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AN OVERVIEW OF CONTAGIOUS CAPRINE PLEUROPNEUMONIA

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ABSTRACT

Contagious caprine pleuropneumonia is a respiratory disease caused by bacteria *Mycoplasma mycoides subsp. mycoides* large colony (Mmmlc) and *mycoplasma mycoides subsp. capri* (mmc). It can cause Sein Contactro Fibrinous Pleuropneumonia (CCPP). CCPP is a serious disease that destroys the flock of goats and sheep. Clinical symptoms of CCPP are critical respiratory distress and coughing issues. It is transmitted through contact, coughing and inhalation of infectious droplets. It causes high morbidity and mortality. CCPP is controlled by using vaccines and is diagnosed by PCR or serological testing.

Keywords: Contagious, caprine, pleuropneumonia, morbidity, Elisa, PCR, Mycoplasma Capricolum sbsp. Capri pneumonia

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Introduction

Contagious caprine pleuropneumonia (CCPP) is a fatal contagious disease primarily observed in Algeria in 1873[1]. Shortly after, in 1881, the disease was introduced to South Africa by a shipment of Angora goats. This organism was first isolated and shown to cause CCPP in Kenya; it has subsequently been isolated in the Chad, Eritrea, Ethiopia, Niger, Oman, Sudan, Tanzania, Tunisia, Turkey, Uganda, the United Arab Emirates, and more recently in Mauritius, China, Tajikistan and Saudi Arabia. CCPP was first reported in mainland Europe in 2004, when outbreaks were confirmed in the Thrace region of Turkey, with losses of up to 25% of kids and adults in some herds. In Pakistan the etiological agent has been secluded from sick goats in pishin district of Balochistan [2].

CCPP is a cataclysmic transboundary disease that has threatened over 38 countries in Asia, Africa and middle east. It is also known as “Bou Frida” because it involves only one lung [3]. CCPP is described as fibrinous pleuropneumonia and excess production of straw-colored liquid in any of the lung. The economic impact is devastating with morbidity rate of 100% and mortality rate between 80-100% in susceptible herds. [4]

Transmission

It is transmitted directly by an aerogenic route through contaminated droplet. Airborne transmission can result in distant spread [5]. A carrier state is also an agent but not proven yet It is readily contagious and short period of contact is enough for successful transmission. Chronic carriers may exist, but they remain unproven. Outbreaks of this disease mostly occurs after heavy rains, cold spells or after transportation.

Clinical signs

Per acute and acute forms occur in endemic areas. The goat may die with 1-3 days in per acute stage, typical signs of CCPP in acute form are hyperpyrexia, dyspnea sometimes with grunting and snoring, continuous nasal discharge, anorexia and abortion. The cough is frequent and productive. In chronic form there is chronic cough nasal discharge and debilitation.

Symptoms

In CCPP, weakness, anorexia, cough, tachypnea, and nasal discharge, accompanied by fever (40.5°–41.5°C), are typical [8] Exercise intolerance progresses to respiratory distress, with open-mouth breathing and frothy salivation. Sudden death without obvious respiratory signs may develop after septicemia in a minority of cases; however, unlike other Mycoplasma spp, disease is typically limited to the respiratory tract.

Postmortem findings

The thorax contains excess straw-colored fluid and distention of interlobular septa by sero-fibrinous fluid. There is pericarditis, arthritis, and sometimes meningitis occurs. Acute fibrinous pneumonia- sometimes it is confined to one lung.

Pathogenesis

Contagious caprine pleuropneumonia (CCPP) is transmitted by inhalation of infectious aerosols from affected goats and primarily target the lower respiratory tract. After entry, the organism adheres to the epithelial cells of the bronchioles and alveoli leading to the loss of ciliary function and damage to the respiratory epithelium. Colonization of lung tissue induces a marked local inflammatory response characterized by infiltration of neutrophils and macrophages and release of inflammatory mediators. These processes result in severe sero-fibrinous pneumonia and pleuritis with extensive fibrin deposition.

