COWPOX VIRUS

ANIMAL GROUP AFFECTED	TRANS-MISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Macaques Marmosets Elephants Rhinoceroses Zebras Okapis Llamas Alpacas (Cats) Hosts: wild rats, voles and mice	Direct contact	In nonhuman primates: vesicopapules, scabs, facial swellings, gingivitis In exotic herbivores: pustules and swellings in skin and gingiva, pox lesions on vulva, penis, trunk, anal mucosa, gingiva and tongue, detached sole horn, stillbirth	Rare in humans and non-human primates Depends on severity of disease and secondary infections Can be severe in young animals	Normally self-limiting disease. Treat secondary (bacterial) infection Antibiotics (secondary bacterial infection), supportive measures	*Eradicate wild rodents, especially rats* Elephants and rhinos should be vaccinated (MVA modified vaccinia virus Ankara)

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Susceptible animal groups
Non-human primates, cats, cows, exotic herbivores (giraffes, okapis, elephants, rhinos, llamas, alpacas, edentates) and wild/exotic cats
Endemic amongst rats, voles and mice

Causative organism
Cowpox virus (genus Orthopox)

Zoonotic potential
Can spread from rats, mice and other infected animals to humans

Distribution
Presumed to be widely spread amongst wild rodents in Western Europe

Transmission
Direct contact, biting

Incubation period
NHP:1 week Herbivores (elephants): 15-22 days

Clinical symptoms
NHP: facial swellings, gingivitis, vesicopapules, scabs, secondary infections (gangrenous inflammation of the subcutis, haemorrhagic enteritis).
Herbivores: pustules and swellings in skin and gingiva, pox lesions on penis, vulva, trunk, anal mucosa, eyelids, lips, tongue, gingiva; stillbirth, fever, arthritis. Secondary infections.

Post-mortem findings
Intracytoplasmatic inclusion bodies in epithelium cells of the skin and affected tissues

Diagnosis
Histology, serology (EIA, Int. EIA, FACS, Int. FACS), PCR, TEM

Material required for laboratory analysis
Tissue samples, serum, nose swabs, swabs of mucous membrane of the cheek (NHP)

Relevant diagnostic laboratories
Institute of Virology, Erasmus Medical Centre, Rotterdam, the Netherlands
German Primate Center, Göttingen, Germany, dep. Infektionspathologie

Treatment
In humans and non-human primates: self-limiting. Use antibiotics and NSAIDs to treat secondary infections
In herbivores: can be life-threatening due to massive cycles of virus development. Use antibiotics, NSAIDs and other supportive measures

Prevention and control in zoos
Control wild rodents (pest control). Separate infected animals to stop the disease spreading

Suggested disinfectant for housing facilities

Notification
Health authorities should be informed

Guarantees required under EU Legislation

Guarantees required by EAZA Zoos

Measures required under the Animal Disease Surveillance Plan

Measures required for introducing animals from non-approved sources

Measures to be taken in case of disease outbreak or positive laboratory findings

Conditions for restoring disease-free status after an outbreak
No new cases 4 weeks after the last infection

Contacts for further information
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