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SUBJECT OF INVESTIGATION

BACTERIOLOGICAL, IMMUNOLOGICAL
AND
VIRAL STUDIES ON RECTAL MUCUS
IN
ENTERIC INFECTIONS
(SHIGELLOSIS, SALMONELLOSIS,
PATHOGENIC COLI INFECTIONS
AND VIRAL ENTERIC INFECTIONS)

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BACTERIOLOGICAL, IMMUNOLOGICAL AND VIRAL STUDIES ON RECTAL MUCUS IN ENTERIC INFECTIONS
(SHIGELLOSIS, SALMONELLOSIS, PATHOGENIC COLI INFECTIONS AND VIRAL ENTERIC INFECTIONS)

Serological findings on serum and rectal mucus in acute gastro-enteritis patients and Salmonellosis, viral researches on feces and mucus in suspected cases of viral enteric infections obtained during the period of 1 April 1963 through 30 June 1963 were summarized as follows:

1. Agglutinin titers of serum and mucus against O-antigen and H-antigen of six entero-bacilli (Morganella 1, A. liquefaciens 1, Escherichia coli 4) isolated from feces of acute gastro-enteritis patients were very low as seen in Table 1.

Although clinical figures of these cases were similar to bacillary dysentery, no Shigella strain isolated.

2. Comparative study of agglutinin titers between the Widal test and the Latex Widal test in sera of twenty-one cases of typhoid fever patients was carried out. The Latex agglutinin titers were mostly higher than the Widal agglutinin titers in both agglutinin titers against Vi-antigen or O-antigen of Salmonella typhi. (Table 2)

3. Influences of three solutions (0.5% saline, 0.85% saline, glycine saline buffer Difco) and Latex solution upon agglutinin titer of rabbit anti-Salmonella typhi serum and antigenicity of O-antigen of Salmonella typhi were studied.

It was clarified that glycine saline buffer Difco is most suitable to detection of O-agglutinin of anti-O serum. (Table 3)

4. Horie reported at the meeting of Society of Japanese Virologists 1962 that isolation and differentiation of entero-viruses were demonstrated using his four tissue culture cells.

He pointed out regular occurrences of cytopathic effects of entero-viruses in four cell lines as shown in Table 4.

Monolayer cultures of these tissue culture cells were grown in growth medium consisted of 0.1% yeast extract, 0.5% lactalbumin hydrolysate in Earle solution with 20% calf serum.

Our trial for detecting entero-virus from feces and rectal mucus of suspected ten cases using Horie's four cells fell through.

Table 1. Agglutinin titers of serum and mucus against O-antigen and H-antigen of entero-bacilli isolated from feces of acute gastro-enteritis patients

No.	Entero-bacilli isolated	Week of illness	Material	Agglutinin titer against O-antigen	Agglutinin titer against H-antigen
1	Morganella	3	serum	< 20	< 20
			mucus	< 20	< 20
2	A. liquefaciens	3	serum	< 20	< 20
			mucus	< 20	< 20
3	Escherichia coli	3	serum	< 20	< 20
			mucus	< 20	< 20
4	Escherichia coli	3	serum	< 20	40
			mucus	< 20	< 20
5	Escherichia coli	2	serum	< 20	< 20
			mucus	< 20	< 20
6	Escherichia coli	2	serum	< 20	< 20
			mucus	< 20	< 20

Table 2. Comparative study of the Widal test and the Latex Widal test in sera of typhoid fever patients

Widal test antigen	Agglutinin titer	Widal test	Latex Widal test
Vi-antigen	< 10 x	6	5
	10 x	6	6
	20 x	3	2
	40 x	6	7
	80 x	0	1
O-antigen of Salmonella typhi	< 40 x	1	2
	40 x	4	1
	80 x	8	4
	160 x	6	9
	320 x	2	5

Table 3. Influences of three saline solutions and Latex solution upon agglutinin titer of rabbit anti-O 901 serum and antigenicity of Salmonella typhi

Saline solution for diluent of rabbit anti-O 901 serum	Saline solution for diluent of O 901 strain concentration of 1 mg per 1 ml	Latex suspension (10x) 0.1 ml to 10 ml antigen solution	Agglutinin titer
0.5%	0.5%	-	5120 x
0.5%	0.5%	+	5120 x
0.5%	0.85%	-	5120 x
0.5%	0.85%	+	5120 x
0.5%	G.S.B.	-	5120 x
0.5%	G.S.B.	+	10240 x
0.85%	0.5%	-	2560 x
0.85%	0.5%	+	5120 x
0.85%	0.85%	-	5120 x
0.85%	0.85%	+	5120 x
0.85%	G.S.B.	-	10240 x
0.85%	G.S.B.	+	10240 x
G.S.B.	0.5%	-	10240 x
G.S.B.	0.5%	+	10240 x
G.S.B.	0.85%	-	10240 x
G.S.B.	0.85%	+	10240 x
G.S.B.	G.S.B.	-	10240 x
G.S.B.	G.S.B.	+	10240 x

* Agglutination was observed after incubation for 90 M. at 50 C and centrifugation for 5 M. at 2500 r.p.m.
* G.S.B. Glycine saline buffer Difco

Table 4. Regular occurrences of cytopathic effects of entero-viruses in Horie's four tissue culture cells

Tissue culture cell	Polio-virus	Coxsackie-virus	ECHO-virus
FL-17-M	CPE	CPE	CPE
1035-1	-	CPE	CPE
E 10	-	CPE	-
E 38	CPE	CPE	-

* CPE cytopathic effect