

Clinical and other Notes.

A CASE OF CONTINUED FEVER DUE TO BACILLUS ENTERITIDIS GÄRTNER COINCIDENT WITH A GUNSHOT WOUND OF THE CHEST.

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No. 48489, Pte. "M," 1st Manchester Regiment, was admitted to the surgical division on August 19, 1920, on account of a gunshot wound of the chest received in an ambush a few hours previously.

The entrance wound was situated on the left side at the angle of the seventh rib, there was no exit wound. There was a slight hæmoptysis a few hours after admission. During the succeeding week the temperature continued between 100° F. and 102° F. and, as there was definite consolidation of the base of the left lung, the patient was transferred to the medical division on August 28, 1920.

August 28, 1920: Patient looked decidedly ill, anæmic and somnolent, complained of pain in the chest, respiration hurried and shallow, 40 per minute, cough troublesome, sputum scanty, purulent but not blood stained, pulse 120 per minute, of poor volume and a tendency to be dicrotic, tongue dirty, sordes on lips. Examination of the chest revealed consolidation of the left base, the abdomen was tympanitic, spleen markedly enlarged and could be felt two inches below the costal margin, the liver also was enlarged and palpable an inch beyond the corresponding costal margin. There was no paralysis nor loss of sensation in the lower extremities, reflexes both superficial and deep were normal. X-ray examination showed a fracture of the left seventh rib at about the site of the entrance wound, and a foreign body—metallic—lying on the spine of the seventh dorsal vertebra; no hæmothorax was present. Temperature was then 102° F. but that evening went up to 105° F.

August 30, 1920: Yesterday, a brisk diarrhœa developed, the stools contain some mucus and are very evil smelling. The temperature has continued high, and the patient's general condition is rather disquieting. He is placed on milk diet and stimulant and expectorants ordered.

September 1, 1920: It is now evident that the local lesion in the chest cannot account fully for the peculiar train of symptoms present and other causes are suspected. Blood is negative to malaria and the serum shows standard agglutination units to the following:—

<i>B. typhosus</i>	..	..	..	12
<i>B. paratyphosus</i> A..	..	..	..	30
<i>B. paratyphosus</i> B..	..	..	..	Nil

The inoculation history is somewhat ambiguous as only a temporary medical history sheet is available. The patient states he was inoculated, but he does not know whether it was against enterica or influenza. Temperature has a tendency to descend and the pulse and respiration rates are much improved. The stools are assuming a normal character and are negative to amœbæ and cysts.

September 3, 1920: Clinically the improvement noted in the last minute has been continued, the temperature reached normal yesterday morning. Cultural examination of the fæces shows *B. Morgan* No. 1 and no dysentery bacilli.

September 8, 1920: During the last three days the temperature has been making a somewhat step-ladder ascent and it is evident that a relapse has occurred, the dullness at the base of the left lung is more pronounced and there are signs of fluid being present. Total leucocytes 14,000 per cubic millimetre. Serum standard agglutinin units:—

<i>B. typhosus</i>	12
<i>B. paratyphosus</i> A.. .. .	30
<i>B. paratyphosus</i> B.. .. .	6.5

September 9, 1920: Total leucocyte count to-day is 15,300 per cubic millimetre and the relative count is as follows:—

Polynuclears	60 per cent
Lymphocytes	35 "
Large mononuclears	3 "
Transitionals	1 "
Eosinophiles	1 "

About two ounces of serum was drawn off on aspiration of the chest. Blood is negative to malaria and relapsing fever.

September 10, 1920: During the last three days the chart shows a marked "swing" in the range of temperature which has reached almost normal this morning. Patient is much easier, respiration quieter, yet the pulse rate is still over 100 per minute. Blood has been found negative again both to malaria and relapsing fever. The standard agglutinin units are as follows:—

<i>B. typhosus</i>	12
<i>B. paratyphosus</i> A.. .. .	11
<i>B. paratyphosus</i> B.. .. .	6.5

Fæces negative to amœbæ and cysts.

September 14, 1920: General improvement maintained. Cultural examination of fæces and urine shows, in the former, lactose fermenters absent, in the latter an organism in pure culture (called "X Cork") was obtained and has been plated out on litmus lactose agar.