Control

CCPP can be controlled by using prophylaxis. The prevailing CCPP vaccine contains deactivated MCCP, halted in saponin. They provide protection over 1 year. Controlling the movement of flocks. Quarantine the animals, and carry out vaccination for all animals. There should be excellent protection, tests, and elimination of positive cases is also advisable in order to control the CCPP disease in goats and sheep. Treat the affected animals with drugs like tylosin, oxytetracycline, and multivitamins, among others, in the early stages, but not totally, because recovered animals remain to linger and are carriers of the disease then, lastly slaughter policy should be observed too

Conclusion

Contagious caprine pleuropneumonia is a fatal caprine cataclysmic disease. Goats and sheep are threatened by this disease. One lung is affected in this respiratory tract disease. It is mainly caused by *Mycoplasma capricolum subsp. capripneumoniae (*MCCP). This noxious bacterium belongs to class mollicutes. MCCP is relates *to mycoplasma capricolum subsp. Capricolum* (Mcc*)*. It is transmitted directly by aerogenic routes through contaminated droplets. Short period of contact is enough for successful transmission. Outbreaks of this disease mostly occur in inherent areas where ostensibly healthy goats were introduced into flocks has also been reported from various wild animals like wild sheep, goat, Arabian oryx. Management of CCPP requires a combination of biosecurity and medical intervention. Vaccines are made for controlling CCPP.

References

[1] Dereje, Teshome, and Sori Teshale. "Contagious caprine pleuropneumonia: A review." Journal of Veterinary Medicine and Animal Health 13.3 (2021): 132-143.

[2] Iqbal Yatoo, Mohd, Oveas Raffiq Parray, Shah Tauseef Bashir, Muheet, Riyaz Ahmed Bhat, Arumugam Gopalakrishnan, Kumaragurubaran Karthik, Kuldeep Dhama, and Shoor Vir Singh. "Contagious caprine pleuropneumonia–a comprehensive review." Veterinary Quarterly 39, no. 1 (2019): 1-25.

[3] Manso-Silván, Lucía, and François Thiaucourt. "Contagious caprine pleuropneumonia." In Transboundary animal diseases in Sahelian Africa and connected regions, pp. 439-458. Cham: Springer International Publishing, 2019.

[4] Abera, Zelalem, Demitu Mengistu, Geremew Batu, and Moti Wakgari. "Review on contagious bovine pleuropneumonia and its economic impacts." Acad. J. Anim. Dis 5, no. 1 (2016):

[5] La Rosa, Giuseppina, Marta Fratini, Simonetta Della Libera, Marcello Iaconelli, and Michele Muscillo. "Viral infections acquired indoors through airborne, droplet or contact transmission." Annali dell'Istituto superiore di sanita 49 (2013): 124-132.

[6] Anderson, R. M. (1982, March). Transmission dynamics and control of infectious disease agents. In Population Biology of Infectious Diseases: Report of the Dahlem Workshop on Population Biology of Infectious Disease Agents Berlin 1982, March 14–19 (pp. 149-176). Berlin, Heidelberg: Springer Berlin Heidelberg.

[7] Upadhyay, R. K. (2021). Climate Induced Virus Generated Communicable Diseases: Management Issues and Failures. Journal of Atmospheric Science Research| Volume, 4(02).

[8] Kumar, Vishwas. "Clinical studies on mycoplasmal pneumonia in goats with special reference to contagious caprine pleuropneumonia (CCPP)."

[9] Rashed, A.N., 2022. Clinical guidelines-Diagnosis and treatment manual for curative programmes in hospitals and dispensaries Guidance for prescribing. Clinical guidelines-Diagnosis and treatment manual.

[10] Yatoo, M. I., Parray, O. R., Bashir, S. T., Bhat, R. A., Gopalakrishnan, A., Karthik, K.& Singh, S. V. (2019). Contagious caprine pleuropneumonia–a comprehensive review. The Veterinary Quarterly, 39(1), 1.

[11] Ayelet, G., Yigezu, L., Zeleke, A., Gelaye, E., & Asmare, K. (2007). Validation of immunity induced by inactivated CCPP vaccine with different adjuvants. Small Ruminant Research, 73(1-3), 200-205.

[12] Ahaduzzaman, M. D. (2021). Contagious caprine pleuropneumonia (CCPP): A systematic review and meta-analysis of the prevalence in sheep and goats. Transboundary and Emerging Diseases, 68(3), 1332-1344.