BioOne COMPLETE

CARDIOVASCULAR CALCIFICATION ASSOCIATED WITH NEPHRITIS IN A BADGER

Authors: KARSTAD, L., and LANKESTER, M. W.

Source: Journal of Wildlife Diseases, 11(1) : 109-111

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-11.1.109

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

CARDIOVASCULAR CALCIFICATION ASSOCIATED WITH NEPHRITIS IN A BADGER

L. KARSTAD[1] and M. W. LANKESTER[2]

Abstract: Calcification of the endocardium of the left atrium, and to a lesser extent the media of the pulmonary artery and aorta, was found associated with nephritis in a badger (*Taxidea taxus*).

CASE REPORT

A male badger, approximately 8 months old and weighing 5 kg, was trapped at Hartney, Manitoba, on December 10, 1971. Age was determined by weight and tooth examination. The carcass was frozen and thawed before necropsy. Creamy coloured plates of hard material were found deposited in the endocardium of the left atrium and extending into the pulmonary veins for a distance of 1.5 cm (Fig. 1). There were no erosions nor evidence of inflammation. The kidneys were about twice normal size, and on their cortical surfaces there were scattered white pin-point sized lesions.

Histological examination of the heart and kidneys was made, employing both frozen sections and sections cut after routine paraffin-embedding. Frozen sections were stained with oil-red-0 for fat and the paraffin-embedded tissues were stained with haematoxylin and eosin, and by the methods of Verhoef-Van Gieson, periodic acid-Schiff (PAS) and Von Kossa. In addition to the endocardial lesions, there were focal lesions also in the media of the aorta, where it was sectioned near the base of the heart, and more extensive plate-like lesions in the media of the pulmonary artery (Fig. 2). Presumptive identification of calcium in these lesions was made by staining with Von Kossa (Fig. 3). The calcification was associated with fibroelastic tissue which was identified by the Verhoef-Van Gieson and PAS staining methods. In most of the lesions, the deposits of calcium salts were massive but in some of the smalled focal lesions in the aorta, the calcium was deposited on intact elastic fibers. Fat was not demonstrable, except as normally present in fat tissue associated with the epicardium.

The kidney tissues had been severely damaged by freezing and thawing but in spite of this, irregular and focal cellular infiltrations could be seen. The cells in these infiltrations could be identified only as "round cells", presumably large mononuclear leukocytes. These cellular infiltrates separated or replaced the normal tubular elements. In the cortex, they were focal but larger wedge-shaped lesions extended into the medulla. Fibrosis was minimal, as evidenced by fine strands of peritubular collagen in areas adjacent to the cellular infiltrates.

DISCUSSION

Calcification of the endocardium of the left atrium has been described in dogs with renal insufficiency.[2] Sometimes the aorta also has been found to be affected. Similar lesions in the badger, accompanied by swollen, nephritic kidneys, suggests that in this case too, uremia was the probable cause. The largely carnivorous, high-protein diet of the badger may have been a predisposing factor. It seems that the dystrophic calcification had not yet influenced appreciably the physical condition of the ani-

[1] Dept. of Pathology, University of Guelph, Guelph, Ontario, Canada. N1G 2W1.
[2] Dept. of Biology, Lakehead University, Thunder Bay, Ontario.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

