

GENUS LYSSAVIRUS

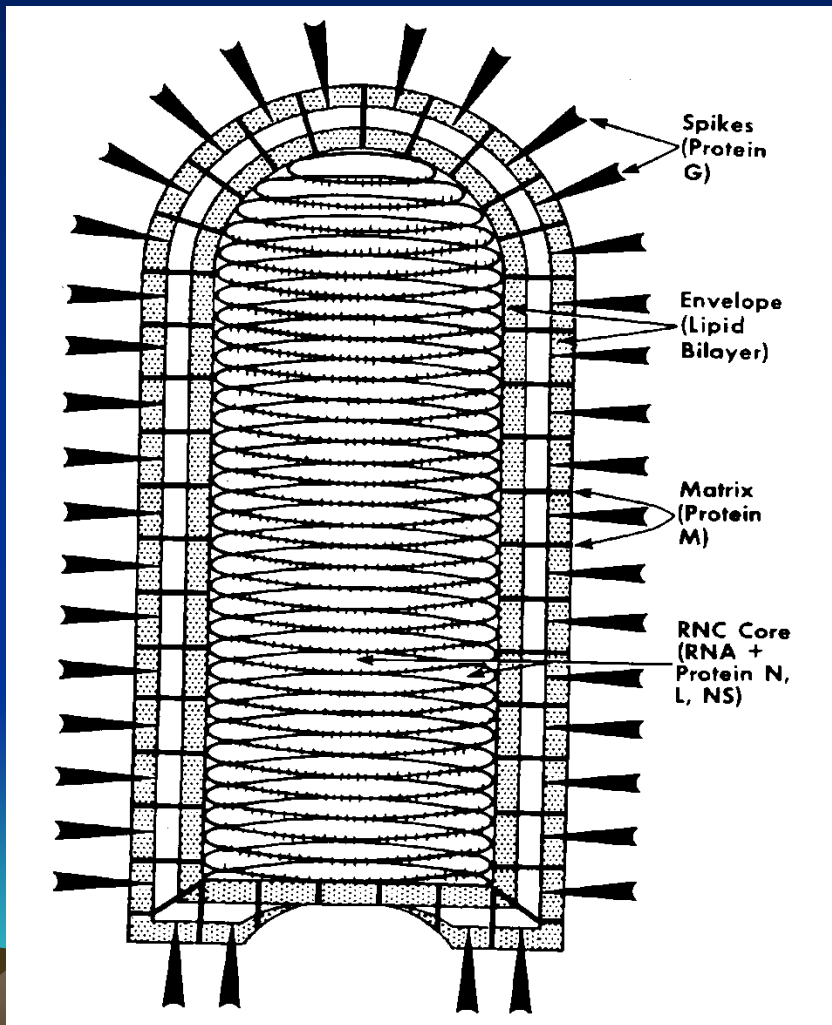
RABIES VIRUS

IT IS ALMOST A 100% FATAL DISEASE OF HUMANS AND OTHER ANIMALS.

IT HAS BEEN KNOWN SINCE THE 23 CENTURY B.C. RABIES IS PRESENT IN THE SALIVA OF RABID ANIMALS AND IS TRANSMITTED BY THEIR BITE.



RABIES VIRUS



- Model of the idealized structure of VSV showing the ribonucleocapsid (RNC), the envelope, and the spikes with their associated protein constituents.

RABIES VIRUS



- Colorized transmission electron micrograph showing a single bullet-shaped rabies virus.

RABIES VIRUS



- Colorized transmission electron micrograph of rabies virus

RABIES

WITHOUT TREATMENT, THE VIRUS MAY BE TRANSMITTED TO THE BRAIN AND RABIES WILL DEVELOPS.

THE VIRUS ENTERS NEURONS BY USING ACETYLCHOLINE RECEPTORS AS ITS RECEPTORS. THE VIRUS IS TRANSPORTED UP THE AXON UNTIL IT REACHES THE CELL BODY.



RABIES

LOCATION OF THE BITE IS IMPORTANT: BITES ON THE HEAD ARE MUCH MORE LIKELY TO LEAD TO DISEASE THAN BITES ON THE LEG.

INCUBATION TIME VARIES FROM 6 DAYS TO OVER 7 YEARS.




RABIES

RABIES CAUSES MANY ANIMALS TO BECOME BELLIGERENT AND BITE OTHER ANIMALS - THEREBY TRANSMITTING THE VIRUS. THIS DOES NOT HAPPEN WITH HUMANS. HUMANS DO NOT TRANSMIT THE VIRUS. IN HUMANS, 2 - 7 DAYS AFTER SYMPTOMS APPEAR, COMA AND DEATH ENSUE. FIVE CASES OF SYMPTOMATIC RABIES IN HUMANS HAVE RECOVERED AFTER THEY RECEIVED SOME FORM OF PROPHYLAXIS BEFORE ONSET. ONE PERSON HAS RECOVERED FROM SYMPTOMATIC RABIES WITHOUT PROPHYLAXIS.

RABIES IMMUNIZATION

VACCINE PREPARED BY PASTEUR IN 1885 WAS USED TO IMMUNIZED JOSEPH MIESTER, WHO HAD BEEN BITTEN BY A RABID DOG 14 TIMES. HE WOULD ALMOST CERTAINLY HAVE DIED OF RABIES IF HE HAD NOT BEEN GIVEN THE VACCINE.

PASTEUR'S VACCINE WAS GROWN IN THE NERVOUS TISSUE OF RABBITS. THEIR SPINAL CORDS WERE DESICCATED, GROUND UP AND THIS LIVE ATTENUATED VIRUS WAS USED AS THE VACCINE.



