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Causes of diarrhea, pneumonia, and septicemia in swine for 1991 submissions to the KSU Veterinary Diagnostic laboratory (1991)

R K. Frank

M W. Vorhies

CAUSES OF DIARRHEA, PNEUMONIA, AND SEPTICEMIA IN SWINE FOR 1991 SUBMISSIONS TO THE KSU VETERINARY DIAGNOSTIC LABORATORY

R. K. Frank and M. W. Vorhies[1]

Summary

Causes of pre- and postweaning diarrhea, pneumonia, and bacterial septicemia in pigs were summarized for fiscal year 1991 (July, 1990 to June, 1991) for submissions to the Kansas State University Veterinary Diagnostic Laboratory. *Escherichia coli* was the most common cause of both pre- and postweaning diarrhea in pigs (33.5% and 25.0%, respectively, of submissions for diarrhea). Other commonly diagnosed causes included transmissible gastroenteritis (24.4%) and coccidiosis (16.5%) for preweaning diarrhea, and proliferative enteritis (19.2%) and salmonellosis (13.2%) for postweaning diarrhea. The most commonly diagnosed causes of pneumonia in nursing, growing, and finishing pigs were *Pasteurella multocida*, *Mycoplasma*, and *Actinobacillus (Haemophilus) pleuropneumoniae*. *Streptococcus* and *Salmonella* were common causes of bacterial septicemia in Kansas pigs.

(Key Words: Disease, Diagnosis, Diarrhea, Pneumonia.)

Introduction

Enteric and respiratory diseases account for large economic losses to the swine industry each year. An accurate diagnosis of the cause is essential for effective prevention and control of these diseases. The present summary was performed to demonstrate the relative importance of various causes of enteric, respiratory, and septicemic diseases as determined at the diagnostic laboratory level.

Procedures

Diagnoses and age were summarized for cases of diarrhea, pneumonia, and bacterial septicemia in pigs from computer records for submissions to the Kansas State University Veterinary Diagnostic Laboratory for fiscal year 1991 (July, 1990 to June, 1991). Specimens included living or dead pigs and/or tissues. A diagnosis was made following light microscopic, bacteriologic, and virologic examination of tissues and summarized in a computer data base.

Results and Discussion

Causes and number of cases of pre- and postweaning diarrhea, pneumonia, and septicemia are summarized in Tables 1 and 2, respectively. In spite of extensive vaccination and effective vaccines for the control of colibacillosis, *E. coli* still remains the most frequent cause of both pre- and postweaning diarrhea in pigs in Kansas. Transmissible gastroenteritis was a much more common cause of preweaning than postweaning diarrhea and frequently recurred in sequential farrowings (endemic or chronic TGE). The highest incidence of coccidiosis was in the months of July and August (12/27 cases). Proliferative enteritis (terminal ileitis) is an important cause of diarrhea in Kansas swine herds. Cases of diarrhea with an idiopathic diagnosis were those for which no cause could be determined by routine laboratory testing. The primary reasons for no diagnosis in cases of diarrhea were 1) submitting tissues from pigs too late in

[1]Department of Veterinary Diagnosis.

the disease process, 2) advanced postmortem change in submitted tissues, and 3) improper tissue collection by the referring veterinarian.

Pasteurella multocida, *Mycoplasma*, and *Actinobacillus (Haemophilus) pleuropneumoniae* were the most commonly diagnosed causes of respiratory disease in pigs (Table 3). Frequently more than one bacterial species was isolated from the same lung. Antibiotic treatment is one likely explanation for the large number of idiopathic diagnoses. Additionally, some lungs were submitted fixed in formalin, with no unfixed tissue available for bacterial culturing.

Steptococcus and *Salmonella* were the most common causes of bacterial septicemia in Kansas pigs, accounting for 33.3 and 26.7% of all cases, respectively (Table 4).

Table 1. Causes of Preweaning (< 3 Weeks of Age) Diarrhea in Pigs for Submissions to the KSU Veterinary Diagnostic Laboratory (July, 1990 to June, 1991)

Cause/Disease	No. cases	% of total cases
E. coli	55	33.4
TGE	40	24.4
Isospora suis (Coccidia)	27	16.5
Idiopathic[a]	16	9.8
Rotavirus	8	4.9
Clostridium perfringens type C	7	4.3
Viral[b]	7	4.3
Other	4	2.4
Total	164	100.0

[a]Exact cause of the diarrhea could not be determined.
[b]Microscopic intestinal changes were consistent with a viral diarrhea, but a virus was not identified by routine testing.

Table 2. Causes of Postweaning (≥ 4 weeks of age) Diarrhea in Pigs for Submissions to the KSU Veterinary Diagnostic Laboratory (July, 1990 to June, 1991)

Cause/Disease	No. cases	% of total cases
E. coli	30	25.0
Proliferative enteritis (Terminal ileitis)	23	19.2
Salmonella	16	13.3
Idiopathic[a]	9	7.5
Swine dysentery	8	6.7
Non-specific colitis	8	6.7
TGE	7	5.8
Necrotic enteritis[b]	7	5.8
Hemorrhagic bowel syndrome	5	4.2
Viral[c]	4	3.3
Rotavirus	3	2.5
Total	120	100.0

[a]Exact cause of the diarrhea could not be determined.
[b]No cause was identified, but often the end result of *Salmonella* infection or swine dysentery.
[c]Microscopic intestinal changes were consistent with a viral diarrhea, but a virus was not identified by routine testing.

Table 3. Causes of Pneumonia in Nursery, Growing, and Finishing Pigs for Submissions to the KSU Veterinary Diagnostic Laboratory (July, 1990 to June, 1991)

Cause/Disease	No. cases[a]	% of total cases
Mycoplasma	44	21.2
Pasteurella multocida	42	20.2
Actinobacillus (Haemophilus) pleuropneumoniae	24	11.5
Idiopathic[b]	23	11.0
Streptococcus suis	22	10.6
Streptococcus (not *suis*)	19	9.1
Bordatella bronchiseptica	5	2.4
Swine influenza	4	1.9
Other bacterial	23	11.0
Misc.	2	1.0
Total	208	100.0

[a]Isolates were from approximately 150 different submissions.
[b]Exact cause of the pneumonia could not be determined.

Table 4. Causes of Septicemia in Nursery, Growing, and Finishing Pigs for Submissions to the KSU Veterinary Diagnostic Laboratory (July, 1990 to June, 1991)

Cause/Disease	No. cases	% of total cases
Streptococcus (not *suis*)	20	33.3
Salmonella	16	26.7
Edema disease	8	13.3
Streptococcus suis	6	10.0
Erysipelas	6	10.0
Other	4	6.7
Total	53	100.0

Melanie Krause analyzing samples in the swine research lab.