

Indian Academy of Pediatrics (IAP)



## GUIDELINES FOR PARENTS

# When a Dog Bites My Child?

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### 10 FAQs on WHEN A DOG BITES MY CHILD?

1. What is rabies? How is rabies transmitted? Is rabies always fatal? What are the factors that influence development of rabies?
2. What to do in case of an animal bite? What should be avoided?
3. How to prevent animal bites? When do you suspect an animal could be rabid?
4. What is pre-exposure prophylaxis? What advice should be given for those going for BVSc course/work in a laboratory where high risk of virus exposure is there? Why mass prophylaxis is not advised in our country where rabies is endemic?
5. What can be done by the government and the general population to keep the population of stray dogs under control?
6. What is pet-dogs pre-exposure vaccination and what are measures to prevent rabies in animals?
7. A fully vaccinated child is bitten again after 4 months. Does he need any treatment?
8. Does a bite by domestic rat bite or by an immunized pet dog require vaccination?
9. My 2-year-old son ate from my pet dog's feed pan and drank water, is vaccine required? Can drinking raw milk of sick cows transmit rabies? If there is only lick on the mucous membrane by a dog, what to do?
10. I have taken the first dose of rabies vaccine from a private hospital. Can I take the rest from a government hospital? Are there any restrictions on food or other habits while on PEP? If somebody misses the second dose on D3 or D7, when should the next dose be taken? Also, during pre-exposure prophylaxis, if third dose at D28 is missed by 6 months should we repeat all the three doses again?

**Under the Auspices of the IAP Action Plan 2020–2021**

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## When a Dog Bites My Child?

The most common animal bite is *dog* bite. 96% of the rabies reported from dogs in our country. Even though chances of getting rabies from a bite of a rabid dog is <50%, it is 100% lethal.



### Q1

**What is rabies? How is rabies transmitted? Is rabies always fatal?  
What are the factors that influence development of rabies?**

- Rabies is a disease transmitted from animals to humans, which is caused by rabies virus. Common symptoms include local site pain and itching, fever, malaise, headache, hydrophobia (fear of water), intolerance to bright light and noise, anger, agitation, hyperactivity and in later stage coma.

- It is primarily transmitted from the rabid animal's saliva when it bites or scratches someone. Licks to wounds or grazed and broken skin, or to the lining of the mouth and nose, can also transmit the disease. Animal bites which can commonly transmit rabies virus include domestic dogs and cats, large ruminants such as cows and buffaloes, small ruminants such as sheep and goat, mammals such as pigs, donkeys, horses, camels, etc. as well as wild animals such as foxes and jackals, monkeys, mongoose, bear, etc. Bird, squirrel, and domestic rodents generally do not transmit rabies.
- Human rabies caused by the classical rabies virus continues to be almost 100% fatal, with no specific treatment available anywhere in the world. There are only seven recorded cases of human rabies survivors in the world.
- Factors that may influence development of rabies infection include:
  - Type of exposure
  - Severity of the bite
  - The amount of rabies virus introduced
  - The animal responsible for the bite
  - The immune status of the victim
- Site of the bite—head and neck wounds, as well as wounds in highly innervated areas such as fingers, generally have shorter incubation periods due to the proximity of the viral inoculation to nerve tissue.

Q2

**What to do in case of an animal bite? What should be avoided?**

- In every case of animal bite, whether it is provoked or not, one should:
  - Wash with soap and running water for 10–15 minutes which will remove 90% of the virus. Wounds should be cleaned thoroughly with povidone-iodine, if available (**Fig. 1**).



**Fig. 1:** A case of an animal bite.

- Give four doses of vaccination with antirabies vaccine immediately on day 0 (day of bite), D3, D7 and between D14–28 to be taken which is available in all government hospitals and private hospitals. This is called “post-exposure prophylaxis (PEP)”.

In case of “category 3” bite which is any bite with bleeding, rabies immunoglobulin (RIG)/monoclonal antibodies need to be infiltrated into the wound site at the earliest (**Table 1 and Fig. 2**). This is maximally infiltrated locally around the wound. Intramuscular injection of the remaining calculated dose of RIG/monoclonal antibody at a different site is no more advocated. If the site of bite is such that infiltration is not possible, then RIG/monoclonal antibody may be given at a nearest site, where injecting it is possible.

