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Brief Communication

POLYARTERITIS NODOSA ASSOCIATED WITH SARCOCYSTOSIS IN A LAMB

Polyarteritis nodosa (PN) is characterized pathomorphologically by a necrotizing inflammation of the medium-sized arteries (*Robbins & Angell* 1976). The aetiology and pathogenetic mechanism are largely unknown, but the condition has been found in certain infectious diseases and immune disorders. PN has regularly been seen in connection with nosematosis, a protozoan disease, in blue foxes (*Nordstoga & Westbye* 1976). *Hansen & Mostafa* (1957) suggested a relationship between PN and another protozoon, sarcocystis, in a calf, and *Helmboldt et al.* (1959) noted the coexistence of PN and sarcocystis in a sheep. In this report PN is thought to be associated with a sarcocystis infection in a lamb.

Several of 38 6—7-month old lambs in a flock of sheep showed anorexia and emaciation about 1 month after their return to the farm from mountain pastures. The signs were observed for 1 or 2 weeks; 6 died and 1 was submitted for necropsy.

Gross examination showed cachexia and anaemia. The lungs were moderately oedematous and there were small bronchopneumonic foci in the cranial lobes. The kidneys had grey-white foci up to 5 mm in diameter on the cut surface.

Bacteriological examination of lungs and kidneys did not reveal any pathogenic bacteria.

Histological lesions were most prominent in the arteries of the heart and kidneys. Medium-sized and small arteries showed segmental necrosis of the wall (Fig. 1), and lymphocytes, plasma cells, macrophages and occasionally neutrophils had infiltrated the affected areas. In some areas of the arterial wall haemorrhages were seen. The lesions were at different stages of development, and segmental fibrosis was frequently seen. Fibrosis with dense infiltration of mononuclear cells was prominent also in the perivascular tissue. Proliferation of endothelial cells and growth of fibrocellular tissue had thickened the arterial intima, sometimes obliterating the arterial lumen. Occasionally the

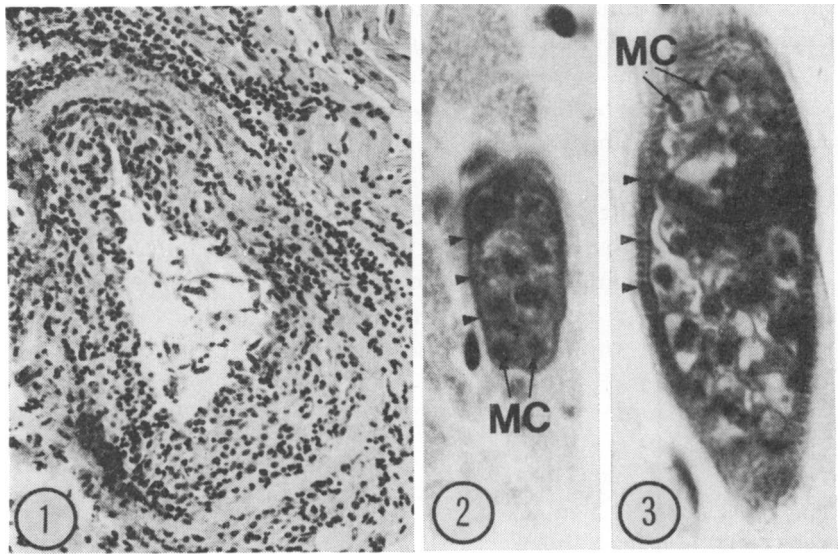

Figure 1. An artery in the myocardium with mural necrosis and infiltration of mononuclear cells in the arterial wall and the perivascular tissue. Stained with haematoxylin and eosin (HE), × 150.

Figure 2. A small sarcocyst in a myocardial muscle fiber. The cyst contains metrocytes (MC) and has a thin capsule (arrows), indicating an immature cyst stage. HE, × 1500.

Figure 3. A sarcocyst in a myocardial muscle fiber. The cyst has a radially striated wall (arrows). The presence of several metrocytes (MC) in the cyst indicates that it is relatively young. HE, × 1500.

lumen was occluded by fibrinous or organized thrombi. Other organ lesions included non-purulent myocarditis, interstitial pneumonia and nephritis.

In the myocardial muscle fibers there were numerous sarcocysts (Figs. 2, 3) measuring up to about 140 × 40 μ. Most cysts contained central merozoites and a varying number of peripheral metrocytes. The cysts had an approximately 2 μ thick radially striated wall (Fig. 3). Some of the small cysts contained only metrocytes and had a thin capsule (Fig. 2), indicating an immature cyst stage. The vascular endothelium contained a few structures suggestive of young sarcocystis schizonts; they appeared as basophilic granular cytoplasmic contents of the host cells.

Sarcocysts are commonly found in sheep striated muscle fibers, but their significance is difficult to determine. However, in the case reported here the infection was massive, and the

presence of immature cysts indicated recent schizogony. In experimental infection of sheep significant pathogenicity was attributed to the schizogonic stages of Sarcocystis ovicanis in vascular endothelium, and lesions including disruption of the vascular intima and vacuolization of the arterial wall with leukocytic infiltration were found (*Leek et al.* 1977). The sarcocyst morphology in the present report corresponds to the description of S. ovicanis (*Mehlhorn et al.* 1975). The pathogenic potentials of sarcocystis combined with the findings of *Hansen & Mostafa* and *Helmboldt et al.* and with the present case of PN and sarcocystis infection support the hypothesis of sarcocystis as a possible cause of PN.

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