

RABIES....

Rabies is an acute, progressive encephalomyelitis infect CNS, It is a viral disease, caused by RNA Lyssa virus (Lyssa=madness) ,it composed of 6 genotypes, of the family Rhabdoviridae.

Epidemiology.....

1- The disease can infected all domesticated animals , and distributed over the world (except some countries ,Australia ,New zeland ,England, Scandinavia)

2- The virus is relatively fragile out side the body and susceptible to most standard disinfectants.

3- Carries animals :

The vampire bats and most carnivorous (Dogs,cats,wolves,Raccoons الراكونون, Red and arctic foxes القطبية, الثعالب الحمراء, Skunks الظرابين, Coyotes ذئب البراري, mongoose حيوان النمس, squirrels السناجب)

4- Transmission:

a-The source of infection is always infected animal

b-The method of speared is almost always by the bite of infected animal

c-Contamination of skin wounds by fresh saliva may result in infection (although not all bites results in infection)

5- Zoonotic implications :

a-The prime الاساسية importance of the rabies is its transmission to human (rabies is always fatal)

b-Incidence are low when regular dog vaccination were used

c-The World Health Organization (WHO) estimates that 55,000 humans (or more)die of rabies annually

d-dogs responsible for 91% of rabies cases ,cats 2%,bats 2%,other domestic animals 3%,foxes 1-2%.

Pathogenesis ...

1-Following the bite, initial viral multiplication occur in striated muscles cells at the site .

2-Then the neuromuscular spindles will provided a site to CNS entry (first to spinal cord then to brain)

3-Some times multiplications of the virus occur only (in the brain) or only (in peripheral nerves)

4-After CNS infection, virus spreads to the rest of the body via peripheral nerves. The high concentration of virus in saliva results from viral shedding from sensory nerve endings in the oral mucosa

5-The main pathogenic effects is irritation of brain(irritation phenomena, Furious form),damage of spinal cord (paralysis,dumb form).

Clinical findings ...

In animals...

*incubation period weeks – several months

Furious form ...which manifested by

Excessive salivation, behavior change(kicking, biting, licking, colic ,lameness ataxia),muzzle ,tremors, bellowing, aggressiveness, hyperesthesia(hyperexcitability),pharyngeal paralysis(hydrophobia)increase sexual excitement

Paralytic form ..

Quietness, sagging and swaying ,deviation or flaccidity of tail, decrease sensation,tensmus with palysis of anus ,drooling saliva, yawing movement ,paralysis of penis (in male),recumbancy ,death occur due to respiratory paralysis

Sings in human....manifested by

1-incubation period(4 weeks -6 years)

2-Pain , discomfort at the site of bite

3-Fear and anxiety with Periods of excitement

4-sense of constriction in throat with difficulty in swallowing(Hydrophobia), Aerophobia

5-Fluctuating body temperature and blood pressure, Sweating, Tachycardia

6-Flaccid paralysis is often begins in the bitten limb and ascends symmetrically or asymmetrically until it involves muscles of deglutition and respiration killing the patient in 2/3 days. (Paralytic or dumb rabies)

Clinical pathology...

*The immune response to natural rabies infection is insufficient because Rabies can produce immunosuppression due to interleukin-1 production in the CNS ,moreover , the virus may persist in macrophages and emerge later to produce disease. (long incubation period) .

The clinical pathological picture characterized by....

1-histopathological detection of negri bodies with non suppurative encephalomyelitis, ganglioneuritis, neuronal necrosis & formation of glial nodules

2-Dot Elisa test ,

3-Fluorescent AB test of brain impression smears

4- Viral detection in saliva, throat swabs and tracheal aspirates

Differential diagnosis

Diseases characterized by nervous involvements ,such as

..lead poisoning ,lactation tetany, enterotoxaemia, listeriosis ,Vit.A.def. ,pregnancy toxemia

Treatment...there is no specific treatment and we can use

1-Wound care (washing with soap and povidine iodine. post exposure vaccine is unlikely to be of value in animals

2-symtomatic treatment

3-anti rabies serum is not available in animals ,while Human Rabies Immune Globulins is available

Vaccination and control ...

1-the major goal is reduce the incidence of the disease in animals

2- pre exposure immunization of animals and human(at risk & endemic area)

3- vaccination (inactivated cell culture vaccine)

- The vaccine are inactivated by binary-ethylenimine and containing aluminum hydroxide ajuvant
- The vaccine give protection for one year and should done annually
- Animals born from unvaccinated dams should vaccinated with 17 days
- Animals born from vaccinated dams should vaccinated with in 4 month of age and repeated with in 10 months

4-quarantine

Is an effected method of preventing the entry of rabies into countries free of the disease,the quarantine period is 4-6 months

Pseudo rabies (Aujeszky's disease)

It's a viral disease caused by Porcine herpes virus-1 (Aujeszky's virus or pseudo rabies virus) which is a member of herpes virus

Epidemiology...

- 1- It's primary disease of pigs (with wide world distribution) and may affect other animals including (horses, cattle, sheep, goats, dog and cats).
- 2- Transmission may occur through direct oral-nasal contact, and may also occur through ingestion of contaminated water & feed
- 3- Infection may be transmitted through coitus (venereal) in pigs
- 4- Transmission to other animals mostly occurs when different types of animals were mixed together

Pathogenesis ..

Virus enters through skin & nasal mucosa. Viremia followed by localization in different body tissues (respiratory, brain, uterus)

Note: the virus may enter the brain through transmission from local nerves to glossopharyngeal, trigeminal & olfactory nerve.

Clinical findings (cattle, sheep & goats)

Respiratory, nervous & reproductive signs are the more common signs of the disease which show

- 1- Sudden death
- 2- Intense pruritus (mad itch), violent licking, chewing, rubbing
- 3- Convulsion with bellowing, maniacal behavior, Circling, opisthotonus, ataxia & paralysis will follow
- 4- Respiratory distress & fever 41.41.5c
- 5- Death occurs within 6-48 h

Clinical path,,

- Serum neutralization test
- Elisa
- Detection of the virus

Control,,

- Depopulation of infected animals
- Test and removal programs
- Vaccination...using
 - Conventional modified live virus vaccine
 - Inactivated virus vaccine

