BRIEF NOTE

A Sero-Epizootiological Survey on Rotavirus Infection in Foals

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Rotavirus is one of the viruses which have caused acute gastroenteritis in infants of some animal species [3], included man. It has been detected from the feces of diarrheal foals in the U.K. [2], Australia [7], and the U.S.A. [1]. In Japan, it has been proved by serological survey conducted by the authors [5] and Goto et al. [4] that rotavirus spreads widely among horses in breeding regions and among race-horses.

This report presents the results of a survey conducted on foal sera by complement fixation (CF) test with the Lincoln strain of calf rotavirus (CRV). This survey was performed to examine the time and form of prevalence of rotavirus infection among foals.

The sera were harvested from 49 Thoroughbred foals of 6 herds in the Hidaka district of Hokkaido during a period from June 7, 1977 to February 2, 1978.

Table 1 shows the date of birth of the foals and the days of harvesting serum samples. These samples were stored at -20°C until use.

Antigen for the CF test was prepared from culture fluids of MA-104 (*Macacus rhesus* kidney) cells inoculated with CRV

by the method [5] described previously. Antigen titer was determined by box titration with anti-CRV guinea pig serum mentioned in the previous report [5]. Four units of antigen was used in determining the CF antibody titer of the test serum. The CF test was performed by the method described in the previous paper [5]. The serum titer was expressed as the reciprocal of the highest serum dilution showing 50% or more inhibition of hemolysis.

As shown in Table 1, CF antibody against CRV developed positively in 4 of 6 herds tested. It was detected from 2 foals of herds B and D on June 7, 1977. On June 22, 1977, it developed positively in 5 foals of herd A. It developed positively in 2 foals of herds C and D on August 20, 1977. Moreover, it developed positively in 4 foals of herd B, 4 foals of Herd C and a foal of herd D on February 2, 1978. In herds E and F, it was not detected in any serum tested.

It was suggested from the present investigation that rotavirus might have propagated among horses nearly throughout a year. Goto et al. [6] suggested that the virus might be highly active in the horse population during a period from winter

Table 1. First appearance of CF antibody against calf rotavirus in foals of 6 herds

Foal No.	Herd	Date of birth (1977)	CF titer			
			7 Jun. 1977	22 Jun. 1977	20 Aug. 1977	2 Feb. 1978
1	A	Jan. 26	<4	8	<4	<4
2		Feb. 28	ND*	16	4	<4
3		Mar. 8	<4	8	<4	<4
4		Mar. 11	<4	8	4	<4
5		Mar. 16	<4	8	4	<4
6		Mar. 22	<4	<4	<4	<4
7		Mar. 24	<4	4	<4	<4
8		Apr. 1	ND	8	4	<4
9		Apr. 4	ND	<4	<4	<4
10		Apr. 14	<4	<4	<4	<4
11	B	Mar. 16	ND	<4	<4	8
12		Mar. 26	ND	<4	<4	8
13		Mar. 31	<4	<4	ND	8
14		Apr. 14	<4	<4	ND	8
15		Apr. 15	ND	<4	<4	16
16		May 15	8	8	<4	4
17	C	Mar. 19	<4	<4	<4	ND
18		Mar. 20	<4	<4	<4	ND
19		Mar. 27	ND	<4	<4	4
20		Apr. 6	<4	<4	<4	4
21		Apr. 10	ND	<4	8	8
22		Apr. 10	<4	<4	<4	8
23		Apr. 12	ND	<4	<4	8
24		Apr. 20	ND	<4	<4	ND
25		Apr. 21	ND	<4	<4	<4
26	D	Mar. 10	8	8	<4	<4
27		Mar. 11	<4	<4	<4	<4
28		Mar. 14	<4	<4	<4	<4
29		Mar. 26	<4	<4	<4	<4
30		Mar. 27	<4	ND	<4	<4
31		Apr. 1	<4	<4	<4	<4
32		Apr. 7	<4	<4	<4	<4
33		Apr. 7	<4	<4	8	8
34		Apr. 26	<4	<4	<4	8
35		May 7	<4	<4	<4	<4
36	E	Feb. 25	<4	<4	<4	<4
37		Mar. 10	<4	<4	<4	<4
38		Mar. 10	ND	<4	<4	<4
39		Mar. 18	ND	<4	<4	<4
40		Mar. 24	<4	<4	<4	<4
41		Apr. 30	<4	<4	<4	<4
42		May 20	ND	<4	<4	ND
43	F	Feb. 27	ND	<4	<4	<4
44		Mar. 27	ND	<4	<4	<4
45		Apr. 6	ND	<4	<4	<4
46		Apr. 16	ND	<4	<4	<4
47		Apr. 20	ND	<4	<4	<4
48		Apr. 25	ND	<4	<4	<4
49		Apr. 30	ND	<4	<4	<4

Remarks. *: Not done

to early spring of a year. Further, it was surmised that foals might mostly be infected with the virus when the virus intruded among the horses of a herd.

Recently, the authors [6] succeeded in isolating rotavirus from the feces of foals. Accordingly, it is important to conduct a serological survey on horses by the serum neutralizing test with rotavirus from a foals.

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要 約

仔馬におけるロタウィルス感染症の血清疫学的検索 (短報): 今川 浩・平沢 澄・秋山 紳・大森 常良¹⁾ (日本中央競馬会競走馬総合研究所栃木支所, ¹⁾日本生物科学研究所) —— 北海道日高地方の6群49頭の仔馬から4回にわたって採取された経過血清について, 子牛ロタウィルスに対する補体結合反応を実施したところ, 1群の10例中5例に1977年6月中旬に抗体の陽転が認められた。ついで8月下旬には2群において, それぞれ1例の抗体陽転が認められた。さらに, 1978年2月初旬には3群に, それぞれ6例中6例, , 6例中5例, 10例中2例に抗体が検出された。以上から, 仔馬のロタウィルス感染はほぼ年間を通じて起り, 群内伝播性は強いことが示唆された。