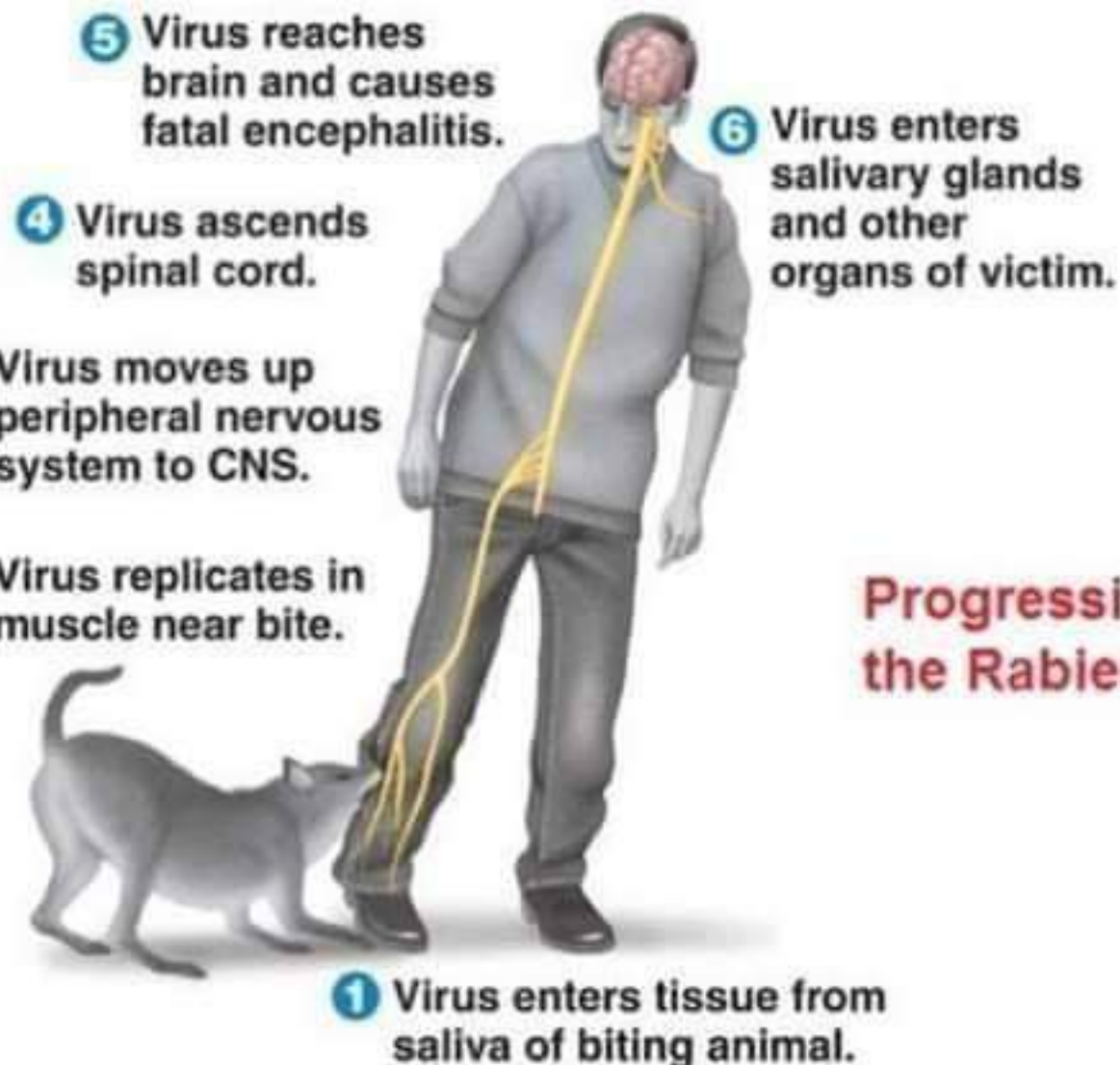


# What is Rabies?

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- Rabies is a 100% fatal disease transmitted by animals to humans.<sup>1</sup>



Progression of the Rabies Virus



# CONTENT



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1. **Definition**
  2. **Introduction**
  3. **Diagnosis**
  4. **Sign & Symptoms**
  5. **Prognosis**
  6. **Treatment**
  7. **Prevention**
-

