

Sponsors

University of Minnesota

College of Veterinary Medicine

College of Food, Agricultural and Natural Resource Sciences

Extension Service

Swine Center

Thank you to **IDEXX Laboratories** for their financial support to reproduce the conference proceeding book.

Production Assistant

Janice Storebo

Formatting

Tina Smith

CD-ROM

David Brown

Logo Design

Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, or sexual orientation.

Prevalence investigation of swine pathogens in the wild rodents and cats

YH Kim, TW Seo, JY Yi, TW Hahn, HC Kim, JH Han, BI Yoon

School of Veterinary Medicine and Institute of Veterinary Science,

Kangwon National University, Chuncheon, Gangwon-Do 200-701, Republic of Korea

Introduction

The transmission of swine pathogens is achieved by direct contact with infected pigs or indirect contact through the various pathogen mediators including disease carriers. Some of swine pathogen such as *Salmonella* spp., *E. coli*, *Trichinella spiralis*, Encephalomyocarditis virus (EMCV), porcine coronavirus type2 (PCV2) and etc. have been isolated from wild rodents. Thus, the objective of this study is to investigate the prevalences of the viral, bacterial and parasitic pathogens of the swine which are infective to wild rats, mice and cats in Korea.

Materials and Methods

For the study, we selected 8 and 3 pig farms in Kyung-ki and Gangwon province, respectively, and captured 107 wild rats (*Rattus norvegicus*), 4 wild mice (*Apodemus agrarius ningpoensis*) and 24 cats using wire traps, evaluating the infection of specific swine pathogens selected using PCR, bacterial identification and floatation technique in the tissue and fecal samples.

Results

As results, among the total 125 cases, 6 cases of *Salmonella* spp., 6 cases of *Citrobacter*, 1 case of *Yersinia*, *Hafnia*, *Pasteurella* and *Klebsiella* spp., and 26 cases of *Proteus* were detected in the liver, spleen and intestine. Ninety-six cases (82.8%) of *Leptospira* and nineteen cases (17.4%) of *Lawsonia* were detectable in intestine. In case of *Brucella*(B), 62 cases (49.1%) out of 116 were positive under the PCR method, however *B. abortus* was all negative in the Rose bengal test of 52 serum samples. For swine viral pathogens, PCV2 was detected in 13/98 (13.3%) cases in rats and 2/4 cases in mice but not in cats. PEDV (porcine epidemic diarrhea virus) was detected only in the tonsil of a cat, but not in the rats and mice. EMCV was detected in 1/98 case of rats and 3/4 cases. In terms of parasite infection, no parasites which are pathogenic in pigs were detected in the wild rodents and cats. However, several zoonotic parasite infections were detected such as *Hymenolepis*(H) *nana*, *Cryptosporidium*(C)

and *Spirometra* spp., *Aspicularis tetraptera*(24.0%), *Syphacia*(S) *obvelata*(21.9%), *S. muris*(26.0%), *Nippostrongylus* sp.(15.6%), *Heterakis* sp.(11.5%), *Capillaria hepatica* (3.1%), *H. nana* (1.0%), *H. diminuta*(21.9%), *Cysticercus fasciolaris* (3.1%), *Echinostoma cinetorchis* (1.0%), *Eimeria* sp.(17.7%), *C. parvum*(2.1%) in rats, *Nippostrongylus* sp.(75%), *S. obvelata*(25.0%), *S. muris*(25%), *H. nana*(75%), *H. diminuta*(25.0%), *Eimeria* sp.(50.0%) in mice, and *Toxocara cati*(21.7%), *Ancylostoma* sp.(8.7%), *Taenia taeniaeformis*(8.7%), *Spirometra erinace* (17.4%) in cats were respectively detected with other unidentified parasites including protozoa. Hantavirus were confirmed that 2 cases out of 42 serum samples were positive.

Discussion

Based on our results, rodents and cats could play a role as reservoirs or carriers of some swine pathogens such as viruses as well as bacteria and parasites and contribute to the spread of the pathogens in Korea.

Acknowledgement

This study was supported by a grant Project Code No. (Z-AD19-2007-07-04) from National Veterinary Research & Quarantine Service, Ministry of Agriculture in 2007.

Reference

1. Kluivers, et al. Transmission of encephalomyocarditis virus in pigs estimated from field data in Belgium by means of R0. *Vet Res* 37: 757-766, 2006
2. Barber DA, et al. Distribution of *Salmonella* in swine production ecosystem. *J Food Prot* 65: 1861-1868, 2002
3. Attah EF, et al. Hepatic capillariasis. *Am J Clin pathol* 79: 127-130, 1983,