

Ovine Chlamydiosis : An Overview

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Chlamydia abortus belongs to the family Chlamydiales, shares the properties of both bacteria and viruses. The pathogen induces abortion mainly in sheep and goats, and to a lesser extent in horses, cattle and pigs. *Chlamydia abortus* poses a significant threat to pregnant women hence it is zoonotic in nature and presents a major concern to human health. The distribution is globally wide spread due to its marked risk factors. The present study focuses an overview of the disease, risk factors and mitigations to be taken up to overcome the occurrence of the disease in ovines.

Keywords : *Chlamydia abortus*, ovines, abortions, zoonotic, mitigations

Introduction : Ovine *Chlamydiosis* also termed as Enzootic abortions in ewes is a significant disease caused by the pathogen *Chlamydia abortus*. (OIE Terrestrial Manual., 2023). The bacteria is Gram negative in nature with pleomorphic appearance. The disease is prominent in ewes and usually the bacterium targets pregnant ewes present in the last trimester of the gestation period. The disease poses a drastic downfall in the economic growth of the small scale and marginal shepherds who solely depend for their livelihood on sheep farming. According to 20th livestock census of India (2019), sheep contributes to around 74.26 million and goat contribute to around 148.88 million of the total livestock population 536.76 million. (20th Livestock Census-2019 All India Report).

Clinical signs: The affected ewes abort suddenly without exhibiting any symptoms. Slight vaginal discharges would be observed before 24-48 hrs of abortion. Generally, infected ewes prompt to abort in the last 2-3 weeks of pregnancy period. (Walder et al. 2003, Arif et al. 2020). Upon abortion, the ewes produce stillborn lambs with haemorrhagic placenta, sometimes weak lambs were produced but very difficult to survive and generally tend to die within a few days. (Aljumaah and Hussein, 2012) Remnants of placenta in the ewes result in metritis and chances of deaths occur if it is invaded by secondary bacterial infection.

Pathogenesis : Initial transmission of the disease occurs via direct contact and contaminated feed and water from the aborted fetal materials. In the first phase of infection in a naive flock which has not any infection previously in the flock, abortions occur to a very minute extent and later in the successive years the infection spreads among the flock affecting nearly 30% of the flock and causes stormy abortions resulting in enzootic abortion of ewes. The expelled dead lambs appear with an inflamed placenta. After the end of the third month of gestation period, chlamydia organism tends to invade the placentomes and produce inflammation and necrosis of the surrounding tissues. The pathogen further moves inside the fetus and bring mild changes to liver, lungs in cases of severe placental infection apart from this hypoxic conditions in the brain lead to damage of the central nervous system. Humans encounter the chlamydial infection by careless handling of the samples during the process of cultivation. (Iraninezhad et al. 2020).

Risk of Zoonosis: Chlamydial infections are zoonotic in nature and humans easily acquire the infection when they come in contact with the infected aborted material or while handling the laboratory cultures without taking proper preventive measures. Biosafety cabinets should be utilized while handling the specimens in the laboratory. Humans encountered with the Chlamydial infections have a risk of influenza like sickness ranging from acute to sub clinical forms. Pregnant women have chances of infection to abort on exposure to the organism (Longbottom and Coulter, 2003, Longbottom et al. 2013, Rodolakis and Mohamad, 2010).

All the internal changes in the fetus results in malfunctioning of gaseous exchange between the fetus and maternal parent finally leading to discrepancy in hormonal regulation and inducing abortions.

Risk factors: Infertile ewes could be one of the cause for the chlamydial infections as harbouring of *Chlamydia* in the uterus can lead to persistent change in the morphology of reproductive tract thereby decreasing the breeding potential. Infected ewes carry the infection and shed the bacteria into the environment without showing any clinical signs (Nogarol et al. 2024). Introduction of new animals into the flock requires a thorough quarantine so as to eliminate the animals for the infection if present any. (Arif et al. 2020). Sharing of the drinking water and feed in farms could lead to ingesting of the bacteria via contaminated water and feed.

Post-abortion sheddings act as a leading cause as they act as a potent source in spreading the infection to a larger extent. The elementary bodies also called as infectious forms, are metabolically inert and highly resistant forms and withstand high temperatures and survive in the soil for quite a long time (Ravichandran et al. 2021). The aborted fetus, placenta and post abortion vaginal discharges are an excellent source of introducing the infection to healthy animals and the management of waste manure is also to be dismissed properly after proper treatment of the waste.

Mitigation measures: whenever new sheep are introduced into the flock it should be mandatory to quarantine the animal for a minimum period of 30 days to a maximum of 60 days. This period helps in predicting potential diseases like Chlamydiosis and steps could be taken to monitor the health of the infected ones and the disease can be contained.

Regular monitoring of the ewes should be done to check for infertility and proper care should be attended towards them to identify the cause of infertility and correct it. Animals suffering with respiratory distress should be separated from the group and quarantined. Sharing the water from the same fomites would lead to infection of the healthy animals.

Aborted fetuses, placental materials and other contaminated waste matters should be disposed in a systematic way after appropriate treatment of the aborted materials with proper disinfectants. This would minimize the risk of disease to the healthy animals.

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