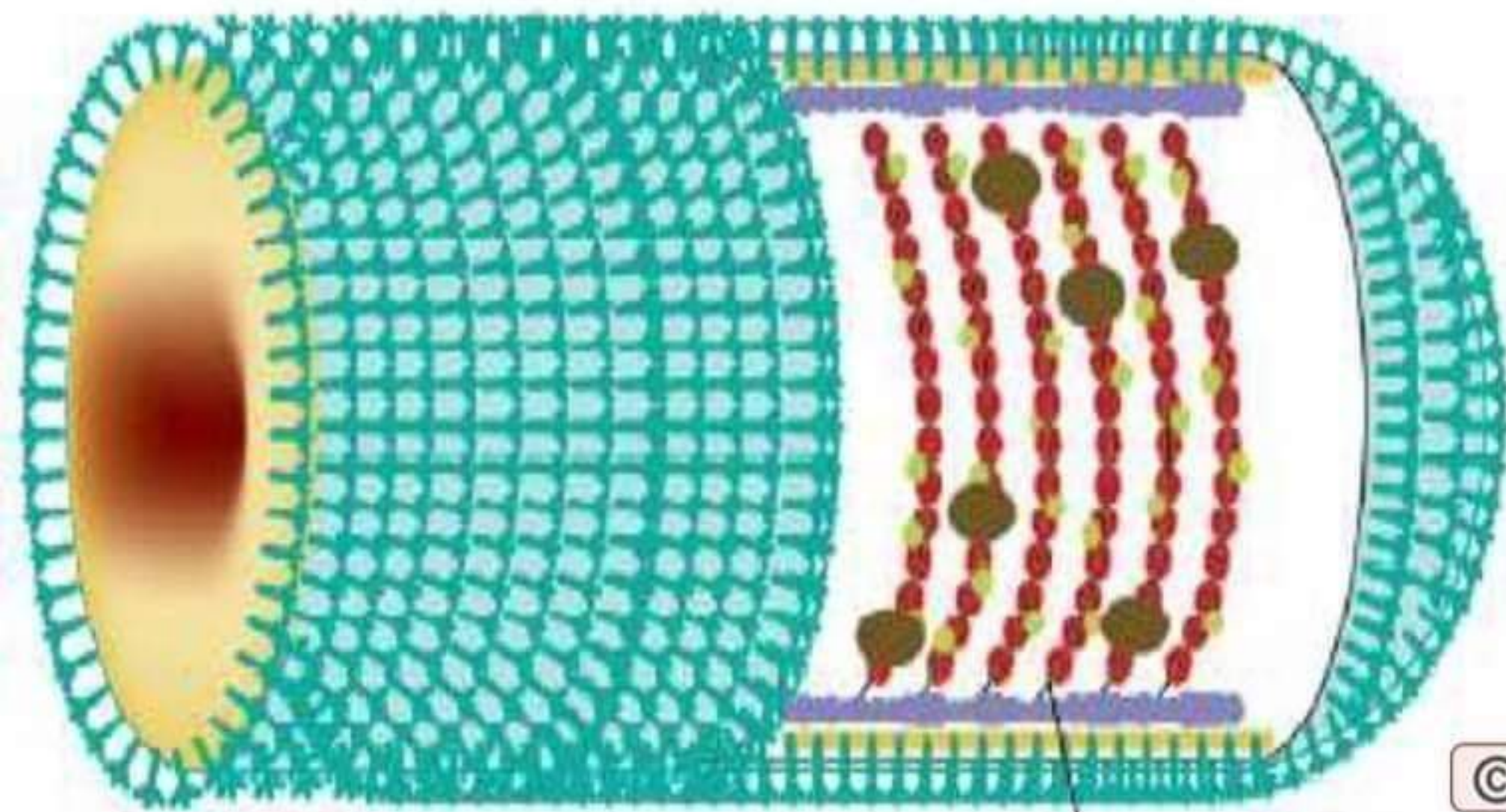


# DEFINITION

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- ✗ Rabies is a viral disease that causes acute encephalitis (inflammation of the brain) in warm-blooded animals
- ✗ Rabies is a zoonotic disease (a disease that is transmitted to humans from animals) that is caused by a virus





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Matrix protein

RNA genome  
helical coil

Envelope {  
Host-derived  
lipid membrane  
Glycoprotein

Nucleoprotein

Phosphoprotein

RNA polymerase

Ribonucleoprotein  
complex or  
nucleocapsid



# INTRODUCTION



- ✖ The disease infects domestic and wild animals, and is spread to people through close contact with infected saliva via bites or scratches.
- ✖ Dogs are the source of 99% of human rabies deaths
- ✖ Once symptoms of the disease develop, rabies is nearly always fatal.

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## HOST & RESERVOIR





# SOURCE OF INFECTION

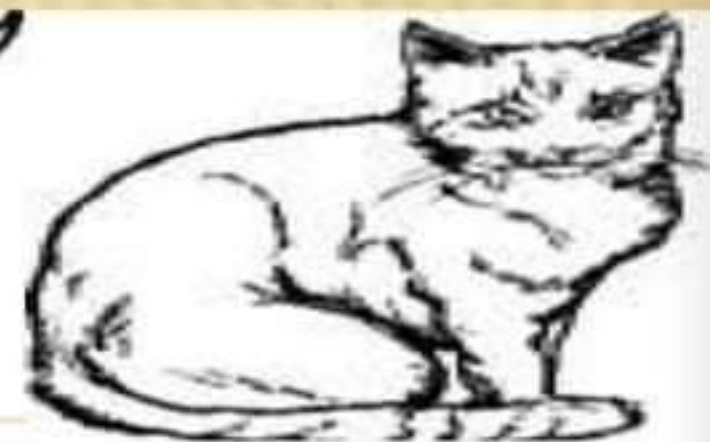


- The source of infection to man is the saliva of rabid animals.
- In dogs & cats, the virus may be present in the saliva for 3-4 days before the clinical onset & during the course of illness till death.

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Cause > 90% of the Human cases

