

## Short Communication

### OVINE AND CAPRINE LISTERIC ENCEPHALITIS IN IRAQ

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Listeriosis may occur as an economically important disease of ruminants in which the predominant clinical signs are either those of encephalitis, septicaemia or abortion. The encephalitic form is the most common in adult ruminants and is frequently fatal. Different serotypes of *Listeria monocytogenes* exist but the pathogenesis and epidemiology of infection are poorly understood.

Listeriosis is of importance in temperate countries but rare in tropics and subtropics though reported from Africa (Hohne, Loose and Seeliger, 1975). Listeriosis in sheep has been reported from many countries and sporadic reports of listeric infection in calves and chickens have been made in Iraq (Yousif, 1980) but ruminant disease has not been reported. The present work describes the meningo-encephalitic form of ovine and caprine listeriosis occurring in Mosul in Neneh Province in northern Iraq for the first time.

Listeriosis was suspected in a two-year-old non-pregnant ewe of local breed at the College clinic with a history of circling and other nervous derangements. It was reported that three sheep in a flock of 550 sheep and goats had developed circling three days before and one animal had died. Clinical investigation revealed torticollis, tremors, staggering, nystagmus, depression and blindness. The conjunctival mucous membranes were highly congested, temperature 39.8°C, pulse 95/min and respiration 30/min. Haematological examination was inconclusive. The next day there was drooling salivation, nasal discharge and opisthotonus though peripheral reflexes were maintained. After euthanasia necropsy showed only discrete necrotic foci in the liver and congestion of the meninges and spinal cord without visible macroscopic lesions.

Pathological and microbiological examinations were carried out on this animal and a further three sheep and four goats all showing nervous signs. Necropsy findings were similar to those described except that gross liver lesions were only observed in one further sheep and one goat. Impression smears and cultures from liver, CSF and brain stem were made for listeria by direct and refrigeration (four days) techniques in nutrient agar, blood agar and nutrient broth; both culture and identification were carried out by the usual methods. All these animals demonstrated micro-abscess formation with perivascular cuffing lymphocytic infiltration on histological examination of brain. Coccobacillary bacteria were observed in the lesions and in one CSF sample and *Listeria monocytogenes* was recovered from all animals.

The sheep and goats with nervous signs had been submitted from two flocks located about 0.5 km apart. Both flocks contained goats and sheep of local breeds which were heavily pregnant or parturient at the time of the outbreak. The animals were maintained under range conditions and fed an imported concentrate mixture. Some animals had been newly introduced into the flock. The weather was very cold and it had rained heavily.

After the initial diagnosis cases of encephalitis continued to appear in the affected flocks both in the adults and in young unweaned animals. The overall

TABLE I  
*Morbidity and mortality rates in listeric encephalitis in sheep and goats*

Flock strength			Morbidity			Mortality		
S	G	T	S	G	T	S	G	T
630 (78.75)	170 (21.25)	800	105 (16.7)	51 (30)	156 (19.5)	94 (14.9)	36 (21.2)	130 (16.3)

S, sheep; G, goat; T, total.  
 Figures in parentheses indicate percentages.

morbidity and mortality were 19.5 and 16.3% respectively with a much higher occurrence in goats than in sheep (Table I).

Eighty animals suffering from the disease were treated with 500 mg oxytetracycline with or without 30 mg prednisolone acetate intramuscularly for four days. The results of therapy were not rewarding though it prolonged the course of disease in some cases.

The infection/morbidity rate in this outbreak was higher than observed by other workers. A further interesting finding was the frankly higher incidence, severity of disease and mortality rate among goats as compared to sheep in listeric encephalitis. It could be ascribed either to the pathogenicity of this particular serotype of listeria for the goats or these animals may be more vulnerable to the disease. Direct evidence is, however, lacking and Seeliger (1961) did not find any difference in the disease in sheep as compared to goats.

Livestock movement from outside and introduction of healthy non-clinical carriers, rodent carriers or commercial animal feeds may be associated with the introduction of infection in the flock. Alternatively the disease may be precipitated by the stress of cold weather or parturition. The severity of the described outbreak and an absence of previous accounts of the disease among sheep and goats in Iraq may indicate the recent introduction of the disease to this country. Although accurate ante-mortem diagnosis of listeric encephalitis is difficult the typical nervous aberrations with inflammatory cells in CSF (Emile and Bazin, 1975) left little doubt about the diagnosis of the disease. The organisms could easily be cultured particularly from the brain tissue both from sheep and goats probably because of the acute nature of the cases examined.

The results of treatment with oxytetracycline with or without cortisone were not encouraging despite some claims to the contrary. However, the heavy economic losses from this disease call for future preventive measures to combat the disease in this country.

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