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### SUBJECT OF INVESTIGATION

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

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BACTERIOLOGICAL, IMMUNOLOGICAL AND  
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ENTERIC INFECTIONS  
(SHIGELLOSIS, SALMONELLOSIS, PATHO-  
GENIC COLI INFECTIONS AND VIRAL  
ENTERIC INFECTIONS)

Serological findings on serum and rectal mucus in bacillary dysentery patients obtained during the period of 1 January through 31 March 1962 are as follows:

1. Hem-agglutinin titers of serum and mucus

Hem-agglutinin titration of serum and rectal mucus was carried out using human O-type trypsinized erythrocytes. A *Shigella* suspension in physiological saline in the concentration of 5 mg/ml was heated at 100 C for 60 minutes and the supernatant fluid, after being centrifuged at 4000 r. p. m. for 30 minutes, was used as an antigen for the hem-agglutination test.

a. In *Shigella flexneri* 2a infected cases the agglutinin titers and the hem-agglutinin titers of serum and mucus were compared. Both in serum and mucus the hem agglutinin titers were mostly higher than the agglutinin titers.

(Table 1)

b. It was demonstrated that the hem-agglutinin titers of serum and mucus in *Shigella sonnei* infected cases were generally lower than those in other *Shigella* infected cases.

c. In cases in which *Shigella* excretion persisted over three weeks, the peak of the hem-agglutinin titers were reached mostly in the third or fifth week of illness. But in cases in which *Shigella* excretion stopped within the first or second week of illness the highest hem-agglutinin titers were attained in the second or fourth week of illness. From these data it was assumed that the hem-agglutinin titer might be closely associated with the excretion of dysentery bacilli. (Table 2 )

d. As far as the antigenicity of *Shigellae* as observed in the agglutination test as well as the hem-agglutination test is concerned, there seems to be no significant difference between the strains sensitive to antibiotics and those resistant to them.

Table 1

Dilution	Agglutinin titer	Hem-agglutinin titer	Agglutinin titer	Hem-agglutinin titer
1280 X				1
640		1		3
320		1		3
160		5	2	1
80	6	15	4	2
40	10	1	6	3
<40	7		11	10
Serum			Mucus	

\*Data from 23 cases with *Shigella flexneri* 2a infection

Table 2

Duration until <i>Shigella</i> excretion stopped	Material	Week of illness hem-agglutinin titer reached peak			
		Second week	Third week	Fourth week	Fifth week
Within 1 weeks	Serum	3	8	4	0
	Mucus	5	8	4	0
Within 2 weeks	Serum	1	2	2	0
	Mucus	1	2	2	0
Within 3 weeks	Serum	0	1	1	1
	Mucus	0	2	0	0
Over 3 weeks	Serum	0	0	4	1
	Mucus	0	0	4	1