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SHORT COMMUNICATION

OUTBREAKS OF KERATO-CONJUNCTIVITIES IN SHEEP

SUMMARY: Five outbreaks of kerato-conjunctivitis were observed in local sheep in the state of Kelantan in the 18 month period from January 1986 to June 1987. The clinical signs observed were lethargy, anorexia, unilateral or bilateral lacrimation, photophobia, blepharospasm, mucopurulent eye discharge, corneal opacity, central hypopyon and ulceration. The average prevalence was found to be 41 percent and 17 animals died from a total of 836 sheep. Four areas were affected; one each in Gua Musang and Machang and two in Rantau Panjang. In two of the five outbreaks, *Moraxella lacunata* and *Moraxella sp.* were isolated. A systemic broad spectrum antibiotic was found to be useful in arresting and controlling the disease.

Key words: kerato-conjunctivitis, sheep

INTRODUCTION

Kerato-conjunctivitis in sheep has been reported in many parts of the world (Hungerford, 1967; Arbuckle and Bonson, 1979; Jensen and Swift, 1982; Blood *et al.*, 1983).

The incidence is usually 10 to 50 percent (Jubb and Kennedy, 1970) but may reach 90 percent (Jensen and Swift, 1982). The economic losses due to reduced mobility of the affected sheep, diminished capacity to seek feed, lowered liveweight and the cost of labour and drugs for treatment may be significant.

Different aetiological agents such as *Rickettsial colesiota* (Cole, 1966; Hungerford, 1967; Jubb and Kennedy, 1970; Cooper, 1974), *Mycoplasma* sp. (Surman, 1973; Jones *et al.*, 1976) and Moraxella sp. (Osuagwuh and Akpokodje, 1979; Pearson 1984) may cause kerato-conjuntivitis in sheep.

The disease can affect sheep of all ages but lambs are most susceptible (Cole, 1966; Jensen and Swift 1982). Feedlot and nursing lambs have a higher incidence of infection than other age groups (Jensen and Swift, 1982).

The disease has been reported in Malaysia but has not been previously published. This paper describes outbreaks of kerato-conjunctivitis in sheep in Malaysia.

HISTORY

Outbreaks of kerato-conjunctivitis were recorded in the state of Kelantan in the 18-month period from January 1986 to June 1987 during the rainy season. The affected farms were in Machang (farm A), Gua Musang (farm B), and Rantau Panjang (farms C and D).

The sheep in the farms were of local breed, maintained mainly in rubber plantations. New sheep had been introduced into the farm before the incidence of the disease. and were allowed to intermingle with the other sheep. One week later, the sheep were noticeably depressed, unthrifty and weak and were found to have eye discharges. They were treated topically with chloramphenicol eye ointment but there was no appreciable improvement.

CLINICAL OBSERVATIONS

The affected sheep were dull, depressed and anorexic. There were either unilateral or bilateral lacrimation, blepharospasm, hyperaemic to congested conjunctiva, corneal

opacity, hypopyon and ulceration. The lesions in affected sheep are summarised in Table 1.

The average prevalence in the five outbreaks was 41 percent. The highest prevalence was in Farm A (59%) followed by Farm B (56%). The sheep that had hypopyon or ulceration eventually became blind while those that had corneal opacity seemed to be partially blind.

TABLE 1

Prevalence of kerato-conjunctivitis in four farms

Farm	Total population	Number of sheep (%) affected				
		Infection	C/opacity	Hypopyon	Ulceration	Mortality
A	88	52(59.0%)	5(5.6%)	7(7.(%)	–	3(3.4%)
B	116	65(56.0%)	5(4.3%)	3(2.5%)	–	
C	327	147(44.9%)	7(2.1%)	10(3.0%)	1(0.3%)	–
D	305	*43(14.0%)	4(1.3%	6(1.9%)	3(1.0%)	–
		# 95(31.1%)	6(1.9%)	14(4.5%)	4(1.3%)	14(4.5%)
Total	836	402	27	40	8	17

*- First outbreak
#- Second outbreak

BACTERIOLOGICAL FINDINGS

Eye swabs were taken aseptically for culture. (Table 2). The isolates were identified by the method described by Cowan and Steel (1965). Due to inadequate facilities, attempts were not made to isolate rickettsials or mycoplasma.

Moraxella lacunta and *Moraxella* sp. were isolated from Farm D. The other isolates were insignificant.

