

AN OUTBREAK OF DEER-ASSOCIATED MALIGNANT CATARRHAL FEVER IN CATTLE

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SUMMARY

A total of seven adult cattle were found dead within a period of 5 months following clinical signs such as weakness and emaciation while some showed nervous symptoms such as aggressiveness, staggering, convulsion and difficulty in breathing. Post-mortem examinations revealed congested liver and intestine while those with nervous symptoms had congested meninges. The histopathological examinations revealed evidence of vasculitis in the organs of all affected animals particularly in the liver and kidneys. An investigative visit to the farm found two adult deer within the farm. Both deer were slaughtered and post-mortem examinations revealed mild enteritis with infiltration of lymphocytes and plasma cells in the intestinal mucosa. Few major arteries in the liver were infiltrated with lymphocytes while the hepatocytes surrounding the affected arteries were necrotic. Malignant catarrhal fever was diagnosed for both cattle and deer.

Keywords: Malignant catarrhal fever, cattle, deer-associated

INTRODUCTION

Malignant catarrhal fever is a fatal infectious disease of cattle, manifested by catarrhal and mucopurulent inflammation of the respiratory tract, erosion of the oral mucosa, rapid emaciation, corneal opacity and nervous symptoms. The disease has a world-wide distribution, generally sporadic in occurrence but can be transmissible slowly within the herd. Two types of malignant catarrhal fever have been identified; the wildebeest-associated and the sheep-associated disease (Jubb *et al.*, 1985). In Malaysia, malignant catarrhal fever has been associated with sheep although recently deer has also been shown to succumb to the disease (Saroja *et al.*, 1987). This report describes an outbreak of malignant catarrhal fever, which was believed to be associated with deer.

CASE REPORT

A total of seven adult cattle were found dead within a period of 5 months. The first case was observed in July 1998 followed by four more cases in September, one case in October and two cases in November. The clinical signs were weak and emaciation while some showed nervous symptoms such as aggressiveness, staggering, convulsion and difficulty in breathing before death.

Post-mortem examinations revealed congested liver and intestine while those with nervous symptoms had congested meninges. The histopathological examinations revealed evidence of vasculitis in the

organs of all affected animals particularly in the liver and kidneys. The liver and kidney arterial wall were infiltrated with lymphocytes within the tunica media. Most kidney samples had interstitial nephritis while liver cells, particularly surrounding the affected blood vessels were necrotic. Some animals, particularly those with nervous symptoms, showed lymphocytic perivascular cuffing and meningitis. Serum samples, taken from the remaining animals in the farm revealed hypoglycaemia and hypomagnesaemia while blood analysis revealed a significant increase in total white blood cell count. Malignant catarrhal fever was diagnosed based on the presence of vasculitis.

An investigative visit to the farm in late September found that there were two adult deer in the farm. One was a female, brought to the farm approximately three years ago while the other was a male of about one and a half years old. Both deer were slaughtered and post-mortem examinations revealed mild enteritis. Histologically, there were congestion and infiltration of lymphocytes and plasma cells in the intestinal mucosa. Few major arteries in the liver of both deer were infiltrated with lymphocytes while the hepatocytes surrounding the affected arteries were necrotic. Malignant catarrhal fever was diagnosed.

DISCUSSION

The diagnosis of malignant catarrhal fever in this study was based on the histopathological findings. Since vasculitis is considered pathognomonic lesion for malignant catarrhal fever in cattle and deer (Reid *et al.*,

1984; Jubb *et al.*, 1985), the presence of vasculitis in the liver of cattle and deer in this study confirmed the diagnosis.

The two deer, which appeared normal without clinical signs and gross lesions, but with histology lesions of malignant catarrhal fever might be carriers of the virus and predisposed the cattle to the disease. Furthermore, they originated from a farm in which malignant catarrhal fever was reported to occur. Further investigations revealed that there was a deer farm approximately one to two kilometers away, which probably play a role in the disease transmission. Deer has been shown to experimentally transmit malignant catarrhal fever to other deer and cattle (Reid *et al.*, 1984; 1986). However, the mechanism of transmission and the radius in which transmission can occur remain to be determined.

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REFERENCES

- Jubb, K.V.F., Kennedy, P.C. and Palmer, N. (1985). Pathology of Domestic Animals (3rd. Edition) Academic Press Inc., London. pp102-108
- Reid, H.W., Buxton, D., Berrie, E., Pow, I. and Finlayson, J. (1984). Malignant catarrhal fever. *Vet. Rec.* **114**: 581-583
- Reid, H.W., Buxton, D., Pow, I. and Finlayson, J. (1986). Malignant catarrhal fever: experimental transmission of the 'sheep-associated' form of the disease from cattle and deer to cattle, deer, rabbits and hamsters. *Res. Vet. Sci.* **41**: 76-81
- Saroja, S., Loganathan, P., Indra Segaran, S., Gan, C.H. and Sheikh-Omar, A.R. (1987). An outbreak of malignant catarrhal fever in Javan Deer (*Cervus timorensis*). *Kajian Veterinar* **19**: 179-183.

RINGKASAN

WABAK DEMAN KATAR MALIGNAN TERKAIT RUSA PADA LEMBU

Sejumlah tujuh ekor lembu dewasa ditemui mati dalam tempoh 5 bulan berikutan petanda klinikal seperti lemah dan kurus kering, sambil beberapa ekor menunjukkan simptom saraf seperti garang, melilau, konvulsi dan susah untuk bernafas. Pemeriksaan post-mortem menunjukkan hati dan usus sebak, sambil lembu yang bersimptom saraf pula menunjukkan meninges sebak. Pemeriksaan histopatologi menunjukkan bukti adanya vaskulitis dalam organ kesemua haiwan terlibat, khususnya pada hati dan ginjal. Dalam satu lawatan kepada ladang untuk menyelidik, didapati bahawa ada dua ekor rusa dewasa di dalam kawasan ladang tersebut. Kedua-dua ekor rusa ini disembelih dan pemeriksaan post-mortem menunjukkan ada enteritis ringan dengan penyusupan limfosit dan sel plasma dalam mukosa usus. Beberapa arteri dalam hati disusupi limfosit sambil hepatosit di sekeliling arteri terlibat telah nekrosis. Demam katar malignan didiagnosiskan untuk lembu dan rusa ini.