The virus usually multiplies locally in the muscle fibers and then enters the peripheral nerves and brain. By local injection with RIG/monoclonal antibody, which has an immediate action, this spread will be prevented. Vaccines are not given locally.

- Tetanus toxoid to be given if indicated.

**TABLE 1:** Type of contacts and management of “categories I to III” bites.

Category	Type of contacts	Management
I	<ul style="list-style-type: none"> <li>• Touching or feeding animals</li> <li>• Licks on intact skin</li> </ul>	No postexposure prophylaxis needed
II	<ul style="list-style-type: none"> <li>• Nibbling of uncovered skin</li> <li>• Minor scratches or abrasions without bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Wound management</li> <li>• Administer antirabies vaccine immediately</li> </ul>
III	<ul style="list-style-type: none"> <li>• Single or multiple transdermal bites or scratches</li> <li>• Contamination of mucous membrane with saliva</li> <li>• Licks on broken skin and mucous membrane</li> </ul>	<ul style="list-style-type: none"> <li>• Wound management</li> <li>• Administer rabies immunoglobulin.</li> <li>• Administer antirabies vaccine immediately</li> </ul>



**Figs. 2I to III:** Category I to III bites.

- In every case of animal bite, one should *avoid*:
  - Application of turmeric, chili powder, lime, soil, salt, plant juice or oil over the wound
  - Covering the wound with dressings or bandages
  - Suturing, which facilitates further inoculation of rabies virus, should be avoided but, if necessary, can put a loose suture for approximation after giving the rabies immunoglobulin (RIG)

With proper wound management itself, 90% of the virus can be eliminated.

**Q3**

**How to prevent animal bites?  
When do you suspect  
an animal could be rabid?**

- *Tips to prevent dog bite:*
    - Do not disturb any animal that is sleeping or eating or feeding her puppies.
    - Do not approach or touch an unfamiliar animal.
    - Never run or stare on seeing a dog. Keep cool and walk without looking at the dog.
    - Do not provoke a dog on the road. If you see a dog running amok with drooling saliva most likely it is rabid.
    - Always allow the pet dog to see and sniff you before touching it.
- Children should be sensitized to develop a humane and compassionate attitude toward animals and provided with basic safety tips to safeguard against bites by domestic and stray animals.
- Signs of your dog or cat having rabies are strange or unusual behavior, getting ferocious or more docile, moving to a corner of the room and lying silent, an animal that appears tamer than you would expect, lots of drool or saliva, an animal that bites at everything, an animal that is having trouble moving or may even be paralyzed.

**Q4**

**What is pre-exposure prophylaxis?  
What advice should be given for  
those going for BVSc course/work  
in a laboratory where high risk of  
virus exposure is there? Why mass  
prophylaxis is not advised in our  
country where rabies is endemic?**

- Persons such as veterinarians, laboratory staff handling the virus and infected materials, dog catchers, forest officials, etc. are prone to bites from animals. They should be offered vaccination to prevent rabies. That is called “pre-exposure prophylaxis”. It is given on D0, D7, and D28 IM. High-risk individuals should get serum antibody level measured every 6 months to 1 year and take a booster dose if the level falls below 0.5 IU/L.
  - There is no government regulation to take vaccination for students before joining the course. Usually, the BVSc students are exposed to animals, i.e., clinical posting from 3rd year onward. They can take pre-exposure prophylaxis on individual basis.
  - Mass vaccination has not been introduced because it is recommended, only if animal bite incidence is >5% or if there is exposure to Vampire bats. In India, the incidence of animal bite is estimated to be around 3%. It is given only in countries such as Peru, Philippines, etc.
- As per guidance from Indian Academy of Pediatrics (IAP), it may be offered to children due to their inquisitive nature and playful handling of strays.

Q5

### What can be done by the government and the general population to keep the population of stray dogs under control?

There are dogs in our country @4/1,000 population. Population of stray dogs can be controlled by effective government policies, educating owners, dog registration, dog vaccination, sterilization, and rehabilitation of stray dogs.

