

UNCLASSIFIED

AD 4 3 9 3 0 6

DEFENSE DOCUMENTATION CENTER

FOR

SCIENTIFIC AND TECHNICAL INFORMATION

CAMERON STATION, ALEXANDRIA, VIRGINIA



UNCLASSIFIED

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

64-13

J-146

(Handwritten mark)

SEMIANNUAL

REPORT ON

GRANT

~~CONTRACT~~ NO DA DA-CRD-AG-S92-544-63-G7

INCLUSIVE DATES 27 March 1963 TO 26 September 1963

439306

SUBJECT OF INVESTIGATION

The Study
on
the Pathogenesis
of
Bacillary Dysentery

RESPONSIBLE INVESTIGATOR

Dr. Kazumine Kobari M. D.

Chief

2nd Section of Infectious Diseases
Tokyo Municipal Komagome Hospital

U.S. Army Research & Development Group (9984) (Far East)

Office of the Chief of Research and Development

United States Army

APO 343

4 3 9 3 0 6

CATALOGED BY DCC

AS FILED

D-I-S-T-R-I-B-U-T-I-O-N

The distribution of this report as made by USA R&D Gp (FE)
is as follows:

Army Research Office, 3045 Columbia Pike Arlington, (h)
Virginia. 22204. ATTN: Chief, Research Programs Office

Army Attache, American Embassy, Tokyo, Japan (1)

~~U. S. Army Medical Research and Development Command, (-)~~
Washington, D. C. 20315

~~Defense Documentation Center, Cameron Station, (-)~~
Alexandria, Virginia. ATT: TISIA-2

Office of Primary Scientific Liaison (h)✓
Chief, Special Projects Branch
Life Sciences Division,
Army Research Office,
3045 Columbia Pike
Arlington, Virginia 22204

Offices of Scientific Cognizance (2)
U.S. Army Medical Research & Development Command
ATTN: Chief, Preventive Medicine Research Branch, 0733
Washington, D. C. 20315

It would be considered that the comparison of certain disease and others which reveal similar or common symptoms may be sometimes an important key to clarify the pathogenesis of the disease.

One of characteristic symptoms of the bacillary dysentery is diarrhea with bloody stools. There are found some kinds of diseases of which main symptom is diarrhea with bloody stools, in which the bacillary dysentery is included. It is not rarely in Japan, that patients of not bacillary dysentery have been diagnosed as bacillary dysentery, only by the reason that the patient has had diarrhea with bloody stool. It would be presumed to be significant in order to clarify the pathogenesis of the bacillary dysentery, that clinical observation and patho-physiological investigation of such diseases are tried in comparison to those of the bacillary dysentery.

In the report, attempts to compare clinical pictures and patho-physiological findings of these diseases and the bacillary dysentery will be carried out. Helminthic diseases such as Schistosomiasis and Strongyloidiasis, protozoal infections such as Amebiasis, and bacterial infections such as Salmonellosis and pathogenic Escherichia coli infection, belong to the group of the diseases. Besides, in the recent years, some kinds of halophilic bacteria have been noted as new agent of intestinal infection which reveals dysentery-like symptom. There have been not few cases of infection by halophilic bacteria, which were admitted to isolation hospital as patients with bacillary dysentery. It is believed the comparison of the infection by halophilic bacteria and the bacillary dysentery has an important significance not for the solution of the dysentery problem in Japan, but for the comprehension of the pathogenesis of bacillary dysentery.

In the paper, a case following by infection of halophilic bacteria is demonstrated, and comparative study with the bacillary dysentery is tried.

CASE: 37 years, male

PRESENT ILLNESS:

The patient drunk a few liters of beer and ate pieces of sausage and dried fish at a small party of the evening of 18th of July 1963. He went to sleep at 11 30 PM. He awake 1 AM 19th of July, owing to severe abdominal cramp, and he excreted large amount of loosy, undigested stools. From the onset to 3 AM, he had 6 times diarrhea, of which stool character was yellow brown and almost watery. At the same time, nausea appeared and he vomited several times.

