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Abortive Diseases in Sheep and Goats

Sudeep Solanki[1] & Kamal Purohit[2],
[1]Assistant Professor, Department of Microbiology, College of Veterinary and Animal Science, Udaipur, Rajasthan, India
[2]Assistant Professor, Department of Veterinary Pathology, College of Veterinary and Animal Science, Udaipur, Rajasthan, India

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Leptospirosis, brucellosis, chlamydiosis, Coxiella burnetii infection, campylobacteriosis, and listeriosis are the main infectious causes of miscarriage in sheep and goats.

In 1887, David Bruce identified Brucella melitensis (B. melitensis), then known as Micrococcus melitensis, from the spleen of a British soldier who had died of a feverish disease called Malta fever. Prior to Themistocles Zammit's unintentional discovery of Malta fever's zoonotic nature in 1905, when he isolated B. melitensis from goat's milk, the disease was believed to be vector-borne. One of the biggest breakthroughs in epidemiology research has been identified as the possibility that healthy goats could harbor the disease. The primary organism responsible for abortions in small ruminants is B. melitensis, however B. abortus is also infrequently implicated. Abortion is most common in the fourth month and might be followed by lameness and mastitis. The placenta may develop persistent uterine lesions, but it is otherwise physically normal.

The history of reproductive failures is typically used to make a clinical diagnosis, but laboratory testing is required for confirmation. Bacterial isolation from blood or bone marrow specimens is the "gold standard" for diagnosing brucellosis; however, this process necessitates lengthy cultivation times (ranging from 4 to 7 days to 40 days), and blood cultures sometimes fail. Still widely used are serological tests as the enzyme-linked immunosorbent assay (ELISA), complement fixation test (CFT), Rose Bengal plate test (RBPT), and serum agglutination test (SAT). Molecular techniques have been employed to get around these issues because routine identification and differentiation of brucellosis suspected cases based on culture isolation and phenotypic characterization necessitates biosafety level-3 protocols. Furthermore, tests based on the polymerase chain reaction (PCR) have demonstrated a greater sensitivity than the conventional microbiological test for brucellosis diagnosis.

Chlamydophila abortus, formerly known as C. psittaci serotype 1, is a coccoid, obligatory intracellular parasite that causes enzootic abortion. It is a member of the redefined Chlamydiaceae family, which currently includes 11 distinct species. It is among the main reasons why sheep and goats are unable to reproduce. First documented in Germany in 1959, the disease was later diagnosed in Bulgaria, Spain, the United States, France, India, Japan, the United Kingdom, Chad, Greece, and Tunisia. After brucellosis, it is the second most common cause of abortions in many places.

While goats can abort at any point during pregnancy, the majority of abortions occur in the latter weeks of pregnancy, whereas sheep often exhibit the disease as an abortion in the final two to three weeks of pregnancy. Infection with C. abortus typically only manifests as reproductive failure, but in rare cases, the flock may also exhibit conjunctivitis,

respiratory illness, polyarthritis, and retained placentas. Reddish-brown exudate coating the cotyledons and intercotyledonary zones is a common sign of placentitis. The placenta exhibits neutrophilic inflammation and necrotizing vasculitis under a microscope. C. abortus can be identified with certainty by PCR, ELISA, culture, fluorescent antibody, or immunohistochemistry staining. Although the placenta is the preferred specimen, liver, lung, and spleen tests can occasionally be used to make the diagnosis.

During an outbreak, tetracyclines should be administered orally or by parent supervision, and does should be kept apart. Aborting goats and sheep are immune. Sheep that give birth because of C abortus carry the infection for years and release it during ovulation. Pregnant women may infrequently develop severe illness from the zoonotic sickness.

Leptospirosis: Goats are vulnerable to leptospirosis, and miscarriages can occur when leptospiraemia occurs, despite sheep's relative resistance. While some are afebrile and not icteric, others do have anemia, icterus, and hemoglobinemia. Serology or the detection of Leptospira species in the mother's urine, the placenta, or the fetal kidney is used to make the diagnosis. There are few reports on the bacterial culture of this strain in small ruminants, despite the fact that Hardjo seems to be widely distributed. Grippotyphosa and Pomona are the two serovars of L. interrogans most frequently implicated with caprine abortion. Furthermore, there aren't many reports of leptospire isolation in these species worldwide, while rumored findings show that there is a large variety of circulating serovars of Leptospira in sheep and goats.

Coxiella burnetii infection: This zoonotic, obligatory intracellular bacterium, which is found practically everywhere in the world, causes Q fever in humans. It is increasingly acknowledged as a significant contributor to caprine abortion, and epidemics in sheep have been documented on occasion. Weak lambs, stillbirths, and late-term abortions are common symptoms. Morbidity could reach 50%. Gray-brown exudate covers the placenta, and the intercotyledonary spaces thicken. Under a microscope, the placenta has necrotizing vasculitis, and tiny, coccobacillary organisms that are less than 1 µm in diameter are causing many chorionic epithelial cells to swell. Only the placenta is affected by infection, and the placenta is the clinical material that needs to be gathered. Despite this, there is very little information about acute infections. Culturing requires biosafety level 3 facilities and necessitates growth in embryonated eggs or cell cultures. Experimental infections require similar facilities. The diagnostic techniques used are isolation, PCR, and immunologic staining techniques.

Campylobacteriosis

Abortion is caused by the infectious disease campylobacteriosis in sheep and sometimes goats. It is caused by Campylobacter foetus subsp. fetal. The ewe or doe may show symptoms of vaginal discharge, diarrhea, and fever. Endometritis develops when the illness worsens, and the fetus contracts the infection and passes away. The majority of abortions take place within the final six weeks of pregnancy. Most frequently, this disease is spread by a ewe or doe consuming the organism in tainted feed or by coming into contact with an aborted fetus or placenta. Usually, the organism is isolated from a tissue or fluid sample in order to make the diagnosis. The aborted fetus appears to be the most trustworthy source for a sample. Oedema, signs of pneumonia, and liver necrosis are among the necropsy findings. During breeding season and again 60–90 days later, a killed ovine (sheep) vaccine should be administered. Then, two to four weeks before the breeding season, all breeding animals must receive a yearly booster.

Listeriosis: Goats frequently contract Listeria monocytogenes, a disease that occasionally results in abortions. The fetus is frequently autolyzed, and there are no particular fetal abnormalities. generally exhibits no symptoms prior to abortion, but following one, acute metritis may ensue. Isolation from the placenta, abomasal contents, or uterine discharge is used to diagnose. Tetracycline is advised as a prophylactic measure in the extremely unlikely event of a herd breakout.

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