

ON THE TREATMENT OF GONORRHOEAL AND MIXED INFECTIONS OF THE FEMALE GENITAL TRACT BY LACTIC ACID BACILLI.

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GREAT diversity of opinion and of practice exists as to the most effective method of treating septic infections of the female genital tract. The objective of the most thorough is the sterilization of the whole tract. Others, recognizing the impossibility of completely destroying the infection, go as far in the same direction as they think they can without risk of forcing the disease into higher channels than are already involved. Thus, for an acute gonorrhoea one authority recommends an immediate dilatation of the cervix under an anaesthetic, curetting and tamponage with gauze saturated with antiseptic, and an equally drastic treatment of the urethra. Others, fearing to infect the tubes and bladder, content themselves with vaginal and cervical swabbing and sitz baths.

I think most observers will admit that the result of all treatment is merely a mitigation of symptoms until the patient has acquired immunity and further extension of the disease stops, leaving, however, more or less vaginal discharge, probably infective if transferred to a fresh soil.

The treatment at the Glasgow Lock Hospital has been varied from time to time within recent years in the attempt to dismiss the cases within the shortest period completely free of cervical or vaginal discharge. Douching with different antiseptics was at one time largely employed. Later, vaginal swabbing, cauterization of the cervix, and, when the internal os was patent, curetting and cauterizing the uterus followed by careful drying of the whole tract, was the treatment most favoured.

I do not propose to enter here into the details of the antiseptic treatment nor to discuss the relative merits of the various antiseptics and astringents we have tried. The result, whatever method or combination of methods was employed, was on the whole disappointing, both as regards the length of time required for treatment and the permanent disappearance of the discharge.

Some months ago it occurred to me that the antiseptic treatment, while inefficiently dealing with the pathological micro-organisms, had effectively exterminated the natural flora of the vagina and thus weakened its resisting and recuperative powers. The acid-forming bacillus of Doderlein being the accredited protector of the vagina, the lactic acid bacillus now so readily obtainable suggested itself as a suitable substitute, and the result of its use has justified my expectations.

The preparation I am now using is obtained by filtering "Sauerkultur" made from skimmed milk by the Glasgow Dairy Company. Filtering separates the casein and leaves a slightly opalescent whey containing lactic acid bacilli in large numbers as well as lactose, lactalbumin, and salts. The solution can be strengthened by the addition of sugar of milk, and if desired a powdered tablet of lactic acid bacilli.

After a thorough disinfection of the parts (including curetting when necessary) all excess of disinfectant is removed and the lactic fluid introduced into the vagina.

The first effect of the treatment may be an increase in the amount of discharge, which, however, is completely altered in character. The purulent appearance ceases, and the discharge is white and thin. This is removed daily by gentle swabbing with dry wool through a speculum. In the most favourable cases the secretions are normal in a few days. In other cases the treatment is repeated weekly until cure is complete, usually in two to three weeks. Even cases in which the tubes are involved seem to benefit by the treatment, and can be discharged from hospital earlier than used to obtain.

Apart from lock hospital work many cases are met with at a gynaecological out-patient department, and also in general practice where treatment is called for on account of a purulent vaginal discharge. In my experience the majority of such cases respond excellently to the above method of treatment. As regards the use of lactic acid bacilli for urethral discharge in the male, I have not had

the opportunity of sufficient tests, but in two cases remarkable results were obtained.

In this preliminary notice I am unable to give extended statistics or to refer to the bacteriological examination of cases before and after treatment, but I may say that what has been done in this direction corroborates the clinical finding. For instance, the normal number of inmates of the Lock Hospital was formerly from fifty to sixty. Now there are from thirty to forty in hospital, and this number will be further reduced as we eliminate those kept unnecessarily long for observation purposes and control cases not receiving this treatment.

A CASE PRESENTING THE EARLY SYMPTOMS OF GENERAL PARALYSIS, WITH RECOVERY UNDER SOAMIN.

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THE following case exhibited some remarkable features. The history and early symptoms foreboded a sad termination in paralytic dementia; but happily for the patient and his relations he made a good recovery. General paralysis of the insane occurs so infrequently in medical practice that the opportunity for repeating the treatment adopted in this case may not present itself again for many years. This must be my apology for drawing attention to a single case. I hope that others may be induced to give the treatment a trial.

On June 23rd last I was summoned to see Mr. X., aged 53, married, the father of seven healthy children. He had landed from South Africa on the previous day, having travelled by himself. He was head of a large department which had a great deal of clerical work. In the beginning of 1908 the staff was reduced from thirteen to five. Being over-zealous to keep abreast of his work, he "was at it till eleven o'clock at night and all day Sunday," with the result that his health broke down. About September, 1908, it was remarked that his manner began to alter; he suffered from headaches and became irritable. He used to be devoted to his family and very hospitable; his children now worried him, and he did not want to see visitors. He also looked ill. In his business transactions he got very forgetful and gave wrong orders, which brought his condition to the notice of those in authority. In the beginning of April, 1909, he was ordered to go up country for three weeks' rest. There was very little improvement in his condition on his return, so that he was, on the advice of his doctor, given leave to take a voyage home.

