



## CHLAMYDOPHILA ABORTUS (ENZOOTIC ABORTION)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Tropism for ruminants placenta, but other species of Mammals can be infected (horse, carnivores, swine, rodents, rabbits, man)	Aborted fetuses, placenta, vaginal discharges, infected stools.	Abortion Retained placenta Metritis  <i>Rare: arthritis, pneumonitis, Conjunctivitis, vesiculitis, epididymitis</i>	No	Tetracyclins useful but don't prevent sharing	<i>In houses</i>  <i>in zoos</i> Vaccination, Pest control, Isolation, Monitoring of aborted foetus

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<p><b>Fact sheet reviewed by</b> Francis Vercammen, Royal Zoological Society, Antwerp, Belgium</p>	
<p><b>Susceptible animal groups</b> All mammals are potentially susceptible. More largely spread on ruminants. Other species where infection was observed include: horse, swine, carnivores, mouse, guinea pig, rabbit, man.</p>	
<p><b>Causative organism</b> <i>Chlamydophila abortus</i>, previously named <i>Chlamydia psittaci serotype 1</i></p>	
<p><b>Zoonotic potential</b> Disease in man is of two types:</p> <ul style="list-style-type: none"> <li>In non-pregnant humans, infection may cause respiratory disease, but main first signs are malaise, flu-like signs, mild dry cough, dyspnoea.</li> <li>In pregnant woman, infection leads to abortion with sever complications sometimes fatal. Pregnant women should be kept away from aborting females.</li> </ul>	
<p><b>Distribution</b> Enzootic world-wide. In UK, 8.6% of the flocks of sheep are estimated to be infected.</p>	
<p><b>Transmission</b> Mainly aborted fetuses, placenta, vaginal discharges and infected faeces. The excretion is at its highest at the time of kidding/abortion. However, the bacteria are carried in the intestine and in some lymphoid tissue, creating carrier animals. (e.g, about 20% of sheep which have had chlamydial disease remain infective)</p>	
<p><b>Incubation period</b> The colonisation of placenta happens several days before mi-pregnancy, but visible signs appear only few weeks after.</p>	
<p><b>Clinical symptoms</b></p> <ul style="list-style-type: none"> <li>Females: Abortion sometimes associated with retained placenta, uterine discharge. Further sterility may occur. Abortion normally happens in the last half of pregnancy.</li> <li>Males: seminal vesiculitis (leading to atrophic testes)</li> <li>Rare: cough, keratoconjunctivitis, arthritis, encephalitis in calves</li> </ul>	
<p><b>Post mortem findings</b></p> <ul style="list-style-type: none"> <li>Foetus: Congested and swollen liver, with pinpoint white foci, enlarged lymph nodes, petechiae in thymus, skin, salivary glands. When abortion occurs near the term, foetus are usually cell preserved and clean in appearance.</li> <li>Placenta:</li> </ul>	



<b>Diagnosis</b> <ul style="list-style-type: none"><li>• Histology (stains) on placenta, foetal tissues</li><li>• IFI, ELISA on placenta, foetal tissue: cross reaction with other bacteria</li><li>• PCR is the best for tissue infection diagnosis</li><li>• Serology: ELISA test, screening for unequivocal <i>C.abortus</i> antibody</li><li>• Egg inoculation (live cell culture): only on good quality fresh samples, 20-30 days min. culture</li></ul>
<b>Material required for laboratory analysis</b> <p>Histology: placenta (cotyledons), foetal liver, lung, kidney, spleen PCR: foetal liver, lung, kidney, gastric content, urine, spleen Live cell culture: Placenta, foetus liver, uterine discharge</p>
<b>OIE Reference Laboratories</b> <ul style="list-style-type: none"><li>• <b>Dr Konrad Sachse</b> Friederich-Loeffler Institute, Institute of Molecular Pathogenesis Naumburger Str. 96a, 07743 Jena GERMANY Tel: (49.3641) 80.43.34 Fax: (49.3641) 80.42.28 Email: <a href="mailto:konrad.sachse@fli.bund.de">konrad.sachse@fli.bund.de</a></li><li>• <b>Dr Nicole Borel</b> Institute for Veterinary Pathology (IVPZ), Vetsuisse Faculty, University of Zurich Winterthurerstrasse 268, CH-8057 Zurich SWITZERLAND Tel: (41.44) 635.85.71 Fax: (41.44) 635.89.34 Email: <a href="mailto:apos@vetpath.uzh.ch">apos@vetpath.uzh.ch</a> Email: <a href="mailto:n.borel@access.uzh.ch">n.borel@access.uzh.ch</a></li></ul>
<b>Treatment</b> <p>Tetracyclines could help to prevent abortion, but <b>do not clean the issued calf</b>, which can become a carrier. 20 mg/kg of oxytetracycline at mid pregnancy + 15 days before the birth</p>
<b>Prevention and control in zoos</b> <ol style="list-style-type: none"><li>1) Isolation of aborting dam, because excretion mainly occurs during abortion/kidding, via placental envelopes, uterine fluids, stools and milk.</li><li>2) Vaccination: killed vaccines reduce abortion, but does not reduce excretion. Live vaccine prevents excretion. It's recommended to continue vaccination in an infected herd, as long as latent infected animals remain.</li><li>3) Pest control (transmission could occur through stools from rodents and birds)</li></ol>
<b>Suggested disinfectant for housing facilities</b> <p>Very resistant to cold above 0°C. Not sensible to heat. Hardly survive at -20°C, better at -80°C Susceptible to quaternary ammoniums. Special care of house and litter is required around kidding time</p>
<b>Notification</b>
<b>Guarantees required under EU Legislation</b>
<b>Guarantees required by EAZA Zoos</b>
<b>Measures required under the Animal Disease Surveillance Plan</b>
<b>Measures required for introducing animals from non-approved sources</b>
<b>Measures to be taken in case of disease outbreak or positive laboratory findings</b>
<b>Conditions for restoring disease-free status after an outbreak</b>
<b>Contacts for further information</b>
<b>References</b> <ol style="list-style-type: none"><li>1. Aitken I.D, Clarkson M.J, Linklater K.(1990). Enzootic abortion of ewes. Vet Rec;126;6:136-138</li><li>2. Cubero-Pablo MJ, Plaza M, Perez L, Gonzales M (2000): Seroepidemiology of chlamydial infection of wild ruminants in Spain. J Wildl Dis; 36(1): 35-47</li><li>3. Everett K.D.E, Andersen A.A (1999): Identification of nine species of Chlamydiaceae using PCR-RFLP. Int J Syst Bact; 49; 803-813</li></ol>



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14. Best Internet references with serious writers and reviewers (registry is free): [http://www.chlamydiae.com/Professional\\_index.htm](http://www.chlamydiae.com/Professional_index.htm)