RABIES IMMUNIZATION

LATER THE VIRUS WAS GROWN IN NERVOUS TISSUE AND INACTIVATED WITH PHENOL.

DUCK EMBRYO VACCINE WAS THEN USED – IT WAS AN INACTIVATED VACCINE.

IN THE 1960'S THE VIRUS WAS GROWN IN HUMAN TISSUE CULTURE CELLS. IT IS AN INACTIVATED VACCINE. IT IS THE ONE USED TODAY



RABIES TREATMENT

- 3 INTRAMUSCULAR INJECTIONS I.M. IN THE DELTOID AREA AT 0, 1, AND 3 WEEKS.
- RABAVERT (GROWN IN CHICKEN FIBROBLASTS) INACTIVATED WITH BETA-PROPIOLACTONE
- IMOVIX RABIES (GROWN IN HUMAN DIPLOID CELLS) INACTIVATED WITH BETA-PROPIOLACTONE.

AND



PASSIVE IMMUNIZATION

- HYPERIMMUNOGLOBULIN
ONE-HALF GIVEN AT SITE OF BITE AND
ONE-HALF INJECTED I.M. IN SAME LIMB.
- BAYBAB FROM DONORS
HYPERIMMUNIZED WITH RABIES
VACCINE.
- IMOGAM RABIES – HT FROM DONORS
HYPERIMMUNIZED WITH HDCV.



DOGS IN THE UNITED STATES AND OTHER WESTERN NATIONS ARE VACCINATED AND THE NUMBER OF DOGS WITH RABIES HAS FALLEN.

IN DEVELOPING NATIONS DOGS ARE STILL THE MOST IMPORTANT VECTOR.



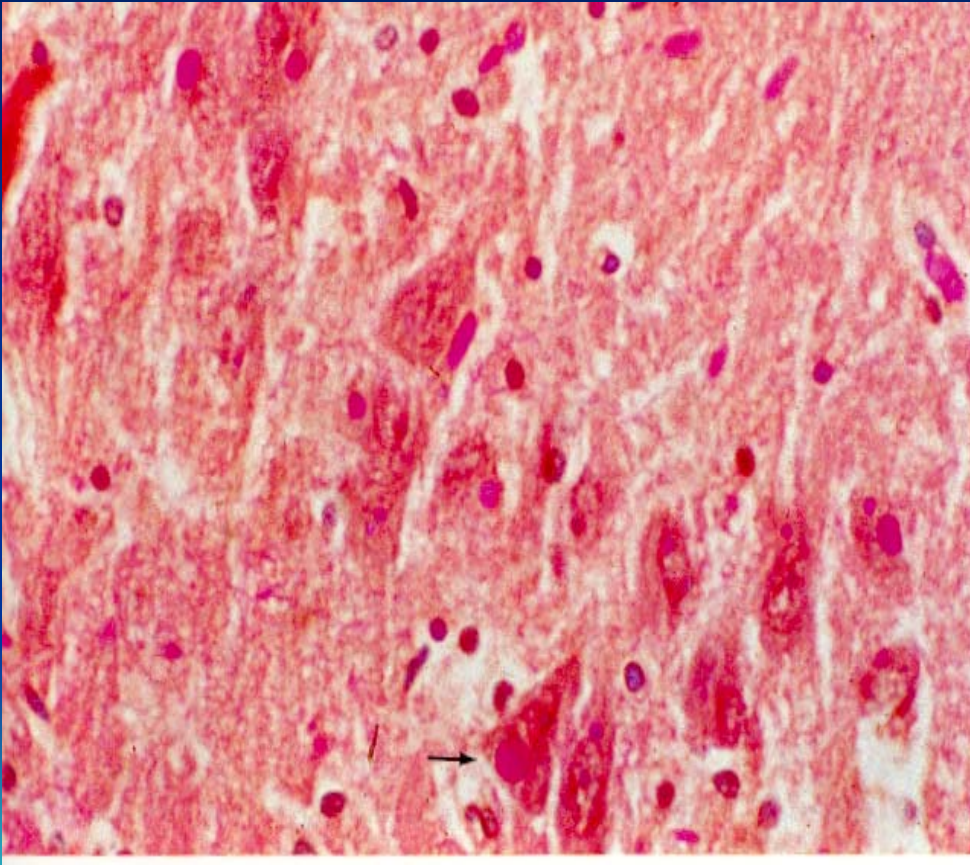
RABIES

- WILD ANIMALS ARE IMMUNIZED WITH BAIT CONTAINING AN ATTENUATED VIRUS OR A RECOMBINANT VIRUS USING VACCINIA VIRUS CONTAINING RABIES PROTEIN

BATS MAY BE AN IMPORTANT RESERVOIR FOR RABIES.



RABIES VIRUS



- Negri bodies. Negri bodies are shown in nerve tissue. Negri bodies are sharply defined eosinophilic cytoplasmic inclusions consisting of viral nucleoprotein.

RABIES VIRUS

- Infected dog bite. The virus usually gains access through a bite from an infected animal and may multiply locally before being transported through the axopasm of nerves to the spinal cord and brain.



RABIES VIRUS

- Hydrophobia. The patient developed hydrophobia. On attempting to drink, the muscles of swallowing and respiration go into sudden spasm so that any fluid is violently ejected and the head is thrown back.



RABIES VIRUS

- In perhaps 20% of patients, hyperactivity is absent and paralysis is predominant, as seen in this child with the expressionless face of 'dumb' rabies.

