Operation.

A mass of adhesions were found about the pylorus, preventing any investigation of this region. The gastro-enterostomy stoma was in good order, with no thickening or sign of ulceration; the efferent loop was dilated and hypertrophied, and about three inches from the stoma the jejunum and transverse colon were intimately adherent, this evidently being the site of the fistula, a fact which was confirmed by opening the jejunum distal to the adherent portion and introducing a finger, which passed through the fistula into the colon. Separation of the two pieces of gut, which were greatly thickened at the site of apposition, was carried out with some difficulty, and after being effected the hard edges of the old ulcerated areas were excised, and the openings into the two pieces of gut were closed by means of two layers of catgut stitches, without noticeable lessening of the lumen in either case. As an additional precaution an omental graft was applied to each suture line. The abdomen was then closed.

His condition was precarious for forty-eight hours, after which time he made a rapid recovery; the vomiting ceased immediately after operation, and the diarrhoea, although troublesome for about a fortnight, eventually entirely subsided. He was kept in bed for a month, during which time he gained weight steadily, and on discharge on June 20th weighed 7 st. 6 lb., a gain of 15 lb. since admission. He returned to the care of Dr. Shephard, of Sheerness, who reported that in August, 1921, his weight was 9 st. 10 lb., and that his abdominal condition was quite satisfactory, as it is now in January, 1922.

Conclusions.

1. It seems probable in this case that the causative factor for ulcer formation was some abnormality of the gastric juice.
2. The gastro-enterostomy performed in 1914 allowed the original ulcer to heal, but a persistence of, or a recrudescence of, the abnormality of the gastric juice caused the formation of a second ulcer.
3. The second ulcer healed after complete diversion of the stream of gastric contents by division of the pylorus; but
4. As a result of this proceeding, and in spite of dietetic and medical treatment, a jejunal ulcer formed from the same causative factor, aided by a dietetic error.
5. The jejunal ulcer was of an acute type, as it is remarkable that no symptoms of jejunal ulceration were noted until the fistula was established.

A SEROLOGICAL INVESTIGATION OF ORIENTAL SORE.

BY

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DURING the last three years a number of cases of oriental sore attended Queen Alexandra Military Hospital for diagnosis and treatment. Most of the cases had multiple sores either of the ulcerative or non-ulcerative type, and in many of the cases both types of sores coexisted. For the reason that the sores were found on exposed parts of the body they frequently presented a more or less symmetrical distribution, which characteristic, coupled with their chronicity, often suggested the question of syphilis. In the majority of cases of oriental sore the clinical history and the finding by the microscope of Leishman-Donovan bodies quickly decide the diagnosis. But in some cases, more particularly those of the ulcerative type where Leishman-Donovan bodies cannot be found, the question of diagnosis between syphilis and oriental sore becomes one of great importance and very great difficulty. And this difficulty may be enhanced in some cases by the occurrence of a solitary sore involving such a situation as the lip or eyelid.

The diagnosis of oriental sore from syphilis has been hampered by writers on tropical diseases stating that the blood in some cases of oriental sore has been found to give a positive Wassermann reaction. Professor Hewlett,¹ for instance, in his well-known *Manual of Bacteriology*, writes: "The reaction (W.R.) is not confined to syphilis. It may also be obtained (with the antigen employed for syphilis) in leishmaniasis." Stitt² states that "Rabello noted that a positive Wassermann may be present in cutaneous leishmaniasis." Daniels,³ and Castellani and Chambers,⁴ while recognizing the difficulty of differentiating oriental sore from syphilis, fail to mention the Wassermann test as an aid to the diagnosis. The same may be said of Manson.⁵ In Daniels's work on *Tropical Medicine* we read: "Syphilis is the disease for which oriental sore is most likely to be mistaken. The

absence of the other symptoms of syphilis and the failure of antisyphilitic treatment should enable a correct diagnosis to be made." Castellani and Chambers write: "The only way to come to a definite diagnosis in difficult cases is the microscopical examination." From these quotations it may be legitimately concluded that a great deal of doubt exists as to the value of the Wassermann reaction as a clinical test for the differential diagnosis of oriental sore from syphilis.

Influenced by these considerations I examined the blood of 28 cases of oriental sore by the complement fixation test according to the Wassermann technique used at the Military Hospital, Rochester Row. In 27 of the cases the diagnosis was established by the microscopic findings of Leishman-Donovan bodies. In one case of the series no Leishman-Donovan bodies were found. This case presented many old cicatrices on both legs and arms, which, from their clinical history and position, were obviously the result of oriental sores.