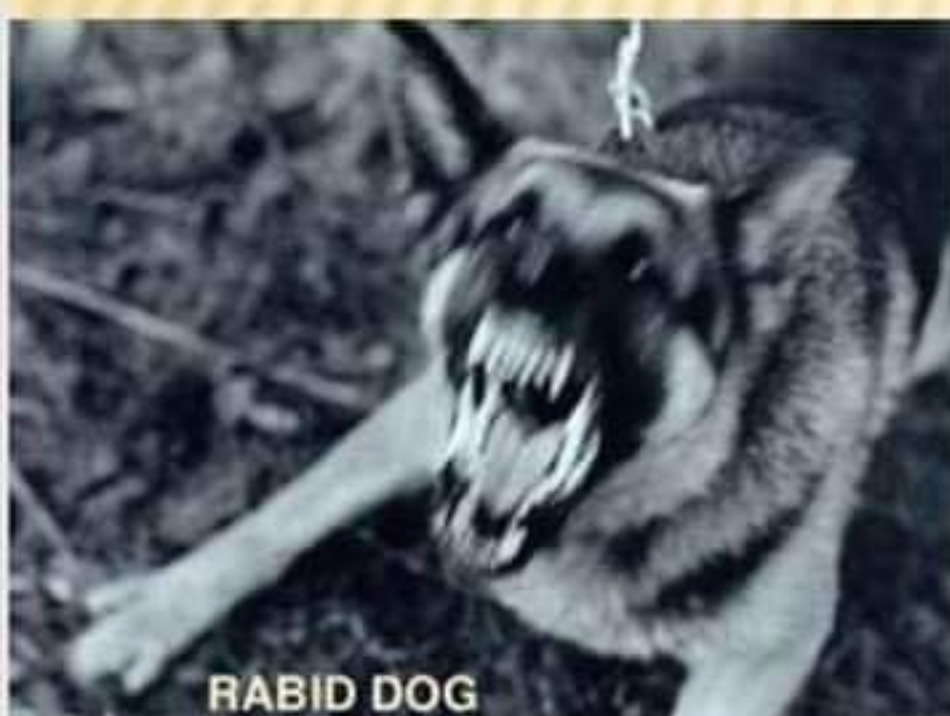


3 – 5% of Human cases

# INCUBATION PERIOD



- ✖ It is highly variable in man, commonly 3-8 weeks following exposure.
  - + The closer the bite to the brain, the shorter the incubation.
  - + Rabies virus travels 1 cm per day.



RABID DOG



Rabid Bat eared Fox



RABID DOG

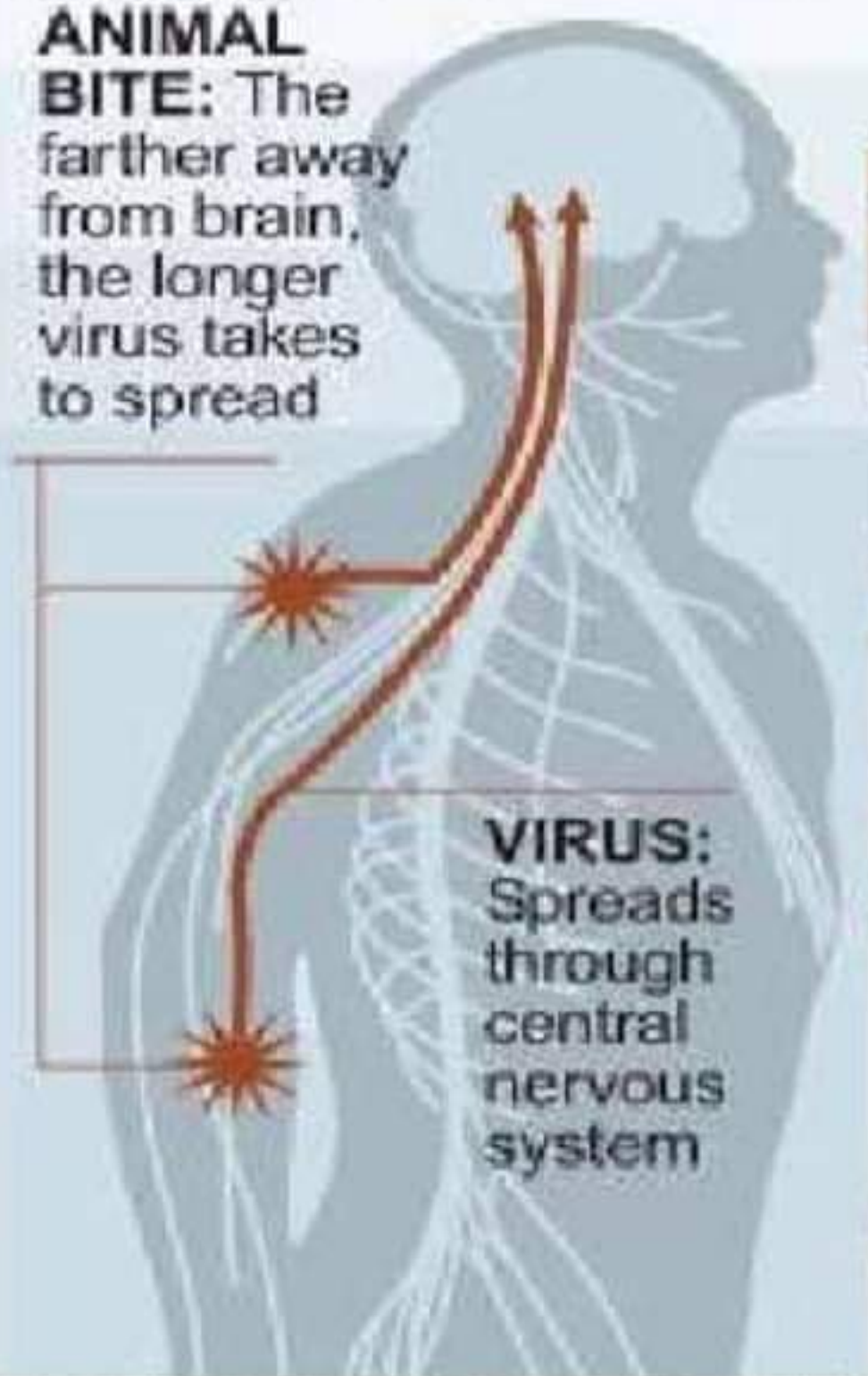


# Rabies



## How it spreads

**ANIMAL BITE:** The farther away from brain, the longer virus takes to spread



## Common carriers of rabies

**Infected animals:** Show no fear for humans; act very agitated



**Dog:** Another common rabies source

## Symptoms in humans

- Fever, depression
- Agitation
- Painful spasms followed by excessive saliva
- Death within a week without vaccine



**Treatment:** Hospitalization, immune globulin injections, anti-rabies vaccine



**Foaming at mouth after drinking:** Produced by spasms in throat

SOURCE: The World Book Medical Encyclopedia

KRT

# PATHOGENESIS



**Live virus → Epidermis, Mucus membrane**

**Peripheral nerve**

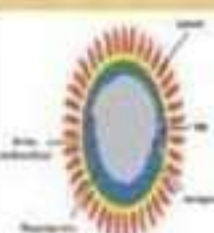
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*centripetally*

