

*Brief Communication*

A PORCINE CASE OF SHWARTZMAN'S REACTION IN  
ASSOCIATION WITH ERYSIPELAS

The generalized Shwartzman's reaction (GSR), which is best known in humans and experimental rabbits, is patho-morphologically characterized by widespread microthrombosis and necrotic mural lesions in arteries at various sites, the kidneys frequently being target organs. The resulting renal parenchymal damage is bilateral cortical necrosis (BCN), which is considered as the identifying lesion of GSR (*Thomas 1959*).

Spontaneous porcine cases of BCN have previously been recognized in association with hog cholera (*Röhler 1932*); BCN has also been induced experimentally in pigs in this laboratory by intravenous injections of disintegrated cells of *Haemophilus*, *Salmonella* and *Escherichia coli* (for references see *Teige et al. 1973*). Recently BCN has also been seen in association with colienterotoxaemia (*Teige et al.* in preparation).

The present paper gives a brief description of a porcine case of GSR associated with erysipelas.

*Case history*

A female pig, about six months old, was brought to the National Veterinary Institute for necropsy, after an illness with a rapid course.

*Gross lesions.* The skin of the posterior part of the body was severely cyanotic; in many areas cutaneous haemorrhages, of varying sizes were observed. In the body cavities, there were small amounts of a serous fluid. The kidneys were considerably enlarged with large haemorrhagic areas alternating with somewhat paler foci in the cortical layer, the cortex thus being necrotic and very friable. The renal lymph nodes were enlarged and haemorrhagic; the spleen was also somewhat enlarged.

*Microscopic lesions.* Kidney specimens revealed massive tubular destruction, sometimes with incipient precipitation of calcium in the necrotic tubular epithelium. In large areas, the lesions revealed a picture of complete cortical necrosis. Massive

extravasation of red cells was present in all sections examined. Fibrinoid mural necrotic lesions in the intralobular arteries and afferent arterioles, together with precipitations of a fibrin-staining material in the glomerular capillaries, were very common findings (Fig. 1); the damaged arteries were frequently occluded by thrombi. Extra-renal microscopic lesions included hepatic and pulmonary congestion, pulmonary oedema, cutaneous erythema and haemorrhages, and early degenerative and inflammatory alterations in the heart muscle.

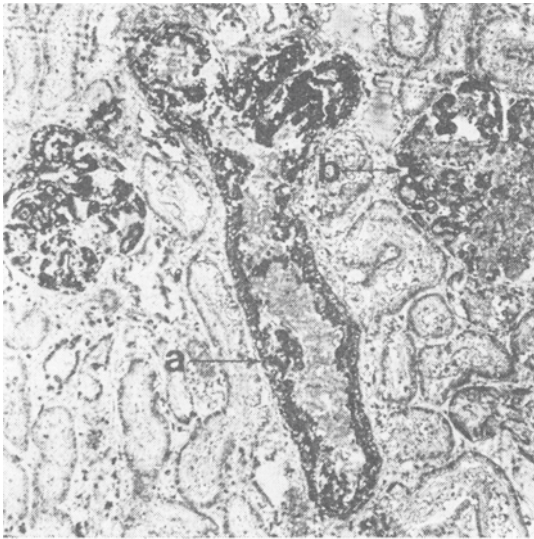


Figure 1. Kidney. Fibrinoid mural necrosis in an interlobular artery (a) and precipitations of fibrinoid material in glomerular capillaries (b). Phosphotungstic acid-haematoxylin,  $\times 120$ .

*Microbiological investigation.* *Erysipelothrix rhusiopathiae* was recovered from the kidney and a renal lymph node. In order to exclude viral agents, two pigs were inoculated with tissue material (blood and lymph nodes). Both of the animals were observed for several weeks after inoculation; none of them showed any symptoms.

### Discussion

The patho-morphological lesions described in this communication correspond to the GSR, in the way this phenomenon is referred to in current literature. GSR is interpreted by most authors as being the result of disseminated intravascular coagulation (McKay 1965). The thrombo-occlusive renal lesions ac-

companying the GSR may, however, also be related to the mural arterial lesions, which are equivalent to the so-called "hypersensitivity angitis" (Nordstoga 1973); the latter term has been used for the description of acute arterial lesions resembling the acute lesions of polyarteritis nodosa (Zeek 1952). It seems of special interest that the GSR is found in a pig infected with *Erysipelothrix rhusiopathiae*, since polyarteritis nodosa is relatively frequently preceded by erysipelas in swine (Stünzi 1947).

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(Received June 28, 1976).

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