

6800

### An Entero Depressant Factor in Stools of Monkeys Infected with Experimental Poliomyelitis.

JOHN A. TOOMEY AND WOLFGANG F. VON OETTINGEN.

*From the Departments of Pediatrics and Pharmacology, Western Reserve University, and the Division of Contagious Diseases, City Hospital, Cleveland.*

Previously, one of the authors (J. A. T.) had demonstrated what was thought to be a toxic factor in the stools of patients ill with poliomyelitis.<sup>1</sup> Was this factor also present in animals experimentally infected with poliomyelitis virus?

Stool specimens were first collected from 10 *Macacus rhesus* monkeys, and the animals were then injected, under complete anesthesia, intracerebrally with potent poliomyelitis virus. Stools were again collected after poliomyelitis had set in. The specimens of feces were dried *in vacuo*, weighed, ground and enough normal saline solution was added to the powdered feces to make a 10 to 20% suspension. This was then passed through a linen cloth to remove gross particles and debris.

Young rabbits weighing 1 to 1½ pounds were etherized, the spinal cord and connections were severed in the region of the tenth thoracic segment, an opening was made, under complete anesthesia, into the peritoneal cavity as described by Sollmann,<sup>2</sup> the intestines were exposed, a cannula connected with a Marriotte bottle attached to the small intestine about 6 inches from the ileocecal valve and the material was introduced into the lumen of the intestine in quantities of 10 cc. This procedure gave a partial spinal animal with nerves and blood vessels intact as far as the piece of gut experimented upon was concerned. The pouch was filled with liquid paraffine at 38°C. The intestinal activity was recorded by a lever connected with the intestinal wall by a silk thread attached to a serrefine.

Ten of the 10 stool suspensions obtained before the injection of the poliomyelitis virus acted as irritants and caused an increase in the number and strength of peristaltic waves. One of the injected animals did not contract poliomyelitis. Every stool suspension obtained from the 9 remaining animals either a few days after paralysis or at postmortem depressed the intestine. This intestinal de-

---

<sup>1</sup> Toomey, John A., *J. Prev. Med.*, 1932, **6**, 379.

<sup>2</sup> Sollmann, Torald, *Am. J. Physiol.*, 1923, **68**, 395.

pression was so complete in 8 of the 9 specimens experimented with, that barium chloride, even in solutions of 1/1000, had no effect on the intestine.

Two per cent suspensions of fresh poliomyelitis virus in normal saline solution also caused the same depressant action on the intestines of each of the 6 animals tested.

## 6801

### Agglutinin Titer Value Changes in Blood Serums of Monkeys Experimentally Infected with Poliomyelitis Virus.\*

JOHN A. TOOMEY.

*From the Department of Pediatrics, Western Reserve University, and the Division of Contagious Diseases, City Hospital, Cleveland, Ohio.*

Blood serum of human beings convalescent from poliomyelitis has a higher agglutinin antibody titer for various enteric organisms than has human serum that is taken from the same patient at the onset of the illness.<sup>1</sup> Was this increased titer found in convalescence a new acquisition and the titer found at the height of the disease the normal titer level, or was the titer in convalescence merely a return to a normal level after a temporary decrease that occurred at the height of the disease?

The normal blood serums of twelve 4 to 8 pound *Macacus rhesus* monkeys were tested and found to be rarely higher than 1:80 in agglutinin titer for the several enteric organisms used (*B. typhoid*, paratyphoid A and B and various *B. coli* organisms). The monkeys were then injected with a mixed vaccine of killed typho-coliparatyphoid organisms in increasing doses together with a mixture of toxins produced by growing the various organisms in broth for 10 days. These injections were given in small doses at intervals of from 4 to 7 days for a period of about 42 days.

After a rest interval, the blood serums were tested and were found to have an agglutinin titer of 1:640 at least and occasionally a titer of 1:2560 for the various enteric organisms used.

The animals were then injected intracerebrally with virulent poliomyelitis virus. It was found that with the advent of paralysis in the

---

\* Expenses Defrayed in Part by a Grant from the Marion R. Spellman Fund, The Cleveland Foundation.

<sup>1</sup> Toomey, John A., in preparation.