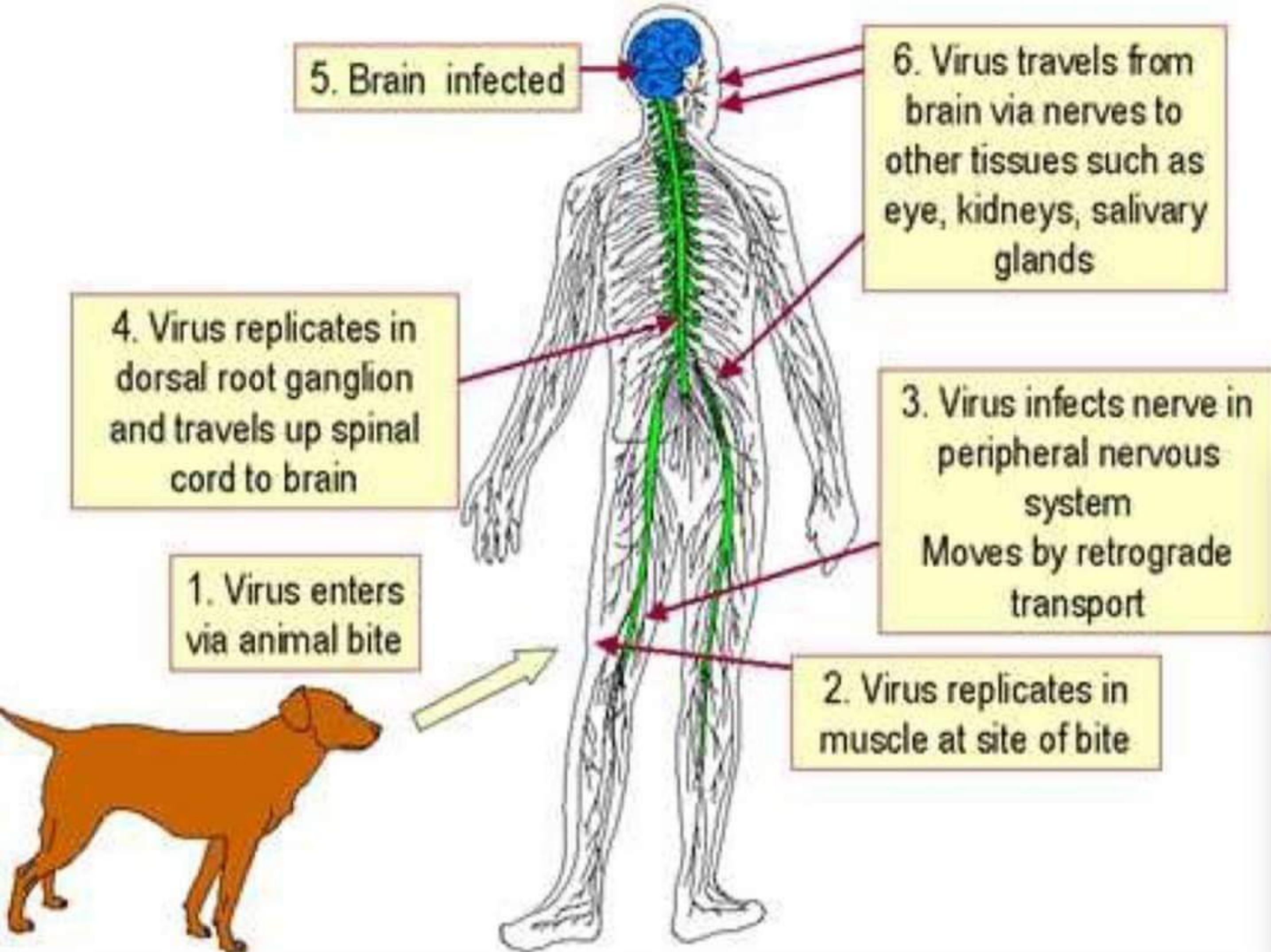
**CNS (gray matter)**

*centrifugally*

**Other tissue (salivary glands,...)**







## SIGN & SYMPTOMS

- ✖ Bizarre behavior.
- ✖ Agitation
- ✖ Seizures.
- ✖ Difficulty in drinking.
- ✖ **Patients will be able to eat solids**
- ✖ **Afraid of water - Hydrophobia.**
- ✖ **Even sight or sound of water disturbs the patient.**
- ✖ But suffer with intense thirst.
- ✖ Spasms of Pharynx produces choking
- ✖ **Death in 1 -6 days.**
- ✖ Respiratory arrest / Death / **Some may survive.**





