

# Disease of Apes



# Apes



- The group includes the gibbons or lesser apes, and the great apes: bonobos (pygmy chimpanzees), (common) chimpanzees, gorillas, and orangutans.
- All great apes have a diploid number of 48 chromosomes (humans have 46).
- The number of chromosomes in gibbons varies from  $2N = 38$  to 52.



- **Chromosomal defects** in apes that are lethal in infancy include **trisomy 22** (analogous to human trisomy 21, Down syndrome) in a chimpanzee and a Sumatran orangutan, and **trisomy 18** (analogous to trisomy 19 in humans) in a bonobo.

# Monkeypox virus infection



- *Pan troglodytes* - Chimpanzee and *Pongo pygmaeus* - Orangutan are known to be susceptible to natural infection.

# Monkeypox virus infection



- Clinical
- Experimentally, viraemia develops 3-4 days after infection and the virus disseminates to **skin, lung, mucous membranes, spleen and other sites**. Commonly subclinical infection in naturally infected monkeys in the wild.

# Monkeypox virus infection



- Skin lesions appear 6-7 days post infection and progress from papule to vesicle to umbilification, with classical pocks forming over 4-14 days. General and respiratory signs may develop and infection may be fatal. Infection is generally more severe in anthropoid apes than in monkeys.

# Monkeypox virus infection



- Note: infection in humans usually results in skin lesions of the extremities, but sometimes these are more widespread. Infection can be fatal in young children.

# Monkeypox virus infection



- In experimentally infected chimpanzees:
- **Skin and mucous membrane lesions:** papule developing to vesicle, then pustule and finally encrustation.
- **General signs:**
  - Anorexia
  - Malaise
  - Abdominal distension ([ascites](#))
  - [Lymphadenopathy](#): may be marked in more severe disease.
  - Signs of severe pain when handled or forced to move.



# Monkeypox virus infection



- Variable mild to severe, fatal disease.
- Mild infection: anorexia, reluctance to move, development of a few lesions on face and arms, recovery after 14 days.
  - Severe:
    - ✦ Ascites, [CNS](#) depression, pain on handling, a few skin lesions, death after 10 days.
    - ✦ Skin lesions initially only a few but becoming numerous with confluent lesions on face, limbs and upper body; severe exanthema (rash). Crust formation and signs of healing by 22 days.

# Monkeypox virus infection



- **Histopathology:**
  - **Skin:** Papules are proliferative acanthocytes containing intracytoplasmic eosinophilic inclusions.
- **Lungs:** irregular foci of haemorrhagic necrosis.

# Monkeypox virus infection



## ○ Transmission

- Aerosol transmission is thought to have been responsible for outbreaks in captive primates.
- Direct contact.
- Biting insects can transmit the virus.

# Molluscum contagiosum (MC)



- Also called **water warts**, is a viral infection of the skin that results in small, raised, pink lesions with a dimple in the center.
- They may occasionally be itchy or sore.
- They may occur singly or in groups.
- Any area of the skin may be affected, with abdomen, legs, arms, neck, genital area, and face being most common.
- Onset of the lesions is around 7 weeks after infection. It usually goes away within a year without scarring.

# Molluscum contagiosum (MC)



- MC is caused by a poxvirus called the **molluscum contagiosum virus (MCV)**.
- The virus is spread either by direct contact including sexual activity or via contaminated objects such as towels.
- The condition can also be spread to other areas of the body by the person themselves.
- Risk factors include a weak immune system, atopic dermatitis, and crowded living conditions.

# Mumps virus



- Mumps is a viral infection that primarily affects saliva-producing (salivary) glands that are located near ears.
- Mumps can cause swelling in one or both of these glands.
- Mumps was common in the United States until mumps vaccination became routine.
- Since then, the number of cases has dropped dramatically.

# Mumps virus



- However, mumps outbreaks still occur in the United States, and the number of cases has crept up in recent years.
- These outbreaks generally affect people who aren't vaccinated, and occur in close-contact settings such as schools or college campuses.

# Mumps virus



- Complications of mumps, such as hearing loss, are potentially serious but rare. There's no specific treatment for mumps.