

AVIAN TUBERCULOSIS in MAMMALS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE?	TREATMENT	PREVENTION & CONTROL
Primates : Cercopithecidae, rarely Hylobatidae or New World monkeys. Ungulates, ...	Primarily perorally, occasionally cutaneously or aerogenously	Continuous or intermittent diarrhoeas, weight loss, debilitation. In cutaneous infections skin ulcera, in pulmonary infections dyspnoea.	Occasionally (associated with HIV , SIV or SRV infections!)	Usually none, in very valuable animals Cycloserine or Clarithromycin or a combination of Mefloquine, Mefloquine, Mefloquine and Ethambutol	<i>In houses</i> <i>in zoos</i> Indoor housing, strict quarantine and testing programs

<p>Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen / Germany. Alexis Lécuyer, DVM. Paris Zoo</p>	<p>Last update March 2009</p>
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<p>Susceptible animal groups Primates: Cercopithecidae, rarely Hylobatidae or New World monkeys. Reported also in lemurs (mouse lemurs). Ungulates : deer, bovids, ...</p>	
<p>Causative organism <i>Mycobacterium avium -intracellulare</i> complex with 28 serotypes.</p>	
<p>Zoonotic potential Theoretically yes. (HIV positive humans are most at risk)</p>	
<p>Distribution World – wide.</p>	
<p>Transmission Primarily perorally, occasionally cutaneous or primary pulmonary infections observed. <i>M. avium-intracellulare</i> in contrast to <i>M.tuberculosis / bovis</i> is rarely transmissible between animals but causes environmental (soil, water, structures) contaminations!</p>	
<p>Incubation period</p>	
<p>Clinical symptoms Continuous or intermittent diarrhoeas, weight loss, debilitation, sometimes lymphadenopathy. In cutaneous infections skin ulcerations, in pulmonary infections dyspnoea.</p>	
<p>Post mortem findings Irregular yellowish- white thickening of the intestinal wall (often caecum) due to chronic granulomatous enteritis with infiltration by large, foamy, eosinophilic epithelioid cells or macrophages. Necrosis, fibrosis and calcifications are usually lacking in the enteric lesions. Prominent mesenteric lymphatic channels have been reported. In primary lung infections micro-and macrogranulomas with extensive necrosis were observed.</p>	
<p>Diagnosis Type of morphologic lesions, Acid fast staining of the agents usually present in huge numbers, Tuberculinization, using avian tuberculin, Cultivation of the mycobacteria (slowly growing, thin, transparent, smooth colonies), PCR (misleading in AIDS-patients!).</p>	
<p>Material required for laboratory analysis Faeces, morphological lesions.</p>	

**OIE Reference Laboratory**

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Relevant diagnostic laboratories

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Local medical laboratories.

Treatment

Usually euthanasia, in exceptional cases surgery (granuloma excision) associated with cycloserine or clarithromycin (*M.avium – intracellulare* is resistant to most tuberculostatica!). In Clarithromycin-resistant strains a combination of Mefloquine (40 mg/kg), Mexifloxacin (100 mg/kg) and Ethambutol (100 mg/kg) for 4 weeks has been recommended.

Prevention and control in zoos

Indoor housing of the animals, disinfection of all materials coming in from the environment, strict quarantine and testing program. UV at usual energy/time contact used for drinking water is effective.

Suggested disinfectant for housing facilities**Notification****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****Experts who may be consulted**

Frau Dr. S. Rüsck-Gerdes, Nationals Referenzzentrum Borstel.

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