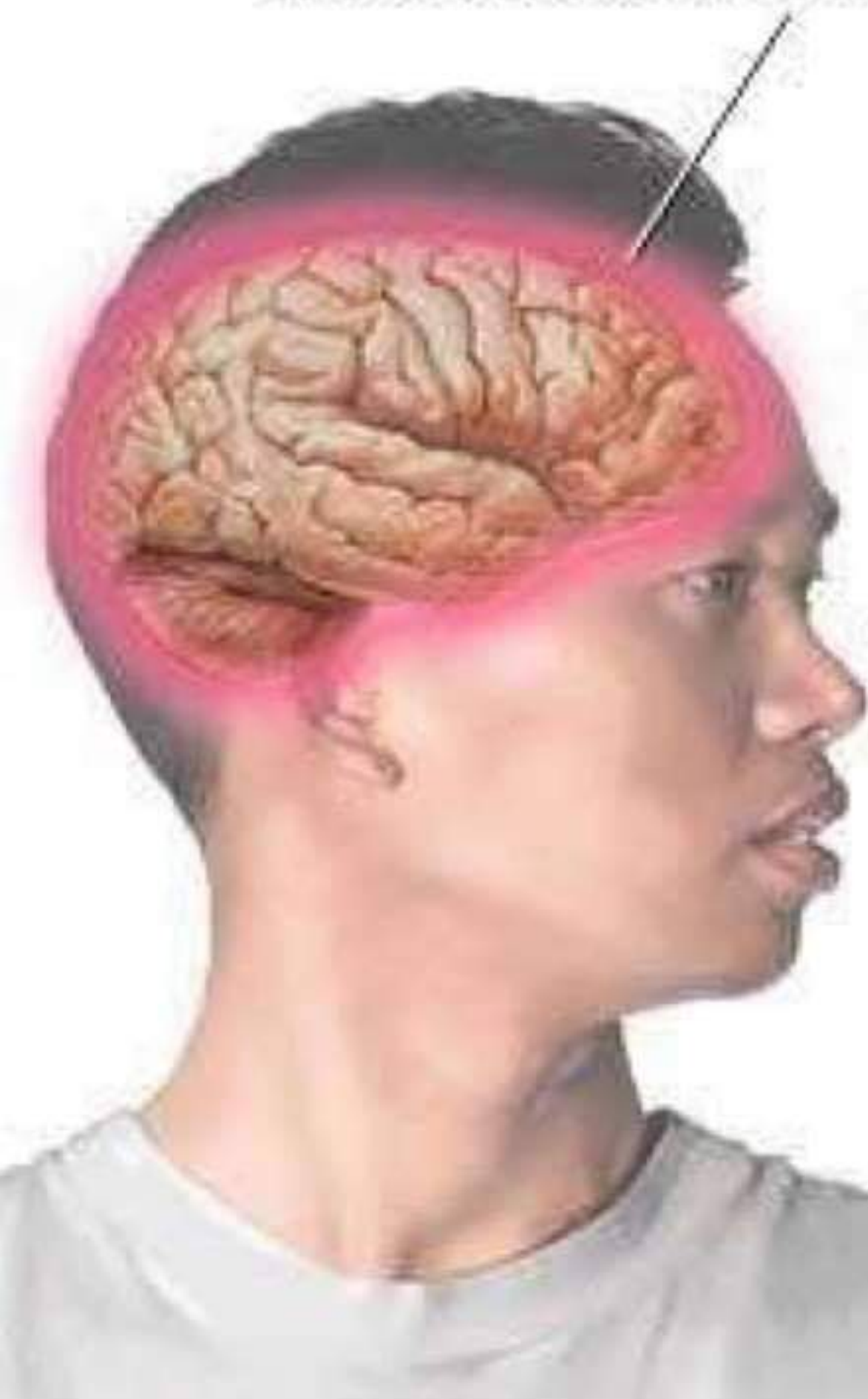
# CONTI....



- ✗ Headache, fever, sore throat
- ✗ Nervousness, confusion
- ✗ Pain or tingling at the site of the bite
- ✗ **Hallucinations**
  - + Seeing things that are not really there
- ✗ **Hydrophobia**
  - + "Fear of water" due to spasms in the throat
- ✗ **Paralysis**
  - + Unable to move parts of the body
- ✗ Coma and death

