CLINICAL CASE OF CASEOUS LYMPHADENITIS IN A GOAT: CASE MANAGEMENT

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ABSTRACT. *Corynebacterium pseudotuberculosis* is the causative agent of caseous lymphadenitis (CLA) a contagious and infectious disease in small ruminants. This report describes a case of CLA in a Boer cross goat infected with *Corynebacterium pseudotuberculosis*. The manifestation of abscess in the superficial lymph node presented as a mass of approximately 5 cm by 5 cm in diameter at the base of the ear. The mass was solid and non-movable upon palpation. The mass was incised and the caseous material was aspirated and sent to the bacteriology laboratory where *Corynebacterium pseudotuberculosis* was isolated. The wound was cleaned and flushed with diluted chlorhexidine and iodine solutions daily. This procedure aids in the complete healing of the wound after a few weeks. However, the agent of the disease persists in the animal in its entire life and culling is recommended to prevent the spread of the disease in the herd.

Keywords: abscessation, Boer cross goat, caseous lymphadenitis, *Corynebacterium pseudotuberculosis*, case management

INTRODUCTION

Caseous lymphadenitis (CLA) is an inflammation of the lymph node resulting in the formation of caseaous cheesy material in the nodes. CLA in goats is caused by *Corynebacterium pseudotuberculosis* and has been a significant disease among small ruminants in Malaysia. CLA is a chronic granulomatous disease characterized by the formation of an abscess at the superficial lymph node and internal organ (Jeremy *et al*., 2013).

There are two forms of this disease manifestation which are the external and internal forms. External form of CLA

involves abscessation at the superficial lymph node. The most common superficial lymph nodes infected are the parotid, submandibular, prescapular, prefemoral, popliteal and supra-mammary lymph node (Protokol Veterinar Malaysia, 2011). The internal form afflicts the lungs, liver and spleen. The incubation period may vary from 2 to 8 months. Animals that are infected with the internal form of CLA may show signs of emaciation due to weight loss.

Corynebacterium pseudotuberculosis is a gram positive, facultative and an intracellular coccobacillus bacterium. It may live in the hay, soil and infected manure for 8 months or more (Shannon, 2010). All strains of *Corynebacterium pseudotuberculosis* produce an exotoxin known as phospholipase D (Mahmood *et al*., 2015). This toxin enhances dissemination of the bacteria by damaging endothelial cells and increasing vascular permeability. Apart from that, the bacterium has a second virulence factor which is an external lipid coat that provides protection from hydrolytic enzymes in host phagocytes (Kevin, 2014). Replication of the bacterium occurs in the phagocytes which then rupture and release more bacteria. Ongoing process of bacterial replication, attraction and subsequent death of the inflammatory cells forms the caseous center associated with CLA. This case report describes the clinical case management of caseous lymphadenitis in goats

CLINICAL PRESENTATION

An adult male Boer cross goat weighing 20 kg with a body condition score of 2/5 was presented to the large animal unit of University Veterinary Hospital UPM with a complaint of a mass at the base of the left ear. The goat was managed in an intensive goat farming system and fed with Napier grass and goat pellets. Physical examination findings revealed that the vital parameters were within normal range. There was presence of non-movable and solid mass at the base of the left ear approximately 5 cm × 5 cm in diameter with abrasions at the centre (Figure 1). Thus, the tentative diagnosis of caseous lymphadenitis was based on the history of the farm endemic with caseous lymphadenitis and clinical examination findings.

Figure 1. Non-movable and solid mass at the base of the left ear approximately 5 cm x 5cm in diameter with abrasion at the centre.

Clinical Management

Blood samples were collected aseptically in EDTA and plain tubes and were sent to the clinical pathology laboratory for complete blood count and serum biochemistry evaluations. The mass was incised and the caseous material was drained (Figure 2) by aspiration using a 5 ml syringe (Figure 3). The caseous material was sent to the bacteriology laboratory for isolation and identification of the causative bacteria. The blood result revealed the presence of leukocytosis, neutrophilia with mild left shift and monocytosis which is indicative of a bacterial infection. The bacteriology result showed the presence of pure growth of *Corynebacterium pseudotuberculosis.*

Following aspiration, the wound was cleaned and flushed using diluted chlorhexidine and iodine. Wound cleaning was done on a daily basis until the healing process improved and healed completely after 3 weeks (Figure 4).

The wound had healed completely after 3 weeks

However, the agent of the disease may persist in the goat for the entire life.

Figure 3. The caseous material was aspirated using a 5 ml syringe.

Figure 2. The mass was disinfected and prepared for drainage.

Figure 4. The wound had dried and healed after 3 weeks.

DISCUSSION

CLA is a disease among small ruminants in Malaysia. Thus, a strategy for its control in small ruminants is essential. Malaysian Veterinary Protocol (2011) has listed the measures that can be taken in order to prevent occurrence of CLA in the farm. These include controlling importation of animals, movement of animals in and out of the farm, surveillance, vaccination, culling infected animals, provide adequate treatment, disinfect premises, removing of sharp objects in the farm and isolating the infected animals from the herd.

Animals that are showing clinical signs of CLA, such as the presence of enlarged lymph nodes should be isolated from the herd to prevent spread of disease in the herd. Culling infected animals can be done to prevent spread of disease in the herd and to eradicate the disease in the farm. However, adequate treatment should be provided to animals. Treatment by cleaning the wound using diluted iodine is required in animals that show clinical signs of external form. In this case, the abscess was effectively drained and it healed completely after a few days and the case management is in agreement with Abdullah *et al.* (2013) and Osman *et al*. (2015) reported successful draining of abscess associated with CLA in goats will improve the abscess wound.

Occurrence of CLA can be prevented and controlled by practicing good farm management. All equipment that had contact with infected animals should be disinfected properly. The most common disinfectant such as calcium hypochlorite, formalin and cresol solution appeared to be effective in killing the organism (Baird and Fontaine, 2007). Caseous lymphadenitis causes considerable economic losses in goat-sheep population mainly due to the condemnation of carcasses, ill thrift effect, culling of the infected animals and loss of breeding market value due to reproductive disorder.

According to Michael (2015), CLA is the predominant cause of economic losses to the farmer including carcass trimming or in severe cases carcass condemnation at the abattoir. The carcass can be partially or completely condemned. A carcass that is partially condemned due to the presence of abscess in the lymph node may require trimming while carcass that have generalized abscess will be completely condemned. A survey conducted in the Shah Alam Abattoir revealed that 49 out of 150 carcasses were condemned due to abscessation as a result of *Corynebacterium pseudotuberculosis* (Tham *et al*., 1981). Apart from that, requirement for additional meat inspection and carcass trimming may add another cost to the operation and burden the farmer financially.

Culling of the infected animals should be done in order to control and prevent occurrence of the disease. However, culling infected animals may cause losses to the farmer. Jeremy (2013) stated that culling the infected animals is the safest and most effective methods in controlling disease in the herd. Osman *et al*., (2015) suggest that

eradication by test and slaughter should be done to prevent reintroduction of the disease into farms that have a history of CLA (Windsor, 2011). In this case, the farmer was advised to cull the infected goat to prevent the spread of the infection in the farm.

CONCLUSION

In conclusion, CLA is considered an incurable disease, since the agent may persist in the host for its entire life. Control and prevention is the key to prevent occurrence of the disease in goat farms.

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