Of the 28 cases examined by the Wassermann test only one case gave a positive reaction. This case had points of clinical interest which helped to establish the fact that a positive Wassermann reaction is practically never found in oriental sore without concomitant syphilis. The case which proved the exception to the rule was one with an ulcerated oriental sore on the left cheek. Leishman-Donovan bodies were found. The skin on the outer side of the sore presented an irregularly raised dry scaly appearance, not unlike a chronic eczema of the beard, and prevented shaving. This condition of the skin was at first thought to be part of the ulcerated oriental sore, and would most likely clear up after the intravenous injections of sodii antimonial tartrate solution, the line of treatment pursued. In this, however, we were disappointed. The sore on the cheek healed, and the Leishman-Donovan bodies could no longer be found, but the condition of the skin posterior to the sore remained unchanged. The patient's blood was then submitted to the Wassermann test and found strongly positive. A few intravenous injections of "914" with mercurial treatment quickly brought the skin to a satisfactory condition, and confirmed the diagnosis of concomitant syphilis, and further anti-syphilitic treatment changed the Wassermann reaction from a strong positive to a negative.

Although these twenty-eight cases may be considered a small number to dogmatize on, I may be permitted to point out the following facts:

1. The series includes cases in all stages of the disease.
2. All the cases, except the one mentioned with multiple scars, were diagnosed definitely oriental sore by the microscopic findings of Leishman-Donovan bodies.
3. The blood serums from all the cases were examined independently by the Wassermann test at Rochester Row Military Hospital, London.
4. The findings of the Wassermann reaction were negative in all the cases examined except the one recorded with concomitant syphilis.

From these facts it may be confidently concluded that, in the absence of concomitant syphilis, the Wassermann test never gives a positive reaction in cases of oriental sore.

REFERENCES.

- ¹ Hewlett, *Manual of Bacteriology*, seventh edition, 1921, p. 608. ² Stitt, *Diagnostics and Treatment of Tropical Diseases*, third edition, 1919, p. 164. ³ Daniels, *Tropical Medicine and Hygiene*, Part I, 1913, p. 181. ⁴ Castellani and Chambers, *Tropical Diseases*, third edition, 1921, p. 2173. ⁵ Manson's *Tropical Diseases*, seventh edition, 1921, p. 165.

TREATMENT OF RAT-BITE FEVER WITH NOVARSENOBILLON.

BY

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THE following case presents several points of interest. The severe inflammatory symptoms and fever commenced four days after the bite, whereas the incubation period is usually said to be five weeks to two months. The patient suffered from relapsing fever with intervals of three days. The Wassermann test was at first strongly positive, but became negative after the disappearance of all signs and symptoms which immediately follow the injection of 0.2 gram of novarsenobillon.

A haviidar was admitted to hospital on August 30th, 1921, with the history of having been bitten by a rat on the right forearm fifteen days previously whilst on leave. Five hours after the bite

he went to the local civil hospital, and the bite was cauterized with what appears from his account to have been silver nitrate. Three days later he returned to Secunderabad, felt quite well, and had no local pain.

On the fourth day he had fever, swelling of the forearm, with pain and tenderness around the bite. For the next ten days he was "excused duty," and attended the medical inspection room for treatment with hot fomentations. There is no record of attacks of fever during this period, but the symptoms did not improve nor the inflammation subside.

On the fifteenth day after the bite he was sent to the Indian Station Hospital for admission. The temperature was then 101°. The right forearm showed general swelling, with a localized brawny infiltration around a shallow ulcer about the size of a sixpence. The blood film revealed no malaria parasites or spirilla. The epitrochlear gland of the right arm was enlarged and tender, but the axillary glands were not affected. No rash or urticarial lesions were noted. Fever continued for four days, but was never higher than 101°. On the fifth day after admission the temperature was normal, and continued normal for three days. Blood was taken for Wassermann test; scraping of ulcer found negative to organisms of streptothrix type.

On the eighth day after admission the temperature again rose to 102°, and the inflammation showed no improvement.

On September 8th, 1921, ten days after admission, or twenty-fifth day after the bite, 0.2 gram of novarsenobillon was injected intravenously in 10 c.cm. of sterilized double distilled water. The following morning the temperature was 99°, and in the evening normal; there has been no recurrence.

Four days later all signs of inflammation had completely disappeared, and the patient was quite well. The Wassermann test of blood before the injection of novarsenobillon was strongly positive; twelve days after the injection it was negative.

In the literature at my disposal I have been unable to find any record of a positive Wassermann reaction in association with rat-bite fever, but I am informed that a positive reaction has been recorded twice previously.¹

In my case, as the Wassermann reaction became negative after what was virtually a provocative dose of novarsenobillon, it appears unlikely that the positive result was due to a syphilitic infection; furthermore, the patient had no history, symptoms, or signs of specific disease.

My thanks are due to Lieut.-Colonel W. D. A. Keys, C.I.E., I.M.S., for permission to publish the note on this case.

REFERENCES.

¹ Costa and Troisier, *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, June 14th, 1918, Nos. 21, 22, pp. 615-621; Low and Cockin, *BRITISH MEDICAL JOURNAL*, February 16th, 1918, p. 203.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

ARTHRITIS DEFORMANS AS A DEFICIENCY DISEASE.