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Brain inflammation



Virus transmitted by  
infected saliva  
through bite  
or wound





# PREVENTION

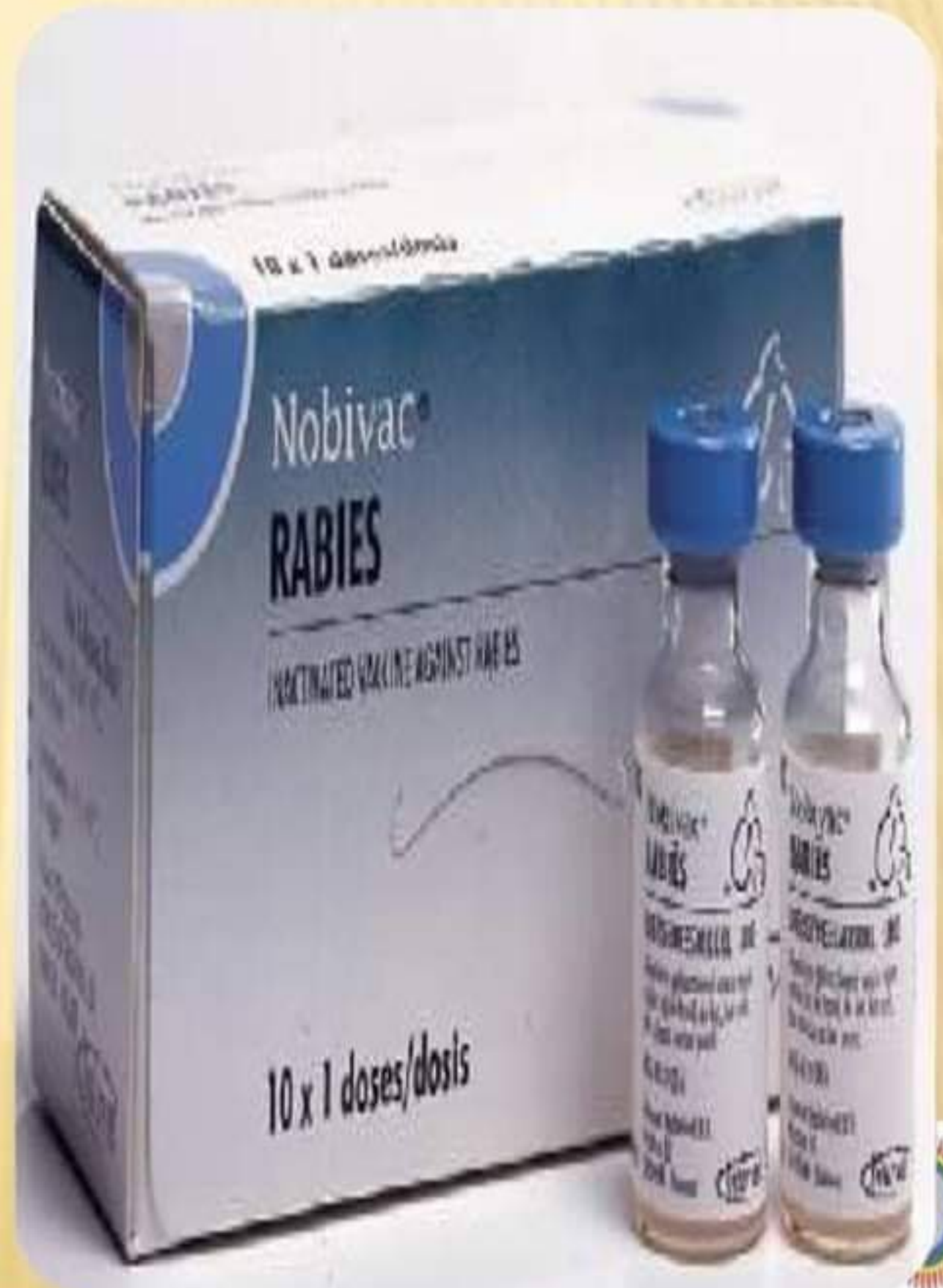


- ✖ PRE EXPOSURE PROPHYLAXIS
- ✖ POST EXPOSURE PROPHYLAXIS

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## PREEXPOSURE VACCINATION





# PRE EXPOSURE PROPHYLAXIS



- ✖ Provided to subjects at risk before occupational or vocational exposure to rabies.
- ✖ Subjects include diagnosticians, laboratory & vaccine workers, veterinarians, cavers, etc.
- ✖ Simplifies post exposure management.
- ✖ Only vaccines used.



# PEP (POST EXPOSURE PROPHYLAXIS)

- ✖ Provided to subjects after rabies exposure.
- ✖ Consists of wound care, rabies immune globulin, and vaccine.
- ✖ Cleansing
- ✖ Chemical Treatment
- ✖ Suturing
- ✖ Anti-Rabies Serum
- ✖ Antibiotics & anti-tetanus measure
- ✖ Observe the animal for 10 days.





Wash the area  
of an animal  
bite thoroughly



ADAM.



CONT...

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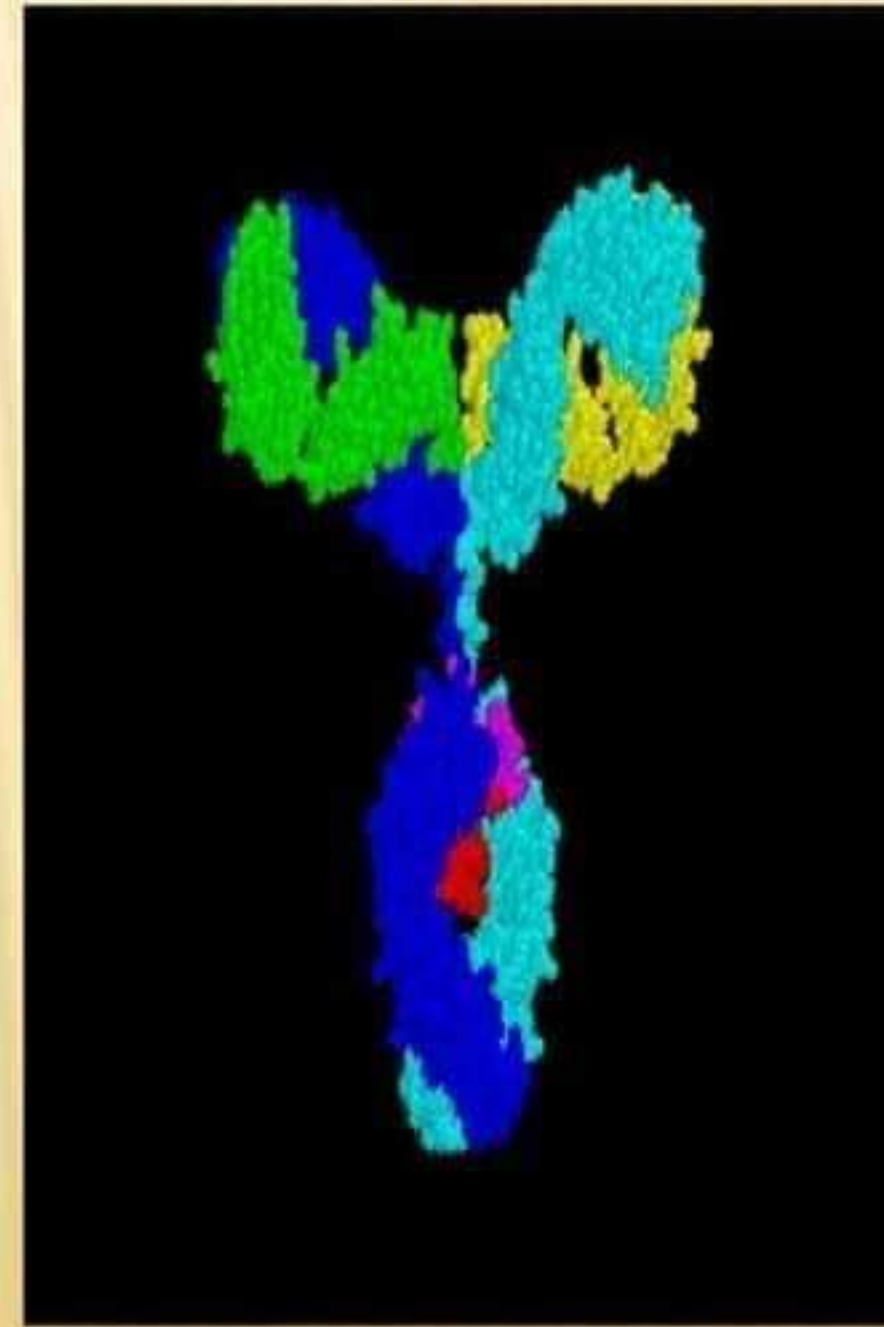
- ✖ Wash lesions well with soap and water (tetanus booster)
- ✖ Infiltrate rabies immune globulin (20 IU/kg) into and around the margin of the bites.
- ✖ Administer vaccine on days **0,3,7,14, and 28. (90)**