September 18, 1920: Transparent blue colonies are present on the medium in pure culture. The organism is a Gram-negative motile bacillus and its macroscopic agglutination with high titre sera is thus:—

<i>B. typhosus</i>	Fine clumping
<i>B. paratyphosus</i> A.. .. .	Negative
<i>B. paratyphosus</i> B.. .. .	Very fine agglutination
<i>B. dysentericæ</i> Shiga	Negative
<i>B. dysentericæ</i> Flexner	Negative
<i>B. aertrycke</i> }	Sera not obtainable
<i>B. Gärtner</i> }	

September 16, 1920: The same organism has been recovered again from the urine and is subcultured on agar slopes and put through sugars, etc.

September 17, 1920: The agar growth is confirmed morphologically. The sugar reactions (twenty-four hours) are:—

Lactose	Negative
Glucose	Acid and gas
Mannite	" "
Dulcitate	" "
Litmus milk	Alkaline
Indol	Negative
Gelatine	Not available

September 18, 1920: The sugar reactions are unchanged after forty-eight hours. The patient's serum gives standard agglutination with laboratory organisms as follows:—

Using Dreyer's method:—

<i>B. paratyphosus</i> A	..	..	1 in 40
<i>B. paratyphosus</i> B	..	..	No agglutination
<i>B. aertrycke</i> Newport	..	..	" "
<i>B. enteritidis</i> Gärtner	..	..	1 in 90
<i>B. Morgan</i> No. 1	..	..	No agglutination
<i>B. "X Cork"</i>	..	..	<250 .. <500

The last organism ("X Cork") with high titre sera clumps as follows:—

<i>B. typhosus</i> (1,000)	..	..	Nil
<i>B. paratyphosus</i> A (2,000)	..	..	Nil
<i>B. paratyphosus</i> B (2,000)	..	..	Nil

The laboratory report of this date is as follows: "Organism recovered from patient's urine is one of the Salmonella Group, probably *B. enteritidis* Gärtner, as it corresponds with this bacillus in its morphological and biochemical properties and is not agglutinated by high titre sera of *B. paratyphosus* B. and *B. aertrycke* Newport; it is further probably the causative organism of the patient's condition, as his serum clumps it in dilutions up to and above 1 in 250. The possibility of the patient's being a carrier of the organism cannot be excluded."

September 19, 1920: Patient is now convalescent. He has been questioned regarding his movements and diet previous to his being admitted to hospital, and states that he was then at an out-station, and that the meat supplied was frequently bad (probably maggoty), and that noticing this he never partook of it.

October 18, 1920: Progress since last note has been uneventful, transferred as a convalescent to Military Hospital, Queenstown. Before discharge from the above hospital the urine was proved to be sterile. Additional and confirmatory tests as to the nature of the organisms resulted as follows, reagents having by now been obtained.

Microscopic Agglutination.—High titre sera. "X Cork" with

Gärtner serum (1,000)	..	..	Marked coarse clumping
Aertrycke serum	..	..	Negative

By Dreyer's Method.—"X Cork" agglutinated Gärtner high titre serum (1,000) in all dilution up to "standard pulls" in 1 in 5,000. Gelatine stab no liquefaction up to ten days.

Absorption tests	End point of agglutination titre for <i>B. typhosus</i> , <i>B. enteritidis</i> , "X Cork"			
<i>Gärtner high titre serum</i> —				
Before absorption	1250	6250
Absorbed with Gärtner	<250	<250
Absorbed with "X Cork"	500*	<250
<i>Patient's serum</i> (December 1, 1920)—				
Before absorption	..	100	..	>500
Absorbed with <i>B. typhosus</i>	..	<25	..	500
Absorbed with Gärtner	<25	<25
Absorbed with "X Cork"	..	96	..	>25

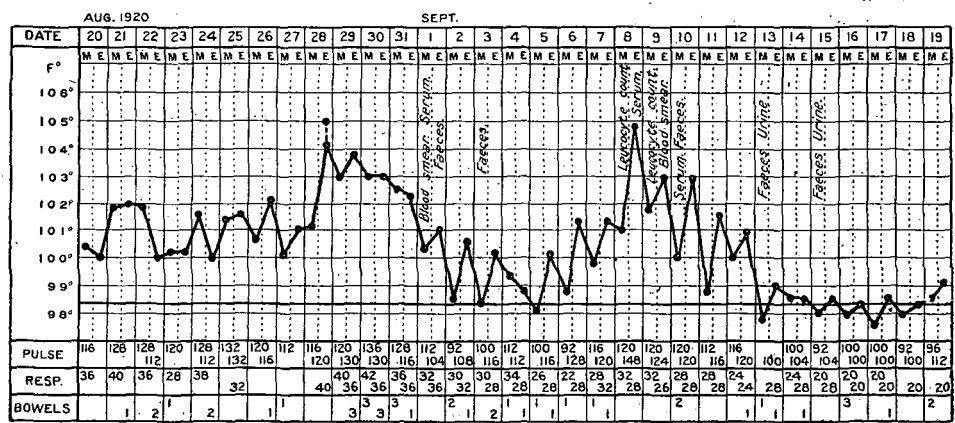
* "X Cork" unaccountably did not remove all the agglutinins for laboratory Gärtner from Gärtner high titre serum (tested twice); it succeeded in doing so from patient's serum; also it removed all agglutinins for Gärtner in tests performed in Lister Institute.

