Acta vet. scand. 1974, *15*, 639—641.

Brief Communication

PULMONARY LESIONS IN DOGS INDUCED BY INTRAVENOUS INJECTIONS OF DISINTEGRATED CELLS OF ESCHERICHIA COLI

In a previous article, renal arterial lesions produced by the Shwartzman mechanism in various species of mammals were described (*Nordstoga & Fjølstad* 1973). It was apparent from this study that necrotizing arterial lesions were quite a common finding in many cases in all the animal species tested. Individuals of those species which did not develop such vascular modifications in the kidneys, very often exhibited pulmonary arterial alterations. The pulmonary involvement was most prominent in dogs, and as the lung changes were only cursorily mentioned in the previous paper, the pulmonary lesions in the dogs are presented in this separate report.

Experimental procedure

The experimental schedule is described in detail in the previous paper (*Nordstoga & Fjølstad*). Two young female mongrels, each weighing approximately 5 kg, were given two injections of a suspension of disintegrated cells of Escherichia coli, with an interval of 24 hrs. The doses were 1 and 2 ml (dog No. 1), and 2 and 1.5 ml (dog No. 2), respectively. They were killed with an intravenous injection of mebumal 24 hrs. after the last challenge.

Results

Both animals had transient rapid respiration and vomited after the injections, but were otherwise unaffected by the treatment.

The necropsy picture was identical in both animals; the lungs had hemorrhagic peripheral areas in all lobes, and scattered hemorrhagic foci in the remaining tissue which was edematous and emphysematous (Fig. 1). Other organs had no obvious changes.

The most evident microscopic lesions within the affected pulmonary areas were seen in the arteries which exhibited mural

fibrinoid necrosis, variably associated with thrombosis (Fig. 2). In the parenchymal tissue surrounding the damaged arteries there was incipient consolidation with infiltration of polymorphonuclear cells and eosinophils, or the alveoli were filled with red cells or a proteinaceous fluid, frequently staining as fibrin.

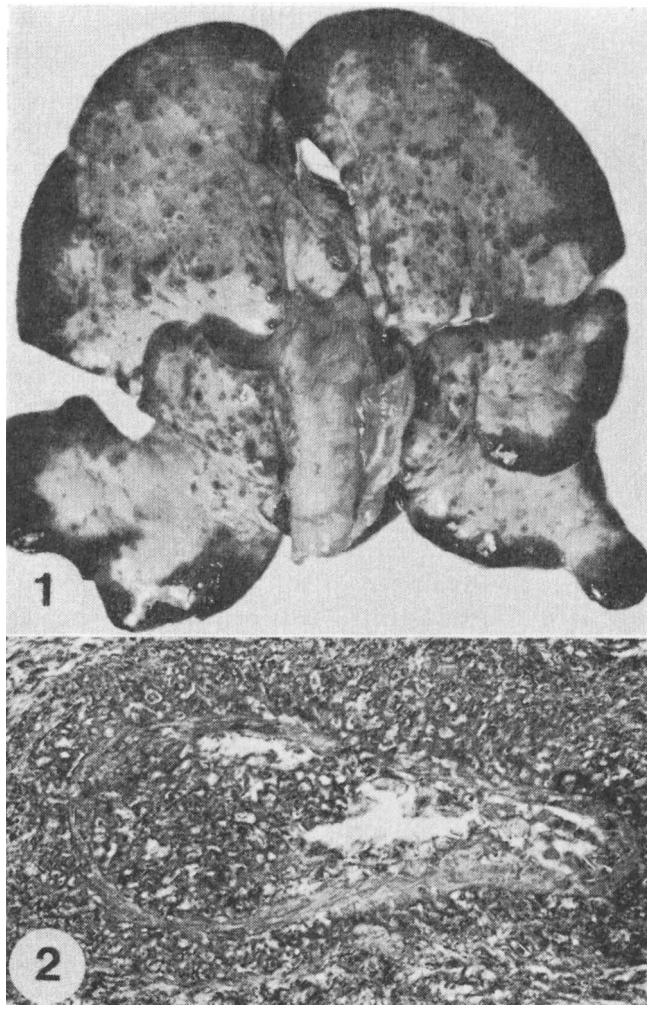

Figure 1. Gross pulmonary lesions. Dog No. 2.

Figure 2. Fibrinoid mural necrosis in a pulmonary artery which is partly occluded by a thrombus. Dog No. 2. Staining: Lendrum's acid picro-Mallory method, × 340.

Conclusion

The arterial lesions were equivalent to those described in the kidneys in some other mammalian species in the same experiment, a finding which indicates that the lungs were target organs in dogs in this investigation.

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Nordstoga, K. & M. Fjølstad: Necrotizing angiitis produced by the Shwartzman mechanism. Acta path. microbiol. scand. Section A 1973, *81*, 775—783.

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