- ✖ Two Human Rabies Immunoglobulins are available;
- ✖ Both supplied in vials at ~ 150 IU/ml



## *Wound cleaning & treatment*







Initial treatment for an animal bite should include thorough cleansing however all animal bites should be seen by a physician

ADAM.

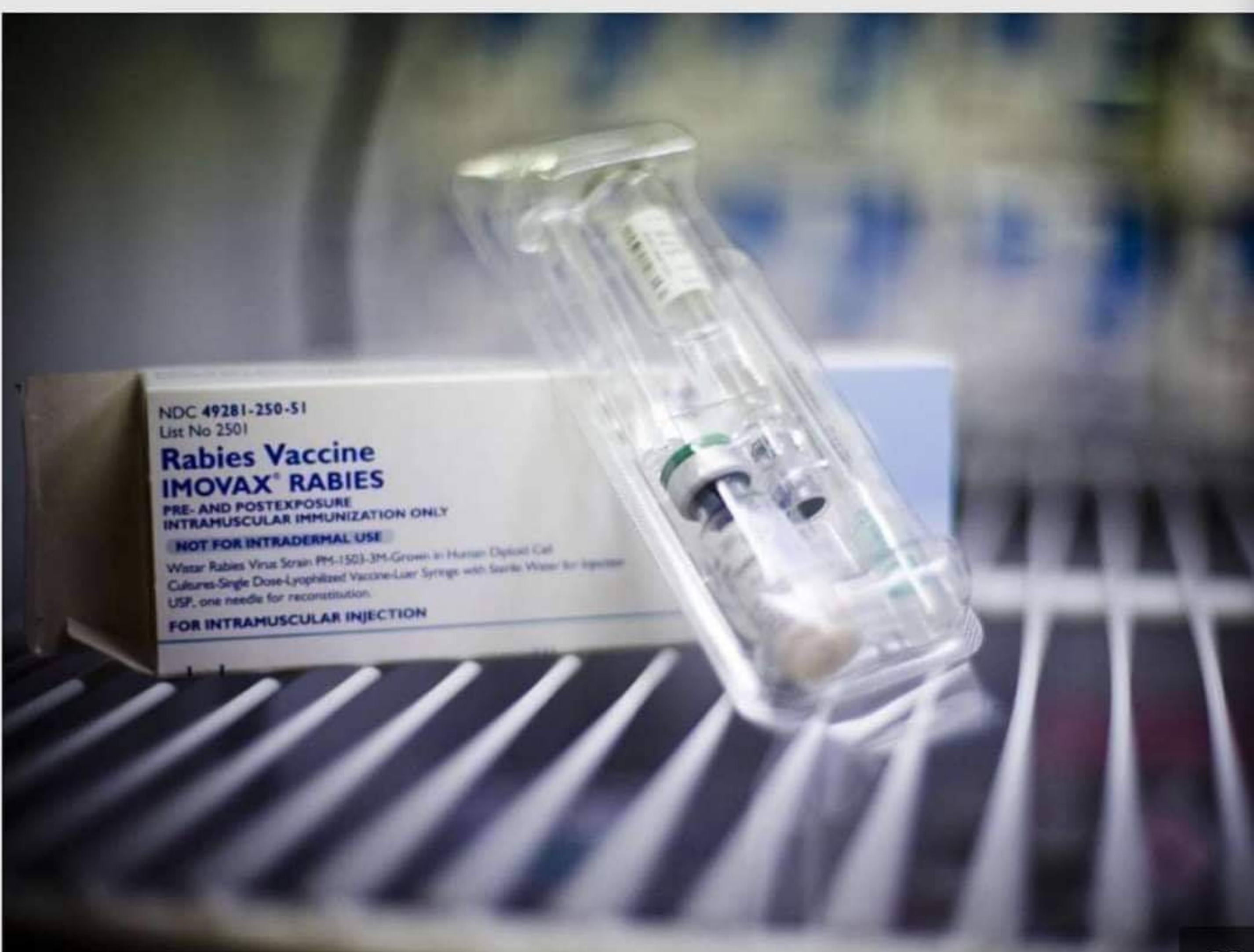
Apply pressure if bite is actively bleeding

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ADAM.









# TREATMENT

## ✖ POST-EXPOSURE TREATMENT (PET)

### A. LOCAL WOUND TREATMENT

- Wash with soap/detergent and water preferably for 10 mins.
- Apply alcohol, povidone iodine/ any antiseptic
- Anti-Tetanus

\*Avoid suturing wounds

\*Don't apply ointment, cream/ wound dressing



## ✖ ANTIMICROBIAL

- Amoxicillin
- Cloxacillin
- Cefuroxime

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\*For those instances where there's no obvious signs of infection( Amoxicillin as prophylaxis )

\*\*\*Educate the public simple local wound treatment & warn not to use procedures that may further contaminate the wounds