- *Indiscriminate killing of dogs has some serious flaws:*
  - Killing of dogs is illegal in India as per multiple verdicts by the Honorable Supreme Court.
  - Killing may also help in recruitment of more new healthy young dogs to that area, who may engage in fighting for hierarchy and establishment of their position, in the locality. This could aggravate the aggressive behavior in stray/street dogs.
  - Killing may help only in temporary population control, but, in fact, this may cause flare up of other pests, such as rats and some serious public health issues associated with it, such as plague, leptospirosis, etc.
- Castration in male dogs and ovariohysterectomy (Spaying) in female dogs and sending them back to their locality is the suggestion put forwarded by ABC program (animal birth control) of the Government of India. By castrating male dogs, they tend to become docile. Female dogs are usually not aggressive other than when it is with its pups.
- The practice of feeding stray dogs by families is one of the reasons for increasing stray dog population. This can be curtailed only by education of family members.
- Practice of abandoning puppies on roadside should be discouraged.
- Not only families, hoteliers should also dispose waste properly which is an important factor for increase of stray dog population (**Fig. 3**).



**Fig. 3:** Stray dogs.



Q6

### What is pet-dogs pre-exposure vaccination and what are measures to prevent rabies in animals?

The owners must be responsible by vaccinating the pet dogs or cats against rabies, as recommended by veterinarians and try to keep them away from wild animals.

For animals to get immune response to vaccine, the dogs need to be given vaccine at 10 weeks and booster at 14 weeks. Revaccinate them every year.

Q7

### A fully vaccinated child is bitten again after 4 months. Does he need any treatment?

If an individual is given a full course of four injections correctly, he is protected for only 3 months after completing the schedule.

After that:

- Proper wound toilet should be done.
- Doses only on day 0 and 3 (these actually serve as booster doses)
- No RIG needed.
- If previous vaccination was incomplete/partial, treat as a fresh case
- Tetanus toxoid as indicated.



Q8

### Does a bite by domestic rat bite or by an immunized pet dog require vaccination?

- Studies have shown that domestic rat bite does not require vaccination but should be viewed with suspicion if unusually aggressive. Wild rodent bites will require vaccination.
- It is unlikely that a vaccinated dog would suffer and transmit the disease. However, due to the variable efficacy of various antirabies vaccines in animals and/or health status of animals, the immune response may vary. Data has shown that up to 60% of immunized dogs do not have protective titers at 1 year, and up to 40% at 6 months do not show protective antibodies. Hence, in the absence of laboratory confirmation of the protection it cannot be assumed that animal is completely protected. So irrespective of the vaccination status of the biting dog, complete PEP is given as per merits of the bite.

Q9

### My 2-year-old son ate from my pet dog's feed pan and drank water, is vaccine required? Can drinking raw milk of sick cows transmit rabies? If there is only lick on the mucous membrane by a dog, what to do?

- No, as per the World Health Organization position paper 2018, there is no scientific evidence for transmission of rabies through milk from sick/rabid cows or after eating from dog's feed pan.
- Lick on the mucous membrane by a dog constitutes category III exposure. Thorough rinsing with water is to be done immediately. Followed by instilling RIG locally or gargling with RIG in normal dilution.

Q10

**I have taken the first dose of rabies vaccine from a private hospital. Can I take the rest from a government hospital? Are there any restrictions on food or other habits while on PEP? If somebody misses the second dose on D3 or D7, when should the next dose be taken? Also, during pre-exposure prophylaxis if third dose at D28 is missed by 6 months should we repeat all the three doses again?**

- Interchangeability of vaccines brands or routes is not advisable unless there is no other way out.
- There is no restriction on food. But, avoid alcohol, heavy exercise, and treatment with steroids, if possible.
- If the dose is missed by a day or two, then the next dose has to be given after the number of days missed from the scheduled date are added to the schedule for the subsequent visits. For example, if day 7 dose is given on day 9, then day 28 dose will be given on day 30.
- In pre-exposure prophylaxis, if third dose is missed, then it can be given, whenever the patient visits the center. This validity of initial doses shall be applicable till 1 year. After 1 year, the whole schedule needs to be repeated.