



CONTAGIOUS ECTHYMA (CE) (Syn.: Contagious Pustular Dermatitis, Orf)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Artiodactyls (Bovidae, Capridae, Ovidae, Camelidae, Antilocapridae)	Direct contact with infected animals and fomites	Proliferative, crusty/scabby epidermal lesions around the mouth and nares, vulva, udder, coronet; occasionally elsewhere, including digestive tract. In association with <i>Dermatophilus congolensis</i> , can result in „strawberry foot“	Generally self-limiting, but severe outbreaks might lead to death, particularly in young animals	In severe cases, broad spectrum antibiotics and supportive therapy. Vaccination in the face of an outbreak can be considered	<i>In houses</i> <i>in zoos</i> Naïve population: isolation and quarantine of newly acquired individuals. Isolation from livestock. Population in which disease endemic: vaccination (risk of disease because live vaccine from sheep); cleaning and disinfecting

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Susceptible animal groups CE is predominantly a disease of farmed sheep and goats. It is reported in New and Old World camelids. In non-domestic animals, the disease is described in free-ranging members of the family Bovidae and Antilocapridae from North America and Europe.	
Causative organism The CE aetiological agent is a double-stranded DNA, enveloped virus belonging to the family Poxviridae, genus <i>Parapoxvirus</i> . At electron microscopy, this large virus (260 x 150 nm) has a characteristic "basketwork" or "ball-of-wool" appearance due to genomic microtubules. Limited antigenic and genomic diversity appears not to influence pathogenicity and cross-protection capacity of different strains. Infectivity of CE is completely lost after treatment at 55 °C for 15 min, but not by freezing, and is sensitive to iodophors and formalin at high concentration. Direct sunlight will also inactivate the virus. Within dried scabs, virus infectivity is maintained for long periods at low temperature; increased humidity and/or temperature leads to decreased infectivity.	
Zoonotic potential Yes, by direct contact (handling of affected animals) or by indirect contact with infected fomites (e.g. wooden fences or wool shears). Very common within sheep farming communities. Painful red lesion on hands or arms for 3-6 weeks. At pustular stage might become infected with secondary bacteria.	
Distribution World-wide distribution in domesticated species. In wildlife, outbreaks have been reported from North-America, Europe and Israel.	
Transmission By direct contact with affected animals and contaminated objects and surfaces. Virus penetrates through disruption of the skin and oral mucosa layers. Scabs from affected animals normally maintain the infection in the environment. Animals persistently infected might play a role in the epidemiology of the disease. The infection tends to spread rapidly within the affected group.	



Incubation period 2-3 days experimentally, 6 to 8 days under natural conditions.
Clinical symptoms Morbidity can be up to 100%, while mortality is more commonly very low, although could reach 50% in complicated cases. In suckling young, lesions are often found around mouth and nostrils, originating from the oral mucocutaneous junction. As a result feeding is reduced and weight gain compromised. In older animals, lesions can involve the axilla, thigh, genitalia, udder, lower limbs and coronet, the latter leading to lameness particularly when infection is complicated by secondary bacterial infection with <i>Dermatophilus congolensis</i> . Lesions progress through erythema, papule, vesicle and pustule, with scab formation in a few days. Unless complicated by secondary bacterial infection, scabs will dry and are shed after approximately 4 weeks from infection, leaving no scar. Secondary infection can result in papillomatous proliferations.
Post mortem findings For gross pathology, see clinical symptoms. Rarely, lesions can be found throughout the digestive tract.
Diagnosis Electron microscopy and histology. A number of serological tests have been used to assess past exposure (e.g. serum neutralisation, complement fixation, ELISA), but sensitivity is low because immunity is predominantly cell mediated.
Material required for laboratory analysis Tissue samples from lesions (moist, active scab). Tissue material should be collected with a scalpel blade and placed in a suitable container (e.g. test tube or Petri dish). Samples should be collected within 10-14 days from appearance of lesions. Samples can be maintained at room temperature.
Relevant diagnostic laboratories Institute of Animal Health, Ash Road, Pirbright, Woking, Surrey GU24 0NF, United Kingdom
Treatment Supportive therapy. Broad spectrum antibiotics (topic or systemic) to prevent secondary.
Prevention and control in zoos Isolation from domestic livestock and newly introduced, susceptible animals (quarantine). Vaccination only to be considered following re-occurrence of disease (endemic), but risky because based on live, fully virulent vaccine obtained from infected sheep lambs.
Suggested disinfectant for housing facilities Removal of organic matter, formalin, iodophores.
Notification Not notifiable in the UK.
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
Contacts for further information
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