On November 30, 1920, the Curator of the National Collection of Type Cultures, Dr. R. St. John Brooks, who kindly investigated the organism in question, reported as follows: "'X Cork' is a typical *B. enteritidis* Gärtner.

Sugar reactions typical. Agglutination with 'Stokes' Gärtner serum 1600/6400. Absorption, 'X Cork' takes all the agglutination for 'Stokes' Gärtner out of Stokes serum. Investigation conducted by Colonel Harvey, I.M.S. in my laboratory."

Comment.—The diagnosis in our opinion lay between a condition arising from septic infection of the wound, and some generalized infection not connected with the wound and therefore coincident.

Against the first are the following facts: (1) No hæmothorax; (2) the type of the fever; (3) the enlargement of the spleen and liver; (4) the tympanites and at one time the diarrhœa; (5) absence of polynuclear leucocytosis, and (6) the isolation of the *B. enteritidis* Gärtner from the urine in pure culture on two separate occasions. A strong supposition therefore exists that it was a coincident infection and the next question to be decided is, what was its nature? The points in favour of *B. enteritidis* Gärtner are (a) recovery of the organism from the patient's urine; (b) the high agglutination titre of his serum. That the condition was due to an unknown cause and that the patient in addition was a carrier of



B. enteritidis Gärtner is possible but we think unlikely, as the high agglutination titre of the serum seems to favour an acute condition. However, it may be remarked that on December 1, 1920, this high agglutination titre showed no signs of subsiding for either the *B. enteritidis* Gärtner (laboratory) or the patient's own organism ("X Cork"), yet all examinations of urine subsequent to September 18, 1920, showed absence of this bacillus. Additional interest is lent to this case by a somewhat similar one recorded by A. B. Rosher, M.R.C.S., L.R.C.P.Lond., D.P.H., and G. Selbey Watson, M.D., M.R.C.P.Lond., D.P.H., in the *Lancet* of January 1, 1921, under the title of "A Case of Enteric Fever due to *B. enteritidis* Gärtner," in which the authors state that cases of this nature, running a typhoid course are unique and have not hitherto been published. From their patient the *B. enteritidis* Gärtner was not recovered, and the diagnosis was made primarily on the high agglutination titre of the serum. We agree with their diagnosis. We question whether the case should be designated enteric fever. We consider that Pte. M.—suffered from a condition due to the same cause, even though it might be asserted that the wound of the chest was partially or totally responsible for the pyrexia.

Clinical and other Notes

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NOTES ON A CASE OF ACROMEGALY IN A YOUNG SOLDIER.

BY CAPTAIN C. F. BURTON.

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BNDSMN. A. J. W., aged 20. Service, five years three months. Transferred to convalescent depot, Montazah, Egypt, as nephritis, on September 22, 1920.

On Admission.—Patient complained of: (a) Constant dull headache chiefly confined to right frontal and parietal regions, with periodical exacerbations of acute pain referred to right side of neck—duration, two and a half years; (b) "puffiness" of face especially in the mornings—duration, four years; (c) aching pain and "tired feeling" in both calves—duration, six months.

Family History.—No cause to suspect hereditary abnormality of development. Father said to have died of tuberculosis.