He was admitted to Komagome Hospital at 3 AM of the 19th July.

HOSPITAL COURSE:

On admission, he had a temperature of 38°C and his pulse rate was 98. Color of face appeared a little pale, but no cyanosis recognized. Tongue and skin were dried. The patient was moderately dehydrated. Soon after admission, a liter of Ringer's solution and 5% glucose solution was given intravenously and 1 Gram Chloramphenicol was intramuscularly injected. After admission, he had a few times diarrhea, of which stool consisted of mainly blood and mucus. He complained of severe thirst and abdominal cramp, and he had no appetite.

Afternoon of the 19th, general findings much improved rapidly; namely, fever subsided, abdominal pain and diarrhea disappeared and appetite recovered.

The next morning, he recovered markedly, had neither complain nor diarrhea, and he had almost normal appetite.

He became almost quite well within 2 days, and he was discharged on the 5th day of illness. His chart is indicated in Figure A.

BACTERIOLOGICAL EXAMINATION:

The bacteriological examinations were carried out on stools of the 1st day of illness, using SS agar, B.T.B. agar and pepton water including 4%, 7% and 10% NaCl. After over night incubation, neither

Shigella, nor Salmonella, nor pathogenic Escherichia coli was detected; however, marked turbidity was recognized on 4% NaCl including pepton water. A kind of halophilic bacteria was detected from the pepton water.

PROPERTY of the BACTERIA:

Gram negative rods

Motility +

M. R. +

V. P. -

Production of H₂S -

Liquefaction of Gelatin +

Fermentation of

Arabinose -

Xylose -

Adonit -

Rhamnose -

Glucose +

Galactose +

Mannose +

Fructose +

Sucrose -

Maltose +

Lactose -

Trehalose +

Salicin -

Raffinose -

Dextrin +

Starch +

Inulin -

Glycogen +

SEROLOGICAL CLASSIFICATION:

The group of pathogenic halophilic bacteria was classified into over than 12 types according to O-antigen. The bacteria of this case belong to O-type 2.

ANTIBIOTIC-SENSITIVITY:

Minimum Growth Inhibition Concentration (mcg/ml)

Chloramphenicol	less than 1.56 mcg/ml
Tetracyclin	6.25
Erythromycin	3.12
Kanamycin	50.0
Streptomycin	50.0
Penicillin	over than 100

DISCUSSION:

Onset and symptoms of the infection following by halophilic bacteria are similar to those of foodpoisoning by infection of Salmonella rather than to those of the bacillary dysentery, except diarrhea with bloody stools, which is rarely seen in Salmonellosis, but characteristic for the bacillary dysentery. However, the appearance of bloody stools in the infection by halophilic bacteria is somewhat different from that seen in the bacillary dysentery. During the acme of the latter, stools consist of pus, mucus and blood. The amount of pus is usually larger than that of blood; color of blood is fresh red. In stools of the former, on the contrary, pus is scarcely seen and color of blood is partially dark red including coagulated blood.

The sigmoidoscopical examinations could find no pathological changes in the mucuous membrane of the rectum and sigmoid of patients with halophilic bacteria infection.

It could be assumed from these facts, that blood in stools of patients with halophilic bacteria infection may result from the small intestine, and lesions may occur mainly in the small intestine, not in the large bowel.

It was confirmed by the recent bacteriological works, that the halophilic bacteria belongs to the species of vibrio. However, clinical picture of the infection by this vibrio is not similar to that of the infection by cholera vibrio, but common partially with that of the bacillary dysentery. The cause of the discrepancy between clinical feature and kind of microorganisms is not clear. It is believed to be necessary in order to solve the problem now intestinal infections may occur, the comparative study will be carried out clinically and microbiologically on these infections. In the next report, not only the comparison of clinical observations and character of microorganisms, but histo-pathological findings will be mentioned.