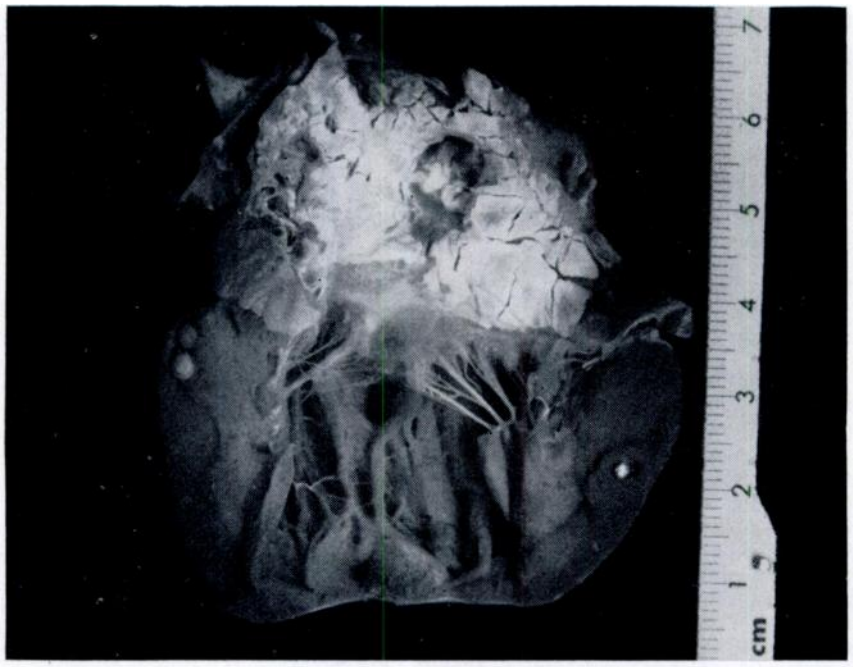


FIGURE 1. Gross appearance of endocardial calcification in the left atrium of a badger. The round objects in ventricle walls are pin heads.



FIGURE 2. Calcification (black) of the media of the pulmonary artery. Von Kossa x 100.

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use

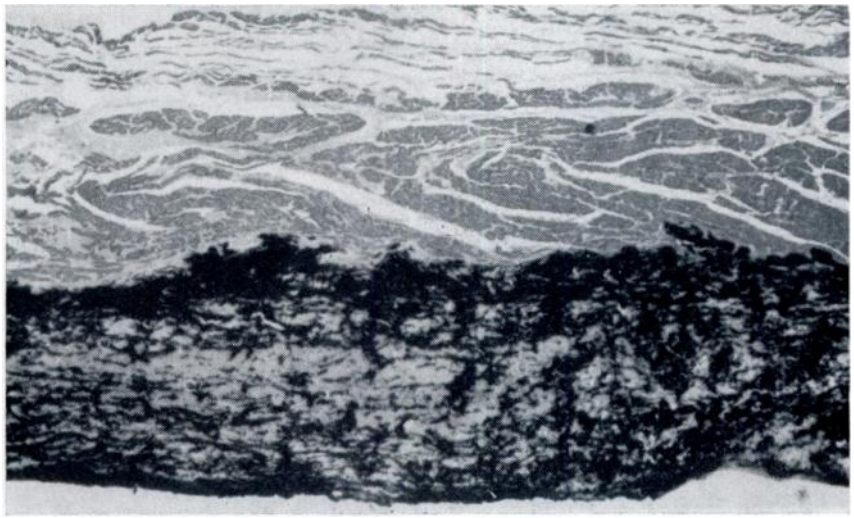


FIGURE 3. Calcium deposits (black) in fibroelastic tissue of the endocardium, left atrium. Von Kossa x 100.

mal, for it was in good flesh, well developed, and of normal weight. (Two other male badgers of approximately the same age weighed 5.1 and 6.3 kg, respectively). Whether lesions would have been progressive can only be a matter for speculation. The etiology of the nephritis was not determined. Although leptospirosis may be considered a possible cause, the freezing and thawing of the tissues made them unsuitable for further study.

Dietrich[1] has described medial arterial calcification in two beavers with interstitial nephritis. He suggested a possible disturbance in the calcium-phosphorus balance, a result of disturbed kidney function, as a possible cause. This might be a valid explanation for the arterial lesions in this badger.

Sargent[3] has recently described medial arterial calcification in a free-living hare, associated with suppurative metritis and adrenal hypertrophy.

Acknowledgements

The authors wish to acknowledge the cooperation of Mr. H. E. Drescher presently of Inst. fur Haustierkunde, Kiel, W. Germany, who provided normal badger organs for study; and the financial aid supporting this work provided to Prof. H. E. Welch, Dept. of Zoology, University of Manitoba by the Development and Extension Services Branches of the Dept. of Mines, Resources and Environmental Management, Province of Manitoba.

LITERATURE CITED

1. DIETRICH, R. A. 1969. Medial arterial sclerosis in captive beavers. Bull. Wildl. Dis. Assoc. 5: 115-116.
2. JUBB, K. V. F. and P. C. KENNEDY. 1970. *Pathology of Domestic Animals.* Vol. I. Academic Press, London.
3. SARGENT, A. P. 1974. Spontaneous arteriosclerosis in a brown hare. J. Wildl. Dis. 10: 130-134.

Received for publication 16 July 1974

Downloaded From: https://complete.bioone.org/journals/Journal-of-Wildlife-Diseases on 28 Mar 2024
Terms of Use: https://complete.bioone.org/terms-of-use