



Case Report

A 36-year-old man was **bitten by his unvaccinated dog** and had a deep laceration on the right leg. A week later the man developed fever, headache, and malaise. Three days later, he had **agitation, confusion, photophobia, and hydrophobia**. On examination, neck rigidity was absent with muscle **spasms in all limbs**.

Questions

- Define the most likely case diagnosis?
- What is the most likely causative organism?
- What is the morphology of the causative organism?
- Identify the pathogenesis of the causative organism?
- Describe the laboratory diagnosis of this case.
- What is the appropriate treatment of this case?





Discussion & Feedback

- A case of rabies.
- Rabies virus.
- Bullet shape, (-) sense ss RNA associated with nucleoprotein, lipid enveloped with prominent glycoprotein spikes on surface (G protein- hemagglutinates RBCs) & the matrix protein lining the envelope.
- Transmission occurs by bite of an infected rabid animal; primary replication of the virus occurs locally in muscle & connective tissue (no symptoms). Virus then infects peripheral nerves & travels along neuronal axons to CNS, to produce severe & fatal encephalitis. Few cases escape these severe consequences. I.P: varies from 3-8 weeks to 1 year depending on size & site of inoculation (head/face/neck vs. hands or feet).



Discussion & Feedback

- **Specimen:** infected tissue (brain).
 - 1) **Detection of viral antigens or nucleic acid:** IF & PCR.
 - 2) **Histopathological diagnosis of Negri bodies.**
 - 3) **Isolation of the virus:** in suckling mice result in encephalitis & death.

- **Vaccination** after exposure to a rabid animal (not to prevent infection but to moderate the severity of the disease). **In the case of severe exposure:** vaccination is often accompanied by injection of rabies immunoglobulin (IG).

Questions

Q1: Define primary viral encephalitis and mention its causes.

Primary viral encephalitis: Inflammation of the brain parenchyma due to direct viral infection of the brain & spinal cord.

Causes:

1- Eastern equine encephalitis virus.

2- Western equine encephalitis virus.

Q2: Western equine encephalitis virus is the causative agent of

a- Pneumonia.

b- Primary encephalitis.

c- Secondary encephalitis.

d- Syphilis.

e- Dermatitis.

Q3: Rabies virus belongs to

a. Orthomyxoviruses.

b. Paramyxoviruses.

c. Rhabdoviruses.

d. Togaviruses.

e. Arenaviruses.