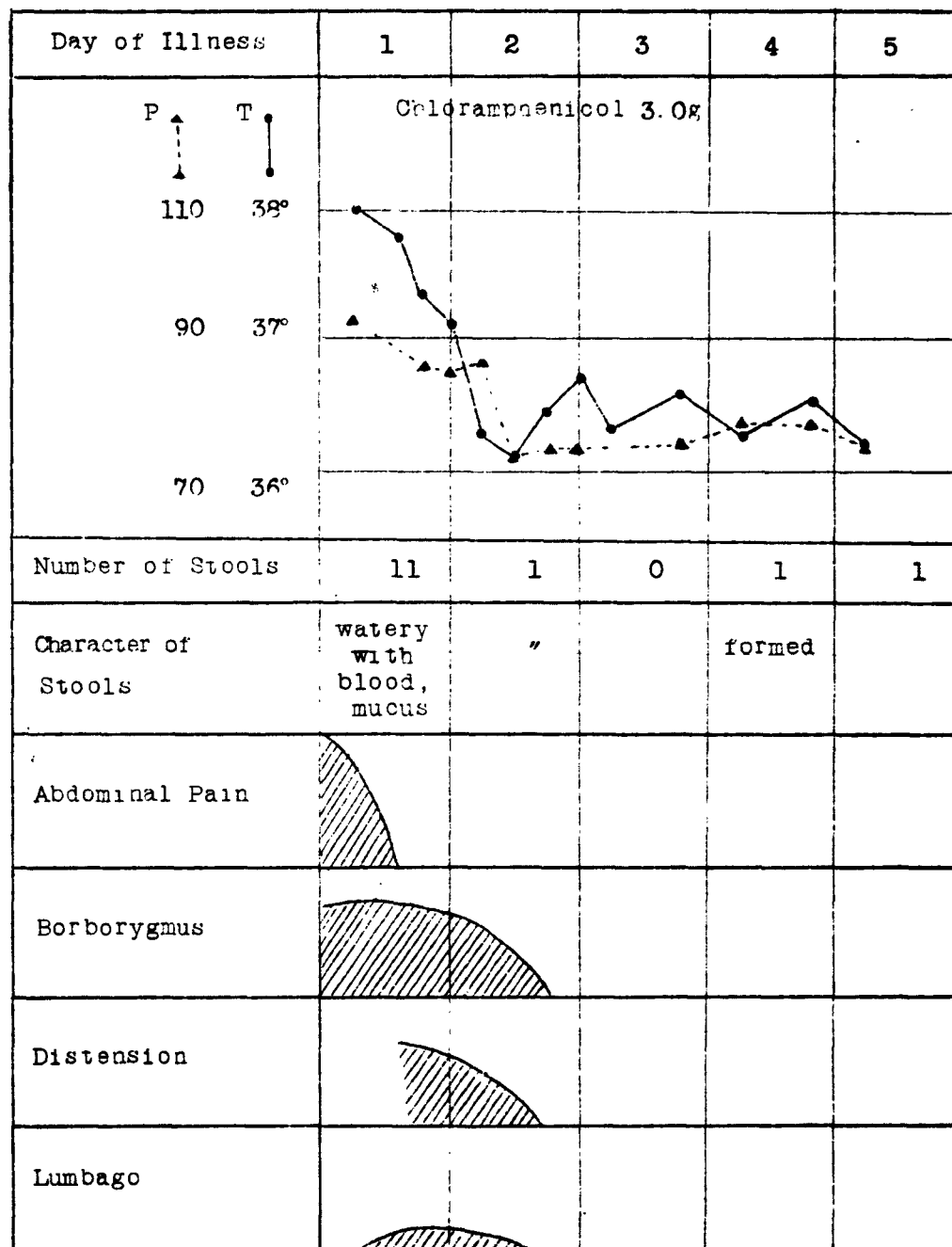


Fig. A