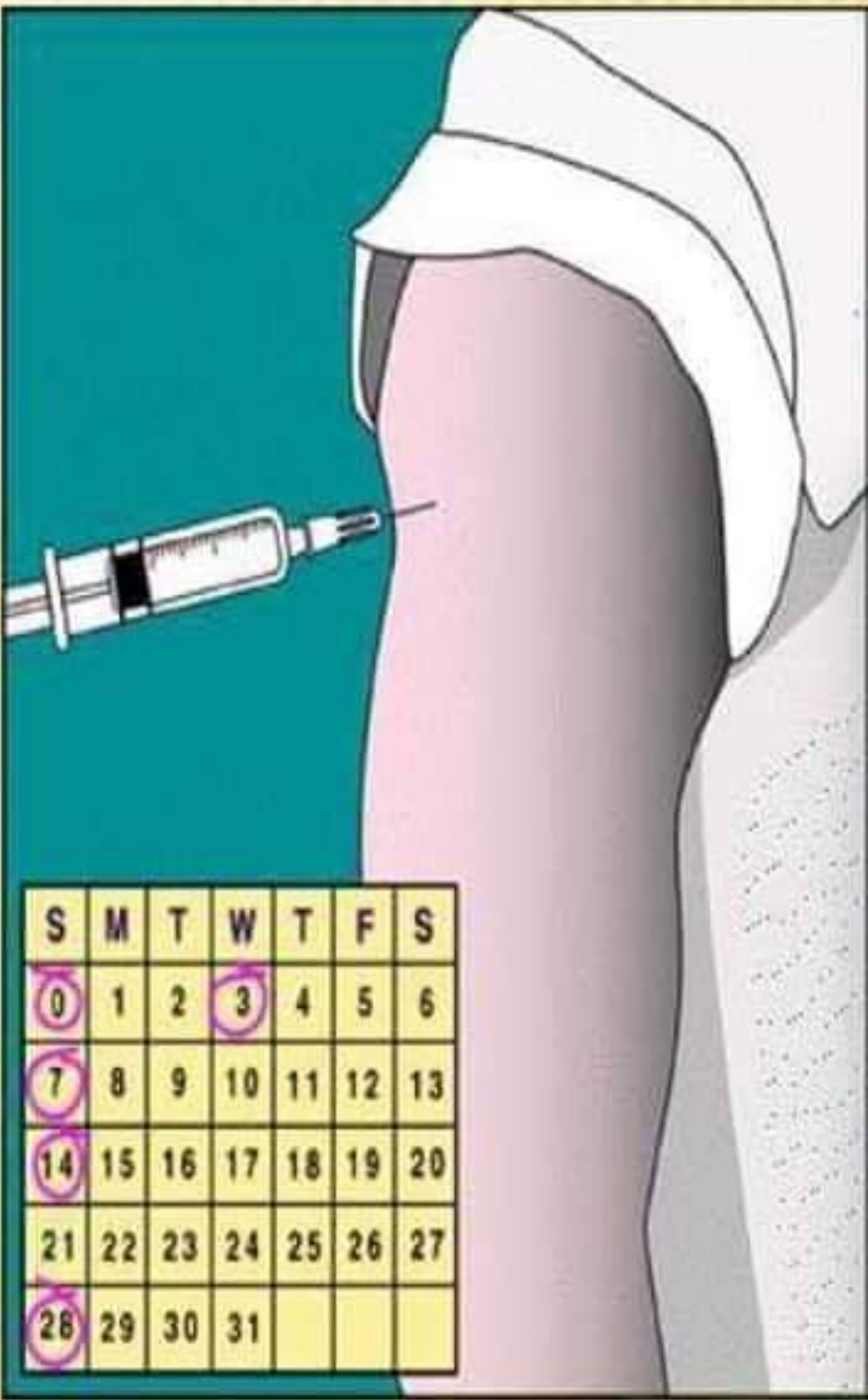


# VACCINE ADMINISTRATION



- 1. Intramuscular Schedules
  - ✓ 6 doses schedule
  - ✓ Reduced multisite intramuscular regimen (2-1-1)
- 2. Intradermal Schedules
  - 2-Site Intradermal schedule(2-2-2-0-1-1)
  - 8-Site intradermal schedule(8-0-4-0-1-1)

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## VACCINATION (INTRADERMAL SCHEDULE)



Day of Immunization	PVRV/PCECV	Site
DAY 0	0.1 ml	L & R deltoids/ anterolateral thighs of infants
DAY 3	0.1 ml	L & R deltoids/ anterolateral thighs of infants
DAY 7	0.1 ml	L & R deltoids / anterolateral thighs of infants
DAY 28/30	0.1 ml	L & R deltoids/ anterolateral thighs of infants





# INTRAMUSCULAR SCHEDULE

Day of Immunization	PVRV	PCECV	Site
Day 0	0.5 ml	1.0 ml	One deltoid/ anterolateral thigh of infants
Day 3	0.5 ml	1.0 ml	Same
Day 7	0.5 ml	1.0 ml	Same
Day 14	0.5 ml	1.0 ml	Same
Day 28	0.5 ml	1.0 ml	same



## MANAGEMENT OF RABIES PATIENT

- ✗ Once symptoms start, treatment should center on comfort care, using sedation & avoidance of intubation & life support measures once diagnosis is certain

### 1. MEDICATIONS

- a. Diazepam
- b. Midazolam
- c. Haloperidol + Diphenhydramine



## 2. SUPPORTIVE CARE



- Pts w/ confirmed rabies should receive adequate sedation & comfort care in an appropriate medical facility.
  - a. Once rabies diagnosis has been confirmed, invasive procedures must be avoided
  - b. Provide suitable emotional and physical support
  - c. Discuss & provide important info. to relatives concerning transmission of dse. & indication for PET of contacts
  - d. Honest gentle communication concerning prognosis should be provided to relatives of pt

## 3. INFECTION CONTROL



- a. Patient should be admitted in a quiet, draft-free, isolation room
- b. HLCR workers & relatives in contact w/ pt should wear proper personal protective equipment (gown, gloves, mask, goggles)

## 4. DISPOSAL OF DEAD BODIES