



# HOKKAIDO UNIVERSITY

Title	O GROUP OF ESCHERICHIA COLI FROM CANINE AND FELINE PYOMETRA
Author(s)	CHOI, Won-Pil; KAWATA, Keiichiro
Citation	Japanese Journal of Veterinary Research, 23(4), 141-143
Issue Date	1975-10
DOI	<a href="https://doi.org/10.14943/jjvr.23.4.141">https://doi.org/10.14943/jjvr.23.4.141</a>
Doc URL	<a href="https://hdl.handle.net/2115/2072">https://hdl.handle.net/2115/2072</a>
Type	departmental bulletin paper
File Information	KJ00002371232.pdf



## O GROUP OF *ESCHERICHIA COLI* FROM CANINE AND FELINE PYOMETRA

Won-Pil CHOI\*<sup>1</sup> and Keiichiro KAWATA\*<sup>2</sup>

*Department of Epizootiology  
Faculty of Veterinary Medicine  
Hokkaido University, Sapporo, Japan*

(Received for publication, August 8, 1975)

*Escherichia coli* was isolated from 14 cases of pyometra found in 12 dogs and 7 cats. In this study O antigens of 7 strains of the isolates were typed serologically. Serotypes O4 and O44 were associated with canine pyometra and serotypes O2 and O22 were associated with feline pyometra.

### INTRODUCTION

Several workers<sup>1~4)</sup> have indicated the importance of *E. coli* in endometritis and pyometra in the bitch, and a few workers<sup>5,6)</sup> have typed canine *E. coli* with O2, O6, O42, and O141. No report, however, on the serotype of *E. coli* associated with feline pyometra has been published.

The present report deals with the O antigens of *E. coli* found in pyometra in the animals.

### MATERIALS AND METHODS

Vaginal swabs or contents of uterus were obtained from 5~12-year-old dogs and 1.5~7-year-old cats which were diagnosed as having pyometra by clinical signs or by hysterectomies performed in the Veterinary Hospital of Hokkaido University from 1971 to 1972. The specimens were cultivated on nutrient agar, 5% sheep blood agar and Mac Conkey agar plates. From each plate at least 4 colonies were subjected to biochemical and serological screening tests.

All of the gram-negative isolates were tested for hemolytic activity, indole-urease-and H<sub>2</sub>S productions, as well as methyl red and Voges-Proskauer reactions.

Standard and test antisera of *E. coli* were kindly supplied by Dr. HAMADA from the Department of Veterinary Public Health of this faculty. A total of

---

\*<sup>1</sup> Present address: Department of Veterinary Medicine, College of Agriculture, Kyung-Buk National University, Tae-gu, Korea

\*<sup>2</sup> Department of Veterinary Obstetrics, Faculty of Veterinary Medicine, Hokkaido University

7 lots of pooled antisera were prepared by mixing 5 or 6 different O factor sera so that each lot had the same titers. The O factors in each lot were as follows;

Lot 1-2, 4, 6, 18, 26, 71	Lot 5-78, 89, 93, 112 <sup>a</sup> , 112 <sup>b</sup> , 113
Lot 2-8, 9, 15, 16, 21, 125	Lot 6-28 <sup>a</sup> , 44, 111, 119, 126
Lot 3-22, 35, 39, 48, 55, 83	Lot 7-127 <sup>a</sup> , 136, 143, 144, 146
Lot 4-45, 63, 86, 124, 128	

Procedure for O typing by single tube agglutination was carried out according to the "Method for *Escherichia coli* O Group Serotyping" (National Institute of Animal Health Quarterly, 1971).

#### RESULTS AND DISCUSSION

As shown in the table, 11 cases of 19 animals were submitted in August and September. Seven out of 12 canine specimens and 5 out of 7 feline cases

TABLE O serotypes of *E. coli* and other bacteria from pyometra of dogs and cats

ANIMAL NO.	ISOLATE	HEMOLYSIS	INCIDENCE
Dog 1	<i>E. coli</i> O 44	—	September
2	<i>E. coli</i> O 44	—	November
3	<i>E. coli</i> O 4	+	December
4	<i>E. coli</i> O 4	+	August
5	Streptococcus & <i>E. coli</i> *	+ & —	"
6	Staphylococcus & <i>E. coli</i> *	+ & —	September
7	Streptococcus & Staphylococcus	+ & +	October
8	Klebsiella	•	July
9	Unidentifiable	•	September
10	<i>E. coli</i> *	+	"
11	<i>E. coli</i> *	—	"
12	<i>E. coli</i> *	—	June
Cat 1	<i>E. coli</i> O 2	+	August
2	<i>E. coli</i> O 2	+	"
3	<i>E. coli</i> O 22	—	May
4	<i>E. coli</i> *	—	October
5	<i>E. coli</i> *	—	August
6	Staphylococcus	+	May
7	Streptococcus	+	September

\* Untypable with the antisera available

yielded many colonies of *E. coli* in the pure culture. In addition, *E. coli* mixed with other bacteria such as staphylococcus or streptococcus was detected in 2 canine cases. Thus, *E. coli* was isolated from 14 cases out of 19 pets affected with pyometra. From other specimens, staphylococcus and/or streptococcus, or Klebsiella were cultivated.

Among these representative 14 *E. coli* strains from each material, 5 were hemolytic and 7 were typable with the antisera available. Two canine non-hemolytic strains were typed in O44 and 2 hemolytic in O4. On the other hand, 2 feline hemolytic *E. coli* isolates were typed in O2 and 1 non-hemolytic was typed in O22.

It had been reported that O2 and O22 of *E. coli* were isolated from the feces of diseased or healthy cats<sup>6,7</sup>, O4 came from cats and dogs suffering from diarrhea<sup>7</sup>, and O44 came from the feces of diseased or healthy dogs<sup>8</sup>. These O serotypes of *E. coli*, however, have never been found in pyometra of the pets such as dogs and cats.

#### REFERENCES

- 1) BAIER, W. (1955): *Wien. tierärztl. Mschr.*, **42**, 273
- 2) BAIER, W., KALICH, J. & TAXACHER, J. (1956): *Zbl. vet. Med.*, **3**, 792
- 3) D'SOUZA, B. A., RAGHAVAN, N. & MENON, U. K. (1961): *Indian vet. J.*, **38**, 1
- 4) LOVELL, R. (1959): "Coliform diseases" Diseases due to bacteria, Ed. STABLEFORTH, A. W. & GALLOWAY, I. A., Vol. I, 238, London: Butterworths Scientific Publications
- 5) MANSI, W. (1962): "Is *E. coli* (Bacterium coli) infection of significance in the dog?" Advances in small animal practice, Ed. JONES, B. V., Vol. 3, 29, London, New York & Paris: Pergamon Press
- 6) MÄNSSON, I. & LINDBLAD, G. (1963): *Proc. 9th Nordic vet. Congr.*, Copenhagen, 1962, II, 880
- 7) RHODES, H. E., SAXENA, S. P. & MEYER, R. C. (1971): *Canad. J. comp. Med.*, **35**, 218
- 8) WASSELINOFF, W. & DIMOW, I. (1961): *Proc. 2nd Symp. intern. Ass. vet. Food Hyg.*, Basel, 1960, 184