TABLE 2

Bacteria isolated from eye swabs of affected sheep

Farms	No. of swabs	No. of sheep	Bacteria
A	1	1	No growth
B	11	5	*Staphylococcus aureus*
C	1	1	*Staphylococcus aureus*
D	3	3	* *Moraxella lacunta*
	2	2	# *Moraxella sp.*

* - First outbreak
# - Second outbreak

TREATMENT AND CONTROL

Systemic broad spectrum antibiotics such as penicillin-streptomycin (Tardomyoecel, Bayer) at a dose rate of 8000 i.u/kg and oxytetracycline (Terramycin, Pfizer) at a dose

rate of 1 ml/10kg were administered intramuscularly to treat and control the disease. The antibiotics were effective in arresting and controlling the disease.

DISCUSSION

The average prevalence of 41 percent in the present outbreak was lower than that reported by Osuagwuh and Akpokodje (1979) where a rate of 51.2% was reported. However, the higher prevalence in farm A was probably due to the delay in reporting the case after the first treatment was found to be not effective. According to Jensen and Swift (1982), infection in lambs may reach as high as 80 percent but in this outbreak, the infection in lambs was minimal.

Some predisposing factors that may lead to the outbreak of kerato-conjunctivitis among sheep include transportation stress, overcrowding, grazing in tall grass and flies (Blood *et al.*, 1983; Osuagwuh and Akpokodje, 1979). In the present outbreak, malnutrition and injury to the eye structure could be the predisposing factor. Vitamin A deficiency is also thought to be one of the causes of kerato-conjunctivitis in sheep (Hungerford, 1967).

As proper control measures were not taken immediately, the disease spread rapidly. Each sheep should be examined for eye discharge and all clinical cases should be isolated. Eye swabs should be sent immediately to the laboratory and a sensitivity test carried out. Eye ointments should be prescribed accordingly and if any resistance developes, medication has to be changed.

To date, there is no report as to whether *Moraxella* sp. is the normal bacterial flora in the eye of sheep. The isolation of *Moraxella* sp. and *Moraxella lacunta* in this instance was consistent with the findings of Osuagwuh and Akpokodje (1979). Pearson (1984) isolated *Moraxella lacunata* twice from an outbreak of kerato-conjunctivitis in sheep.

Evidence from these reports indicate that *Moraxella lacunata* can be one of the primary causes of kerato-conjunctivitis in sheep. In man, this organism causes central hypopyon keratitis (Soltys, 1979; Hendradjatin and Affandi, 1981). A similiar lesion was observed in sheep in the present outbreak.

There are many eye ointments and systemic antibiotics that can be used in the treatment and control of kerato-conjunctivitis in sheep. Both penicillin-streptomycin combination and tetracycline are effective. Good response to treatment was observed with dibromopropamidine isothinate and oxytetracycline (Osuagwuh and Akpokodje, 1979) and long acting penicillin-streptomycin combination by subconjunctival route (Pearson, 1984). In a recent study by Webber *et al.* (1988), cloxacillin opthalmic ointment proved to be economical and effective in ovine kerato-conjunctivitis; this antibiotic can be prescribed as a single topical treatment.

CONCLUSION

In view of the expanding sheep industry and the current importation and utilisation of exotic breeds in crossbreeding programmes, eye problems could become a serious disease resulting in substantial economic loss to the farmers.

In Malaysia, the aetiology of kerato-conjunctivitis in sheep is obscure. There is thus a need to establish the epidemiology and aetiology of the disease so that proper treatment and control measures can be instituted. In the present outbreak, the significance of *Moraxella* sp., generally and *Moraxella lacunata*, particularly, as an aetiological agent of kerato-conjunctivitis in sheep should not be overlooked. Further research should be undertaken on the aetiological agent so that the actual cause of eye disease in sheep in Malaysia is established.

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RINGKASAN

WABAK KERATO-KONJUNTIVITIS PADA BEBIRI

Dalam masa 18 bulan dari Januari 1986 hingga Jun 1987, lima wabak kerato-konjuntivitis pada bebiri telah berlaku di negeri Kelantan. Petanda klinikal yang terdapat adalah tidak bermaya, tidak berselera makan, sebelah atau kedua mata berair, fotofobia, blefarospasme, lelehan mata mukopurulen, kelabu kornea, hipopion tengah dan pengulseran. Purata kadar prevalen ialah 41 peratus dan 17 ekor bebiri mati daripada 836 ekor. Empat kawasan terlibat; tiap satu di Gua Musang dan Machang dan dua dikawasan Rantau Panjang. Dalam dua dari lima kejadian wabak tersebut, Moraxella lacunata *dan* Moraxella *sp. diasingkan. Antibiotik sistemik berspektrum luas didapati amat berguna dalam memberhentikan dan mengawal penyakit berkenaan.*

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