

Case Report

Listeriosis in a 5 month old white Fulani-cross heifer

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A five month old calf was presented to the Large Animal Clinic of the Veterinary Teaching Hospital Ahmadu Bello University, Zaria, with a chief complaint of nervous dysfunction. The calf was hospitalized and a thorough physical examination was carried out. The condition was diagnosed to be listeriosis based on the clinical signs, though efforts were made to isolate the organism from urine without success. The calf was treated with procaine penicillin at 25,000 IU I/M bid for 2 weeks and multivitamin 5 ml I/M for 3 days, after which the calf recovered completely. Treatment of listeriosis can be rewarding if aggressive antibiotic therapy is instituted early in the disease.

Key words: Calf, listeriosis, antibiotics.

INTRODUCTION

Listeriosis is a sporadic infection caused by the bacteria *Listeria monocytogenes* that affects a wide range of animals including birds, and is of immense public health importance (Woo-Sem, 1999). Although three forms of the disease exist (meningoencephalitis, abortion and septicemia), only one clinical form usually manifests at a time in an animal or a group of animals and only one serovar can be isolated from clinically affected animals. However, an overlap of these clinical forms has been reported (Low; Renton 1985). The encephalitic form is the most common which mainly affects ruminants; it is clinically characterized by depression and fever. In addition, the affected animal is usually disoriented, indifferent to its surroundings and separates itself from the rest of the herd (Dennis, 1993). Microscopically, there is mixed non suppurative and suppurative inflammation centered in the pons and medulla oblongata. Additional characteristics are the formation of microabscesses,

prominent perivascular cuffs that includes lymphocytes, monocyte, plasma cells and to a lesser extent neutrophils (Jubb et al., 2007). The septicemic form affects the viscera with or without meningoencephalitis and is common in the monogastrics and humans (Melinda et al., 1997; Lecuit, 2007).

L. monocytogenes can be found in soil, manure, water and vegetation which make transmission very easy between animals through dissemination in feces (Ramaswamy et al., 2007). Listeriosis in ruminants has also been associated with feeding large quantities of poor quality silage with a pH in excess of 5.5. Spoilage and high pH of silage, particularly the top and side layers of the silage, result in growth of the bacteria (Schneider, 1994). However, it has been reported that the pervasive nature of the bacterium can make source of the infection difficult to identify (Borucki et al., 2005). Provisional diagnosis can be made based on the clinical signs, while

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Figure 1. Showing scoliosis of cervical vertebrae (arrow).

confirmatory diagnosis can only be made by isolating the organism from the brain or internal organs, as well as faeces, urine, blood and milk of the affected animals. Rabies, otitis media, brain stem abscess, thromboembolic meningoencephalitis, lead poisoning and head trauma have been considered as differentials in the clinical diagnosis of Listeriosis.

Successful treatment of listeriosis depends on early detection and aggressive antibiotic therapy. However, as soon as signs of the affection of the central nervous system appear, the prognosis becomes unfavorable (Schneider, 1994; Coetze and Tustin, 2004). This paper reports a case of successful treatment of listeriosis in a 5 month old calf.

CASE PRESENTATION

A 5 month old orphaned white Fulani x Friesian cross weighing 50 kg from a herd of five was presented to the Large Animal Clinic of Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, Nigeria with complaints of restlessness, inappetence and walking in circles. History further revealed that the calf was being fed with compounded milk and concentrates. Physical examination reveals an elevated rectal temperature of 42.1°C, rapid pulse, increase respiratory rate (50 cycles per minute) with markedly increased crackled and wheezily lung sound, excessive salivation with no obvious lesion in the buccal cavity. The ocular mucous membranes were congested and a lateral deviation (scoliosis) of the cervical vertebrae was evident (Figure 1).

Urine sample was taken and submitted to Department of Veterinary Microbiology for possible identification and isolation of the causative organism. The calf was put on procaine penicillin at 25,000 IU I/M bid x2/52 and multivitamin 5 ml IM/ x3/7. The animal was hospitalized for 2 weeks.

RESULTS AND DISCUSSION

Culture of the urine sample yielded no growth, this is however not surprising because Coetzer and Tustin (2004) reported that the pathogens are very irregularly distributed in the body, and for isolation, specimen must be collected from various organs of the body. The diagnosis of the disease was based on the prevailing clinical signs. The transmission of the pathogen has been associated with environment contaminated with lochia, faeces, urine nasal discharges and milk of infected animals. Immunosuppression (Schneider, 1994) has also been incriminated to be a major predisposing factor in this disease which is strongly suspected to be the cause of infection in this animal, thus this is supported by the fact that the calf in question lacked colostrum and had been bottle fed since birth. Since the causative organism can be a normal flora of the gastrointestinal tract, it could have gained entry through the intestinal epithelium and possibly ascended to the brain through the branches of the trigeminal nerve via lesions in the oral cavity, thus resulting in the observed nervous manifestations. The head and neck tilt resulting in concavity in the neck region was as a result of the dysfunction of cranial nerve VIII (vestibulocochlear) which is a nerve responsible for maintaining equilibrium (balance) and transmitting sound information from the inner ear to the brain (Sanders and Gilling, 2010). Excessive salivation could be responsible for the dyspnea due to aspiration pneumonia; this was due to the dysfunction of cranial nerve cniX (Glossopharyngeal) that also helps in voluntary control of the stylopharyngeus muscle which aids in swallowing. The high values for all the vital parameters could be attributed to the presence of the infection and restlessness in this animal.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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