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From the State Veterinary Laboratory for Northern Norway,
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DICTYOCAULUS VIVIPARUS INFESTATION IN REINDEER IN NORTHERN NORWAY

A CONTRIBUTION TO ITS EPIDEMIOLOGY

By

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KUMMENEJE, KNUT: *Dictyocaulus viviparus infestation in reindeer in northern Norway. A contribution to its epidemiology.* Acta vet. scand. 1977, *18*, 86—90. — Lungworms are not often observed in reindeer in Scandinavia. The present report shows that Dictyocaulus viviparus infestation is probably endemic in reindeer in northern Norway. Serious outbreaks occur in reindeer calves, also in combination with Pasteurella multocida infections.

Dictyocaulus viviparus; reindeer.

More than 40 years ago *Hellesnes* (1935) reported lungworm infestation in reindeer in southern Norway. Later *Skjenneberg* (1957) found the parasites in reindeer calves in the Porsanger area in the spring 1956. In a recent publication, *Christenson & Rehbinder* (1975) recorded D. viviparus larvae in faeces samples in one out of 28 reindeer calves. The samples were collected in the autumn.

MATERIALS AND METHODS

The material in this study was collected during the years 1973 to 1976. It consists of acute cases of verminous bronchopneumonia in calves in reindeer herds, cases of simultaneous verminous bronchopneumonia and Pasteurellosis (P. multocida), lungs from reindeer slaughtered during the fall in Finnmark county and also of faeces samples and necropsies of four reindeer calves during the fall and winter 1975/76.

The usual patho-anatomical, parasitological and bacteriological examinations were performed.

RESULTS

The material can be divided into four categories:

Acute outbreaks of verminous bronchopneumonia

Outbreaks of acute verminous bronchopneumonia in reindeer calves (less than one year old) were observed in two herds. In these herds, the cases were seen in late April and early May. The calves were weak, and slight coughing could be heard. No particular clinical illness was observed during the winter. Pathological examinations revealed acute verminous bronchopneumonia and large amounts of D. viviparus in the bronchies.

In particular, inflammation was observed in the cranioventral lobes of the lungs and also lobular inflammatory areas on the dorso-lateral surface of the diaphragmatic lobes. No infection by bacteria was found (Fig. 1).

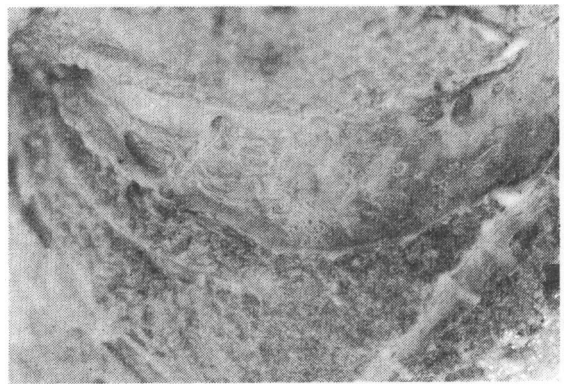

Figure 1. D. viviparus in the bronchies of a reindeer calf.

Pasteurellosis and verminous bronchopneumonia

In two herds, simultanous D. viviparus infestation and P. multocida infection was diagnosed. In one of these herds, the attack was serious and more than 100 calves died. The macroscopic post-mortem lesions were very similar to those in which D. viviparus infestations alone were found (Fig. 2).

Subclinical infestation in slaughtered animals

At the fall-slaughtering in 1975, lungs from three herds were examined for D. viviparus infestation (Table 1).

The macroscopic inflammatory changes were slight or in most cases absent. The animals examined were 1½ years old and older.

Figure 2. D. viviparus and P. multocida infection in reindeer calf.

Subclinical infestation in reindeer calves

Four reindeer calves were raised with their mothers in an outdoor pen with a concrete floor during the summer 1975. The floor was cleaned regularly to prevent infestation with parasites, in particular Elaphostrongylus rangiferi. In late August, the adult females were removed. The calves were further protected from the parasitic infestation in the same way, until the ground

Table 1. Results from post-mortem examinations of lungs.

Herd	Number of lungs examined	Lungs with D. viviparus infestation	
		number	%
1	10	3	≈ 30
2	10	0	0
3	30	6	20

was covered by snow. Faeces samples were collected weekly during the fall 1975 and winter 1975/76. In the samples taken on April 20, 1976 small amounts of D. viviparus larvae were observed in the samples from two of the calves, and the following weeks also in the samples from the others. In one of the calves the excretion of larvae ceased after four weeks.

At slaughter, a few D. viviparus were found in the bronchies in the calves which excreted larvae, none were found in the calf where the excretion of larvae had ceased. No visible pneumonic lesions were observed in the animals

CONCLUSION

The investigation reveals that outbreaks of verminous bronchopneumonia caused by D. viviparus occur in reindeer herds in Finnmark. The infestation seems to be endemic with clinically healthy carriers. The infestation has been found to be serious in calves, and has also been found in combination with P. multocida infections. Also subclinical infestations in calves have been recorded.

In spite of the fact that the infestation probably can occur only on the pastures during the summer or fall, the clinical disease has only been observed in the spring. This is probably due to inhibition of the development of the larvae to the adult stage during the winter. This has been observed in other animals. Low temperatures at the time of infestation seem to enhance the numbers of retarded larvae (*Soulsby* 1968, *Pfeiffer* 1976).

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SAMMENDRAG

Dictyocaulus viviparus infestation hos reinsdyr i Nord-Norge. Et bidrag til dens epidemiologi.

D. viviparus er påvist som årsak til dødelig forløpende bronchopneumonier hos reinsdyrkalver. D. viviparus er også påvist sammen med P. multocida infeksjon. Subkliniske tilfeller er påvist hos såvel voksne slaktedyr som hos reinsdyrkalver. Lungeorm synes å opptre endemisk i reinsdyrpopulasjonen i Nord-Norge.

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