

A CASE OF INFECTIOUS CYSTITIS AND PYELONEPHRITIS OF SWINE CAUSED BY *CORYNEBACTERIUM SUIS*

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A DISEASE OF PIGS characterized by cystitis and pyelonephritis has been observed in various countries including Canada, but the causative agent has not been studied properly. Soltys and Spratling (1) conducted bacteriological studies on cases of cystitis and pyelonephritis in sows, and found that the disease is always associated with an anaerobic diphtheroid which they named *Corynebacterium suis*.

Further studies by Soltys (2) demonstrated that the organism is absent in apparently normal sows, but is frequently present in the urine and semen of boars.

In pathogenicity *C. suis* resembles *C. renale* which is associated with pyelonephritis in cattle. Both organisms produce pyelonephritis exclusively in females and usually in association with pregnancy and parturition. It is not easy to reproduce the natural infection experimentally with either organism which suggests that contributing factors are necessary for the initiation of infection. Once the infection is initiated experimentally it will spread to other organs, such as the ureters, the bladder and even the uterus.

This paper describes a case of infectious cystitis and pyelonephritis occurring in a sow in the last week of pregnancy. Before death the sow passed blood in the urine and became weak in the hind quarters.

On necropsy lesions were found only in the urogenital tract. After removing the renal capsules the right kidney was observed to be more pitted in appearance than the left kidney. The medulla of both kidneys contained ray-like fibrotic areas extending into the cortex. Cavities within the renal medulla which extended into the renal pelvis, were lined by a fibrous tissue wall, and contained a blood tinged mucoid material. Many renal papillae were blunt and hemorrhagic in appearance, and covered with a bloody, tenacious exudate.

The renal pelvic and ureters were thick-walled and grossly distended with the same exudate. The ureters were up to two and a half cm. in diameter in some areas. The urinary bladder was thick-walled and covered with a bloody mucoid material. The under-lying bladder mucosa was congested and edematous with diffuse hemorrhagic areas within the wall. The uterus contained 10 well-formed feti.

Histological examination revealed interstitial fibrosis extending from the renal papillae into the cortex. There were focal accumulations of lymphocytes within the renal cortex and an extensive necrosis of renal papillae. These papillae were obliterated by a fibrinous exudate and large numbers of infiltrating neutrophils.

The ureters and urinary bladder were infiltrated by large numbers of fibroblasts. The mucosal lining had sloughed in many areas, and was covered by an admixture of fibrin, erythrocytes and neutrophils. The vagina and urethra were essentially normal.

BACTERIOLOGICAL EXAMINATION

Smears were made from the pus in the bladder and from scrapings of inflamed areas of the bladder mucosa. In all cases mostly Gram-positive diphtheroid bacteria and a small number of streptococci and Gram-negative organisms were observed. Cultures were made from the same material by inoculating blood agar plates and incubating at 37° C. under aerobic and anaerobic conditions. Aerobic cultures revealed streptococci and a few colonies of a Gram-negative organism, while anaerobic cultures produced mostly flat opalescent colonies of granular structure characteristic of *C. suis*. The identity of the organism was confirmed by biochemical reactions.

In most cases when a pathological specimen is fresh and contains mainly pus from the kidney the culture of the pus is pure. If a pathological specimen is provided from an animal which has been

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dead for some time contaminants are usually present.

This short communication is published in order to draw this disease to the attention of the practising veterinarians and in the hope that veterinary practitioners will send to the Ontario Veterinary College more material for further studies. Their co-operation would be greatly appreciated.

REFERENCES

1. SOLTYS, M. A., and SPRATLING, R. F. Infectious cystitis and pyelonephritis of pigs; a preliminary communication. *Vet. Rec.* 69: 500. 1951.
2. SOLTYS, M. A. *Corynebacterium suis* associated with a specific cystitis and pyelonephritis in pigs. *J. Path. Bact.* 81: 441. 1961.

BOOK REVIEW

The Year Book of Veterinary Medicine—Volume 3—1966. Edited by William F. Riley, Jr., Kenneth W. Smith and Robert J. Flynn. Published by Year Book Medical Publishers, Chicago, Illinois. 1966. 460 pages. Price \$11.00.

The Year Book of Veterinary Medicine makes available in abstract form what the editors consider to be the cream of recent international medico-scientific literature.

The book is divided into 3 sections: (1) Large Animal Medicine—edited by William F. Riley, Jr. This section includes chapters on infectious diseases, non-infectious diseases, diagnosis and therapy, surgery, endocrinology, metabolism and nutrition, neoplasms and economics.

Much of the information presented is the result of experimental investigation and is of a largely scientific nature. There are, however, many items of interest and value to the practising veterinarian.

(2) Small Animal Medicine—edited by Kenneth W. Smith. Chapters on general information, care, feeding, breeding and training, anatomy and physiology, diagnosis, therapeutics, infectious diseases, noninfectious diseases, and surgery, are in-

cluded in this section. Many excellent abstracts of up-to-date and helpful information for all veterinarians interested in small animal medicine are presented.

(3) Laboratory Animal Medicine—edited by Robert J. Flynn. This section includes chapters on general considerations, facilities—buildings, cages, equipment, care, management, environment, genetic and breeding; species and strain characteristics, animal production; specific-pathogen-free animals; germ-free animals, infectious diseases, noninfectious diseases, zoonoses and zootechnics.

The editor has pointed out that laboratory animal medicine is a new and specialized area for the veterinarian, offering many opportunities and challenges. At least half of all biomedical research projects use laboratory animals as their biologic models. Increased use of the laboratory animal has paralleled the expansion of research in the life sciences. The laboratory animal industry has more than doubled in the past 10 years and increased at least ten-fold since 1940. This section is a timely and useful addition to the information available on this new branch of veterinary medicine. *G. K. Boyce.*