Previous Medical History.—(Patient's own statement, no documents available to verify.) Winter cough up to the age of 15 years. Enlisted at the age of 15. Height on enlistment, 5 feet 3½ inches. Date of enlistment, July 10, 1915. Christmas, 1916: Began to feel pain in calves and was told by room-mates that his face was swollen in the mornings. Remembers that his cap seemed to be tighter in the mornings. Did not report sick. Condition continued. June, 1917: Bad headaches, chiefly frontal, and dizziness commenced; reported sick. B.H.T. Winter, 1917: Difficulty in putting on boots in the early morning was noticed. All symptoms continued until September, 1918: Reported sick at Aldershot with headache. A specimen of urine is said to have been examined and found to have been normal. B.H.T. November, 1918: Reported sick again with same symptoms; urine again normal. About this time periodical swelling of feet became so marked that patient was unable to do physical training. September, 1919: Landed in Egypt. Headaches became more severe and constant. Reported sick twice. B.H.T. August, 1920: Admitted to hospital for circumcision; no operation. Ordered glasses by eye specialist whilst in hospital: glasses did not ease headaches. Transferred to convalescent depot, Montazah.

Condition on Transfer.—General appearance: Height, 6 feet 6 inches. Build: Very heavily built youth, well proportioned; head does not appear unusually enlarged; circumference of head at mastoid level, twenty-three inches; supra-orbital bosses marked. Skin: Coarse and rather shiny. Nose: Broad and flat. Ears: Not unduly thickened. Lips: Thickened. Marked puffiness under the eyes. Tongue: Normal. Jaw: Heavy. Teeth: Some separation between lower incisors and bicuspids. Hands: Finger tips extend to middle of thigh in upright position; broad, generally enlarged fingers, comparatively short, swollen and splayed; no clubbing. Feet: Comparatively short but broad; toes swollen and tend towards "hammer toe," great toes enlarged. Oedema: Slight, both legs, over lower third of tibiæ; not apparent elsewhere. Central nervous system: Patient appears depressed; memory and intelligence unimpaired; no spastic or paralytic condition; continual headache over right frontal areas and



FIG. 1.—Bndsmn. W. Acromegaly: Note supra-orbital bosses.



FIG. 2.—Bndsmn. W. Pituitary fossa: lateral view, showing enlargement and arching of post clinoid process.

right parietal areas. Reflexes: Normal, no inco-ordination. Cranial nerves: Of these, the trigeminal only appears to be involved. Eyes: Pupils equal, react to light and accommodation; movements normal. Eye specialist reports that there is no optic neuritis or atrophy and no abnormality except a slight redness of the disk. Circulatory and respiratory systems: Appear normal. Alimentary system: Appetite unimpaired, periodical dyspepsia, bowels act regularly. Urinary system: No history of specific disease. Urine: Reaction, acid; specific gravity, 1030; no albumin, blood casts or other abnormality found on three examinations.

X-ray Examinations.—(a) Head: Frontal sinus abnormally large; supra-orbital bosses due to this enlargement.

(b) Pituitary fossa: Enlarged; posterior clinoid process arching well over the dorsum sellæ (fig. 2). The fossa is enlarged to about two and a half times the normal size.

(c) Sphenoidal sinus: Less extensive than in normal case. Measurements of pituitary fossa by localization. Normal: Antero-posterior, $\frac{5}{16}$ of an inch; Bndsmn. A. J. W., $\frac{3}{4}$ of an inch.

(d) Hands: No mushrooming of bones of digits. General enlargement present, particularly of proximal phalanges.

Summary.—The case is of interest in comparison with that described by Captain Thompson, because of:—

- (1) The comparative early age incidence.
- (2) The insidious onset.
- (3) The absence of ocular symptoms or signs.
- (4) The undue enlargement of the frontal sinus.
- (5) The superficial similarity to nephritis.

From a general impression of the case it appears that it is one of simple hypertrophy of the pituitary gland with involvement of the cranial nerve from lateral pressure.

A DUGOUT STEAM DISINFECTOR.

BY LIEUTENANT-COLONEL P. H. HENDERSON.

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THE disinfector depicted in the accompanying sketches was used with success in the Balkans by units of the 27th Division, during the years 1917-18.

It was originally devised to overcome the difficulties met with in transporting the Thresh, and Serbian barrels, which formed the authorized appliances for carrying out disinfection in the Division. Each battalion and unit of similar size was allotted four Serbian barrels, but, owing to lack of suitable roads and transport, these were frequently left behind.

The importance of keeping the troops free from vermin was impressed on all concerned, and the risks of spreading dysentery and other infectious diseases met with in Macedonia were fully realized. The necessity therefore arose of improvising a reliable disinfector and which could be readily and quickly made by any unit from materials available in all parts of the country, and the contrivance depicted below was the result. The notes on the sketches explain the construction. The lid, which is omitted from the sketches, is made of wood