

Expanded abstract

Paramphistomosis of reindeer in Finland

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A large number of trematodes of the family *Paramphistomidae* have been described from domestic and wild animals, but the information about the taxonomy and morphology of these flukes from reindeer is sparse. In the literature available Winogradowa (1932) mentioned that at autopsy of one reindeer in March and another in April flukes (*Paramphistomum cervi*) were found on the inner wall of the rumen. Nikolaevski (1953), Miskevich (1967), Sey (1980) and Dieterich (1981) have also described *P. cervi* as a parasite of the reindeer. Beyond these taxonomic notes, there is no information available about the patho-morphological changes caused by the rumen-flukes in reindeer.

Material and methods

The material originated from reindeer in Enontekiö, Kaamanen, Vuotso and Savukoski in the Finnish Lapland. It was collected during calf marking in summer and the slaughter period in the winter. Altogether hundreds of rumen-flukes were examined morphologically, measured and weighed. Light- and electron microscopy were used for the morphological studies.

Results

The specimens collected in the summer were on the average 9.2 mm long and 3.4 mm wide with a dry weight of 0.330 g of 50 flukes. Especially around the anterior end the surface was

full of papillae (Fig. 1). The testes were lobulated and the uterus was full of eggs. In the winter the flukes were smaller, on an average 4.9 mm long and 2.2 mm wide. The dry weight of 50 individuals was 0.123 g. The surface was rather smooth, (Fig. 2) the testes rounded and no eggs were seen in the uterus.

For the identification of the flukes the morphology (type) of the pharynx, the acetabulum and the genital opening were determined. According to the Näsmark (1937) identification system the pharynx was of the *Liorchis* type (Fig. 3A) with a characteristic from, musculature and with the anterior half covered with papillae projecting from the walls (arrow). The genital opening was of the *Leydeni* type (described by Eduardo, 1982) (Fig. 3B). The acetabulum was of the *Paramphistomum* type (Fig. 4C) with a typical number of circular muscle bundles and units. The morphology of these flukes was almost in accordance with the description of *Paramphistomum leydeni* by Eduardo (1982). Thus, it still is questionable if *P. leydeni* is a well established synonym to *P. cervi* (Odenig, 1983).

Pathological changes

The adult flukes caused atrophy of the papillae on the rumino-reticular fold by attaching with the acetabulum (Fig. 5). The epithelium of the affected club-shaped villus was hypertrophic and subepithelially there was an accumulation

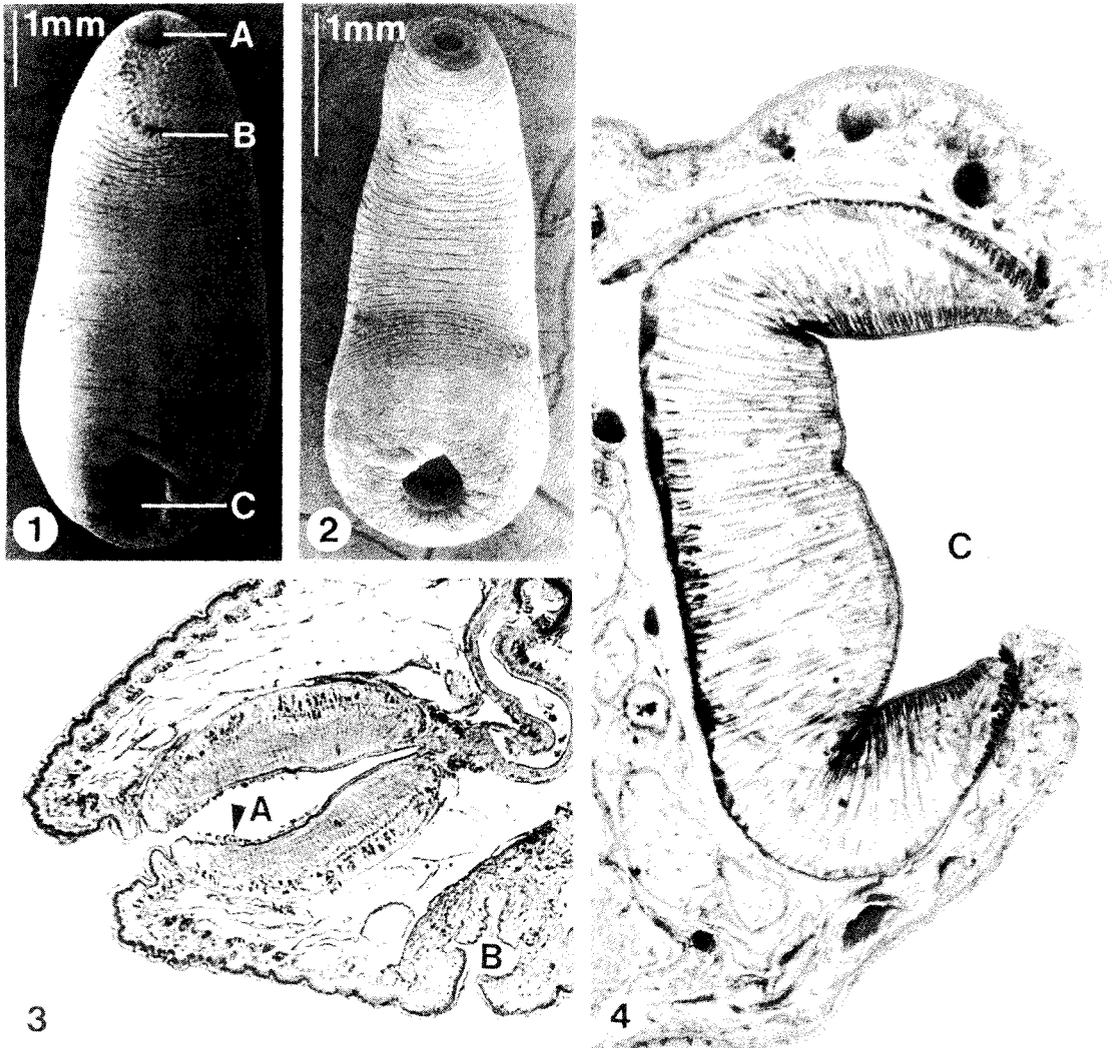


Fig. 1. *Paramphistomum leydeni* in summer. Pharynx (A), genital opening (B) and acetabulum (C). Note the anterior end covered with papillae.

Fig. 2. *P. leydeni* in winter. Note the different scales in fig. 1 and 2.

Fig. 3. Median section of the pharynx (A) with papillae (arrow) and the genital opening (B) of the fluke.

Fig. 4. Median section of the acetabulum (C).

of inflammatory cells, especially mast cells. In summers with great losses (40 %) of reindeer calves, clinical signs as hemmorrhagic diarrhoea have been noted, but the significance of *Paramphistomes* has not been fully elucidated.

Conclusion

There is an age-seasonal variation affecting the morphology of the rumen-fluke of the reindeer in Finland. The rumen-fluke has been identified as *Paramphistomum leydeni*. Pathological chang-



Fig. 5. Longitudinal section of the fluke and club-shaped papilla (A) of the rumen.

es caused by the adult flukes have been noted in the epithelium of the rumen, but hemorrhagic duodenitis caused by the migrating flukes has not been diagnosed in reindeer calves in Finland.

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