibodies are no longer detectable. The ability to develop an anamnestic response to a booster vaccination is related neither to the route of administration of the initial series (intramuscular or intradermal) nor to whether the patient completed a pre-exposure or post-exposure series.

ID Route: Use of intradermal route of administration of anti-rabies vaccine allows wider coverage of PEP in available quantity of vaccines and hence makes it cost effective. WHO recommended use of ID route for administration of anti-rabies vaccines in 1992. Based on WHO recommendation and results of various safety, efficacy studies and feasibility trial conducted by ICMR, Drug Controller General of India (DCGI) approved the use of intra-dermal vaccination regimen for rabies post-exposure prophylaxis.

Regimen for ID: This involves injection of 0.1ml of reconstituted vaccine per ID site and on two sites per visit (one on each deltoid area, an inch above the insertion of deltoid muscle) on days 0, 3, 7 and 28. The day 0 is the date of first dose administration of anti-rabies vaccine and may not be the date of rabies exposure/animal bite.

ADVISE TO THE VACCINATED PERSON:

- Do not rub the injection site
- Do not apply anything to the injection site
- Complete the course of vaccination



Adverse reactions following ID administration of anti-rabies vaccine: Adverse events may include mild itching, erythema, rarely body ache and fever that are usually self-limiting. Sometimes symptomatic management using analgesics and antihistamines may be needed

Intra-muscular (IM) Regimen: The currently available vaccines and regimen in India for IM administration are described below.

Vaccines:

- Cell Culture Vaccines
- Purified Duck Embryo Vaccine (PDEV)

Five dose intramuscular schedule:

Post-exposure prophylaxis consists of intramuscular administration of five injections, one dose each given on days 0, 3, 7, 14 and 28. Day 0 indicates date of administration of first dose of vaccine. Site of injection: The deltoid region is ideal for the administration of these vaccines. Gluteal region is not recommended because the fat present in this region retards the absorption of antigen and hence impairs the generation of optimal immune response. In case of infants and young children antero-lateral part of the thigh is the preferred site.

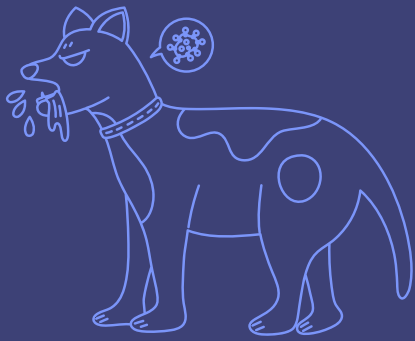
FREQUENTLY ASKED QUESTIONS

1. Is there any vaccine which can protect against rabies with one or two doses?

No such vaccine exists in the world which can induce protective immunity against rabies with only 1 or 2 injections. A complete course comprises of administration of DCG (I) approved vaccine (Lyophilized vaccine with specified amount of diluent) as per recommended schedule i.e. 0.1 ml of vaccine on 2 sites on days 0, 3, 7 & 28.

2. Application of chillies, lime, salt and mustard oil to animal bite wound is common practice. Does it confer any advantage over washing with soap and water?

Application of any of these does not confer any advantage. On the contrary, irritation produced by any of these may provide more avenues to the virus to gain entry into nerves and spread to brain. This also gives a false sense of security that some treatment has been administered.



3. Are there any dietary restrictions for animal bite victims receiving anti-rabies vaccination?

No dietary restriction need be imposed on the vaccine. However, excessive intake of alcohol should be discouraged.

4. Can a vaccinated dog transmit rabies?

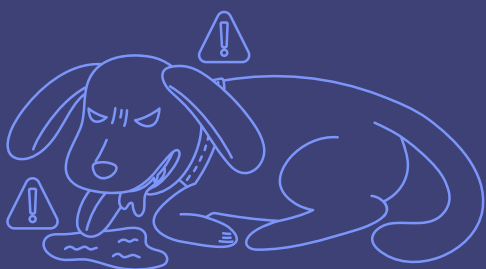
A dog effectively vaccinated against rabies cannot suffer and transmit the disease. However in the absence of laboratory documentation of protection, it cannot be presumed that a vaccinated dog is actually protected, given the variable efficacy of various anti-rabies vaccines in animals and/or health status of animals. Hence, irrespective of the vaccination status of the biting dog, the PEP is given.

5. If I am bitten by a rat do I require post-exposure prophylaxis (PEP)?

Rat rabies has been reported from some Asian countries but is extremely rare. It is not necessary to take PEP in bite cases by house rats. However, it is prudent to take PEP in consultation with an infectious disease physician when bitten by wild rats/rodents.

6. Can consumption of meat from an infected animal transmit rabies?

The consumption of raw meat from infected animals requires PEP. Cooking kills the virus and hence consumption of cooked meat does not transmit rabies. However, it is not advisable to consume meat from an infected animal.



7. If for some reason, IDRV (intra dermal rabies vaccine) cannot be given in deltoid region, what are the alternative sites?

The two doses of ID injection have to be given at two sites that do not share the same lymphatic drainage. So, deltoid region of the two arms are all right. However, if deltoid region cannot be used for some reason, ID inj. can be given in suprascapular region or anterolateral aspect of thigh.

8. Do we need to consider specific vaccine potency for ID vaccination?

There has been concern as single IM doses are reconstituted in different volumes depending on manufacturers. The recommended minimum potency of all anti-rabies vaccine is > 2.5 IU per IM dose. The recommended volume of a single dose of rabies vaccine administered per ID site is 0.1 ml. The DCG approved vaccine (pack containing i.e. lyophilized vaccine and specified amount of diluent) with a potency of > 2.5 IU/IM dose should be used for ID inoculation. The recommended dose is 0.1 ml at 2 sites on day 0, 3, 7 & 28.



9. It is necessary to perform an antibody test following antirabies vaccination in all animal bite victims?

No, it is not required in all cases. When human rabies vaccines are given according to the approved schedule in a healthy individual it is not necessary to do antibody titre estimation. It is recommended only under special circumstances such as for immunocompromised patients, patients receiving immunosuppressive therapy or patients who have not taken vaccination as per recommended schedule.

10. Is there any possibility of failure after PEP?

There are occasional human rabies cases reported despite PEP, due to various factors related to negligence and individual health status. Most cases have been reported due to delayed vaccination, or non-use of rabies immunoglobulin in category III exposure, or incomplete course of vaccination. Some cases are related to immunocompromised status such as HIV/AIDS, cirrhosis or use of chloroquine, long term steroids, or anti-cancer drugs. Unexplained failure in cases where everything was apparently done correctly have also been documented however are very rare.

11. Why is observation of 10 days recommended in dog or cat, but not in bite by any other animal?

The observation period of 10 days is valid only for dogs and cats due to the fact that if the biting dog or cat has rabies virus in its saliva when it did the biting, research shows that it should die or show clinical signs of rabies within 10 days of bite. If the biter is any other mammals other than dog or cat, research has not well defined the time frame from when shedding of virus starts until obvious clinical signs develop.



12. A boy bitten by a cat received the first three doses of ARV in time (Day-0, Day-3 and day 7). In between 3rd & 4th shot of vaccine the boy got scratched again by a monkey drawing blood. What must be be do

No need to repeat the vaccine schedule. Just complete the usual vaccination up to 4th dose as per schedule. As first 3 doses of vaccination would be enough to produce antibodies, immunoglobulin is not needed for the latter incident.