OSTEO-ARTHRITIS, or arthritis deformans, has always been the subject of much speculation regarding its true pathology, and at the present moment many different theories are advanced respecting the proper classification of the disease. Its etiology also seems obscured in its origin. While the multiple arthritis frequently associated with some deformity in children can, like acute rheumatism, usually be said to be related to some blood infection, the chronic arthritis occurring chiefly in adult or middle-aged women, less often in young adolescents and men in middle life, does not to my mind seem to come under the category of an infection. There is a tendency to believe that this type of chronic rheumatism among civilized communities is on the increase, unfortunately without any specific curative remedy; all that can be done is to check it from getting worse; but when once developed, though there may be periods of rest in the stage of onset, yet eventually the progressive nature of the malady asserts itself, rendering the sufferer sooner or later a hopeless cripple.

From many years' experience of treatment of these disappointing cases, and comparing them with types of diseases connected with improper feeding, I am of opinion that the condition is connected with the class of deficiency diseases. Arthritis deformans is frequent in women of the poorer classes, who rarely have a properly selected meal, living, as they say, "on anything" in the house, usually bread and margarine with tea, their husbands being at work and having their meals away; thus these women are depriving the metabolism of those essential salts necessary to a healthy existence, and the mineral salts contained in the bones are dissolved out into the poorly nourished blood and tissues with

low mineral content, leaving the bones in the eroded deformed condition so well known in the later stages of the disease; but at the early stage, of course, this erosion is not evident, only the gradual molecular destruction productive of pain in the joint.

One of the chief reasons which has induced me to associate arthritis deformans with deficiency disease is the fact that its occurrence is most often in that class of patient who for years have lived upon an improperly selected diet; granted that it is found among better class people who can have a proper diet, yet if the food of these cases were analysed over a period of years a deficiency of some kind would be found. Apparently, when the tissues become unstable it is impossible to say whether the salt-dissolving properties of the fluids of the body or the calcium salts of the bone itself are less easily retained; but nevertheless the process once started becomes progressive, with the results described.

Another point of some significance bearing upon the above is the water supply. I happened to have a knowledge of two districts, one where the supply was hard water containing a large amount of both temporary and permanent salts; here the amount of osteo-arthritis was very little. In the other district, where the water was soft, with little or no temporary hardness and very little permanent hardness, the cases of osteo-arthritis were much more numerous.

Of course, my experience is very limited, but it would be interesting to know if in other places the difference has been observed. We may, in the last district, quite well conceive that the intake of fluids deficient in salts, and food likewise poor in this respect, the fluids of the body, being low in mineral content, dissolve from the bones the salts necessary for their stability, thus producing the disease of osteitis deformans.

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RESUSCITATION AFTER APPARENT DEATH.

IN view of the case reported in the *BRITISH MEDICAL JOURNAL* by Mr. G. R. A. Armstrong (January 28th, 1922, p. 141) the following notes may be of interest:

A boy, aged 15 years, was admitted to the Manchester Royal Infirmary suffering from a right-sided empyema. His general condition appeared satisfactory and operation was carried out shortly after his admission.

The patient was anaesthetized with the usual A.C.E. mixture and the operation commenced at 6.20 p.m. Five minutes later, when the periosteum was being separated from the rib, it was found that both respiration and the heart beat had ceased. The pupils were widely dilated, the patient was a deathly pallor and appeared to all intents dead. Artificial respiration was instituted and the head lowered, but met with no response.

At 6.33 p.m. the abdomen was opened through the left rectus muscle and bimanual cardiac massage carried out; at the same time an injection of 1 in 1,000 adrenaline was made into the heart, artificial respiration being continued meanwhile. At 6.40 p.m., fifteen minutes after it had ceased to beat, the cardiac rhythm restarted with slow strong beats. The massage was discontinued and the heart beat ceased immediately, but restarted when massage was resumed and then became automatic. Voluntary respiration started ten minutes later, the corneal reflex returned, and the operation was rapidly completed. About one hour later generalized convulsions appeared at intervals of two minutes, and these increased in frequency until at midnight they came on with every second breath. Nothing appeared to control them; the pulse became more rapid and weaker until 1.30 a.m., when the patient died.

A post-mortem examination on the following day showed that, apart from the chest condition, the organs appeared healthy. There was no bleeding into the pericardium along the puncture track. Microscopic examination of the brain showed no demonstrable lesion in the cells of the cerebral cortex.

We find, therefore, in this case that automatic action of the heart was stopped for fifteen minutes. Animation was suspended for a similar period, but ultimately signs of cerebral irritation supervened, as the result of cerebral anaemia from stoppage of the circulation.

It would appear that the highly specialized tissues of the central nervous system could not stand deprivation of the blood supply for a period of fifteen minutes, and irreparable damage was done to these tissues. Cases of this type are fortunately rare, and successes after cardiac massage still more uncommon. Yet with increased knowledge of the method and its earlier adoption we may perhaps look for happier results in the future.

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