RABIES

Single strand of RNA

Linear

Rod or bullet shape

Rabies is a neurological disease of mammals that is almost invariably fatal once the clinical signs develop. Humans are usually infected when they are bitten by an infected animal, or exposed to its saliva or central nervous system (CNS) tissues. Although rabies is generally well controlled among domesticated animals in developed nations, canine rabies continues to be a serious problem in some areas of Africa, the Middle East, Asia and Latin America. Wildlife reservoirs have become increasingly important where canine rabies is under control. Rabies can be effectively treated if the exposure is recognized before the symptoms develop. However, people in impoverished countries do not always have access to post-exposure prophylaxis, and even in nations with good medical care, cases occur occasionally in people who do not realize they were exposed. Rabies is caused by neurotropic RNA viruses of the genus Lyssavirus in the family Rhabdoviridae of the order Mononegavirales, and is transmissible to all mammals .

inoculation. Prodromal symptoms are often non-specific, resembling systemic viral infections, although there may be initial neuropathic pain at the site of the bite or weakness of the affected limb. Signs suggestive of rabies include intense pruritus, beginning at the site of the bite and progressing to involve the limb or side of the face, and myoedema, a mounding of the muscle elicited by being struck with a reflex hammer and that resolves within seconds Prodromal symptoms are quickly followed by the acute neurological phase, when the virus manifests itself in the central nervous system. This phase is referred to as paralytic or furious rabies , and progression towards coma and death occurs within one to two weeks from the onset of neurological dysfunction.

Does not survive for more than 24 hours in dead animals when temperatures reach 21°C (70°F), but is highly resistant for extended periods at low or freezing temperatures

pH: Sensitive to very low pH (below 3) or very high pH (greater than 11)
Chemicals/ Disinfectants: Inactivated by sodium hypochlorite, 45–75%

ethanol, iodine preparations, quaternary ammonium compounds, formaldehyde, phenol, ether, trypsin, β-propiolactone, and some other detergents

* Does not survive well outside its host (in dried blood and secretions) as it is susceptible to sunlight and desiccation. It is also susceptible to ultraviolet radiation

Rabies is a zoonotic disease that can affect all mammals , Rabies is a zoonotic disease that can affect all mammals ,

Transmission

- Rabies virus can be transmitted between mammals, whether they belong to the same or different species.

- Rabies virus is primarily transmitted through the saliva of an infected animal. Saliva becomes infectious a few days prior to the onset of clinical signs.

- Infection occurs primarily via bite wounds, or infected saliva entering an open cut or wound or mucous membrane, such as those in the mouth, nasal cavity or eyes.

- Occasional, albeit rare, transmission by inhalation of infected aerosol has been described.

Pox virus

Internally, virions have a dumbbell-shaped core and two lateral bodies ,The genome consists of one molecule of double-stranded DNA, Poxvirus infections are characterized by the production of skin lesions. With most poxviruses there is typically just a primary lesion, but generalized lesions develop with human monkeypox and molluscum . In human cowpox and parapox infections the lesion develops at the site of inoculation (usually the hand), and infection may be spread to other sites such as the face and/or genitals by scratching. When seen by the physician, cowpox and parapox lesions are usually hemorrhagic crusting ulcers, but early in infection the former are usually vesicular and the latter nodular. The lesions of molluscum, usually multiple, are firm, pearly, flesh-colored nodules.

The pathogenesis of localized poxvirus infections is simple. Virus invades through broken skin, replicates at the site of inoculation, and causes dermal hyperplasia and leukocyte infiltration. With cowpox, and to a lesser extent with

parapox, there is limited lymphatic spread; this causes lymphadenopathy and elicits an immune response. The lesion of molluscum is circumscribed by a connective tissue capsule, and the dermis, although distorted, is not usually broken. Some poxviruses express an epidermal growth factor and host range genes which play a role in pathogenesis and cell tropism.

Human monkeypox is usually acquired via the respiratory tract, and during a 12-day incubation period viremia distributes infection to internal organs, which are damaged by virus infection. Spread to the skin initiates the clinical phase, and the lesions progress through the classic stages of macule to papule to vesicle to pustule to crust. Lymphadenopathy, usually involving the cervical and inguinal areas, is often marked.

Corona virus

Coronaviruses are a family of enveloped, single-stranded, positive-strand RNA viruses classified within the Nidovirales order. This coronavirus family consists of pathogens of many animal species and of humans, including the recently isolated severe acute respiratory syndrome coronavirus (SARS-CoV).

Corona viruses cause acute and chronic respiratory, enteric, and central nervous system (CNS) diseases in many species of animals, including humans

Coronaviruses are enveloped viruses with round and sometimes pleiomorphic virions of approximately 80 to 120 nm in diameter. Coronaviruses contain positive-strand RNA,The genome RNA is complexed with the basic nucleocapsid (N) protein to form a helical capsid found