

## LETTER TO THE EDITOR

### Serological Evidence of Encephalomyocarditis Virus in Pigs in Ontario

DEAR SIR:

Encephalomyocarditis (EMC) virus is a cardiovirus within the family Picornaviridae. Rats harbor the virus as inapparent carriers, but infection in pigs and primates can be fatal (1). Sporadic fatal infections have also been reported in other animals (1,2). Disease caused by EMC virus has been a major cause of pig mortality in some parts of Australia (1,3). In North America, EMC virus infections in pigs have been reported from Florida (1). Evidence for the presence of the virus in Canada has never been reported.

For several years we have encountered cases of subacute and chronic nonsuppurative myocarditis (NSM) with interstitial fibrosis in the hearts of suckling and, more frequently, recently weaned pigs which had died suddenly (Sanford, S.E. and Josephson, G., Huron Park, Ontario: unpublished data). Premonitory signs were seldom seen and there were frequently only one or two deaths per litter. Dams and litters usually were adequately supplemented with vitamin E and selenium, and the gross and histological lesions were not consistent with mulberry heart disease. Because of these clinical and histopathological findings EMC virus was suspected as a possible etiological agent.

Two hundred and sixty-one sera were collected by intracardiac or cranial vena caval puncture from pigs which were submitted to the laboratory from 74 farms for routine diagnostic investigation. The pigs ranged in age from one day to four years old, and the sera were collected with no regard to herd history of clinical evidence of possible EMC virus activity. The sera were stored at  $-20^{\circ}\text{C}$ , and heat inactivated at  $56^{\circ}\text{C}$  for 30 minutes before they were tested. Each serum was titrated for EMC virus neutralizing antibodies by the constant virus-varying serum method against approximately 100 median cell culture infectious doses of EMC virus in Vero cell cultures. Neutralization end points were calculated by the Kärber method.

The virus was kindly supplied by Dr. P. Dobos, Department of Microbiology, University of Guelph.

Twenty-seven sera (10%) from pigs from 14 farms (19%) had detectable EMC virus neutralizing antibody titers ranging from 1:3 to 1:128. With the exception of a group of ten sows from one farm, all of which were positive, only one (nine farms) or two (four farms) pigs from a farm were positive at any one time. Of the ten positive sows, one had a titer of 1:4, two had titers of 1:6, two of 1:8, two of 1:12, one of 1:14, one of 1:16 and one of 1:24. Sera obtained three months later from six more pigs from the farm with these ten positive sows were all negative. One four week old pig with a serological titer of 1:8 had a mild diffuse nonsuppurative encephalitis. All other pigs with positive titers had diseases unrelated to EMC virus infection and none had clinical or histological evidence of NSM.

Similar to our findings, antibody to EMC virus has been identified in approximately 28% of "normal" pigs in Britain (4). As in our study, the British workers did not find any clinical evidence of EMC virus disease in the serologically positive pigs.

The results of this investigation provide the first serological evidence for the presence of EMC virus in pigs in Canada. Cross-neutralization between EMC virus and other porcine viruses has not been described. The virus was not directly linked to clinical problems suggesting EMC virus infection, but veterinarians should be alerted to the need to consider this virus in the investigation of disease conditions in Canadian swine.

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2. SIMPSON CF, LEWIS AL, GASKIN JM. Encephalomyocarditis virus infection of captive elephants. *J Am Vet Med Assoc* 1978; 171: 902-905.
3. ACLAND HM, LITTLEJOHNS IR. Encephalomyocarditis virus infection in pigs. *Aust Vet J* 1975; 51: 409-415.
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## BOOK REVIEW

*Clinical Microbiology and Infectious Diseases of the Dog and Cat*. Edited by C.E. Greene. Published by W.B. Saunders Company, Toronto. 1984. 967 pages. Price \$69.50.

"Clinical Microbiology and Infectious Diseases of the Dog and Cat" is an excellent and welcome addition to the veterinary literature. The intent of the author, as stated in the preface, was to provide in-depth coverage of each of the infectious diseases that affect the dog and cat, as well as including a comprehensive overview of clinical microbiology. In both of these goals, the text has succeeded admirably.

Basic science information is related to the realities of clinical practice, and the result is a text that will find use by all small animal practitioners and veterinary students, as well as others in related disciplines such as clinical microbiology and diagnostic pathology.

The first four chapters of the book approach agent-host-environment interactions, by reviewing basic microbiology, host resistance (immu-