He looked sallow; his hair was very grey, the conjunctivae were muddy. He stooped very much. He had passed a very restless night; a sister had to sit at his bedside, because when he awoke he was in great distress at finding himself alone. This was a feature of his complaint until well on towards recovery. There was amnesia; he did not remember the names of his sisters, although he had been at home six years before, and he said to his mother, "You have some daughters married?" (one had been married about twenty years). He had forgotten the names of his own children. His speech was slow and indistinct. The tongue was furred; the pulse 84, soft and irregular; the temperature 98.4° F. There were marked fibrillar tremblings of the lips and tongue; the pupils reacted sluggishly; the knee-jerks were exaggerated. During the voyage he had been very constipated, and now suffered from external piles. At times he had pains in the abdomen, the stomach was greatly distended with gas. I prescribed for him a mixture of sodium hypophosphite, lacto-peptine, acid, nitric. dil., and liquor strychninae, and an ointment of oleate of zinc and opium.

The gastric and intestinal troubles improved rapidly, as the result, probably, of careful dieting and the administration of salines in the morning when necessary. His physical state was now fairly satisfactory; the pulse and temperature were normal, the tongue clean, and the bowels regular. He used to be very fond of outdoor games, and was recommended to be in the open air as much as possible. He played croquet when the weather permitted, and took occasional walks, but he could not go far without fatigue, and was so timorous that he could with difficulty be persuaded to go into the public streets. He accompanied me one day on my rounds in the motor car, but he appeared to be in perpetual dread of meeting or passing other vehicles, pointing them out when a long way off; he slept very badly that night. About a fortnight after his return an old friend called to see him, but he told his sister that he wished that gentleman had not come; there was a good deal of singing of old songs and piano-playing that evening, in which the patient tried to join, but he hardly slept all night, and was so fidgety next morning that he began to eat his porridge with a knife. He was very keen over the games of croquet, which he was allowed to win, and was greatly elated over his victories. His natural temperament was one of exceptional amiability and gentlemanliness. At this

time sulphonal, 10 grains dissolved in hot water or tea, was given in the evening, and repeated if necessary at bedtime for two nights; as, though it induced sleep, he appeared to be more restless, and his speech more indistinct next day, it was discontinued at the request of the patient's friends. When he had been home about three weeks he was one day very excitable, swinging the croquet mallet about in an alarming fashion, so that it was deemed advisable to engage an attendant. The companionship of this man seemed to compose the patient, who became quieter during the week, so that the attendant's services were dispensed with. I had previously given it as my opinion that the symptoms were those of general paralysis.

On July 30th he was seen by Dr. J. Michell Clarke of Clifton, who has kindly informed me that the examination was not so complete as he could have wished, as it was made "under the pretence of looking at his sister's and his own eyes." Permit me to quote the following note made at the time: "No history of syphilis or alcoholism. The chief symptoms being loss of mental capacity and memory. An attack of loss of speech in June, after which mental symptoms were worse; the loss of power of speech occurred afterwards occasionally for a time. In addition to the above, which seems to have been loss of articulatory power, he sometimes talked nonsense, used wrong words, forgot words he meant to say. Mental symptoms: (1) Suspicion. (2) Euphoria; though not strictly expansive, the absence of any anxiety about his inability to work and the future prospects of himself, wife, and seven children was striking. (3) Disorientation—for example, after talking for some time, he suddenly said that he knew me as a member of his ——— Board at ———, and had seen me there many times (noticing no incongruity in my being, as he thought, an eye specialist here). (4) Some irritability; he had no true aphasia, but was often at a loss for words and stopped or used wrong words; speech certainly that of general paralysis, slurred and indistinct, with elision of last syllables; tremor of lips and facial muscles, loss of control over facial muscles, slight tremor of tongue, very slight tremor of hands; no paralysis. Right pupil oval and larger than left; both react well to light and accommodation; no Argyll Robertson phenomenon; optic discs normal; slight error of refraction. Knee-jerks and ankle-jerks much exaggerated. No ankle clonus; no affection of sensation." Dr. Michell Clarke added: "I am afraid that he is suffering from general paralysis of the insane, and told his sister so. I told her that the outlook was very bad, and that, though remissions sometimes occur in this disease and might last for a long time, their occurrence was quite uncertain and not to be relied upon." It was suggested that veronal or bromural might be given at bedtime, but neither was administered, as the patient slept fairly well as long as some one was in the bedroom with him. He was then taking a mixture of ammon. carbonate gr. vj, potass. sulphate gr. xij, and liquor cinchona hydrobromate $\frac{1}{2}$ drachm, after each meal; to this was added potassium iodide gr. v in the beginning of August. There was no improvement in his condition during this month. He played croquet all day, but he was very fractious at times. Since his return to this country he would often take up a book or a newspaper and gaze at it as if reading it, but it was noticed that he sometimes held it upside down; he could never tell what he had been reading about.

Soamin (Burroughs) (sodium para-amino-phenyl-arsenate) is an organic preparation of relatively slight toxic action, containing 22.8 per cent. of arsenic. It is claimed for it that it is useful in syphilis and certain protozoal diseases. Beyond its tonic effect, I am not satisfied that it has any specific influence on tertiary lesions. It is beneficial in some forms of anaemia, and I have cured with it an inveterate case of psoriasis figurata which had resisted every other treatment. As the pallor of the gums, tongue, palate, and conjunctivae showed that the patient was suffering from considerable anaemia, and the general atony of the system was very evident, I suggested trying soamin, especially as arsenic is an established nerve tonic. He readily consented, and a 1-grain tabloid of soamin dissolved in hot water was injected into the gluteal muscles on September 7th. He slept well that night. The injections were repeated every two or three days until September 20th, when the dose was increased to 5 grains. The final injection was given on October 27th, the day before he left on his return to South Africa, the total amount administered being 86 grains. There was never any apparent inflammation at the site of the punctures, and the patient did not complain of the pain. The improvement was steady and remarkable from the first, especially after the larger doses were begun. The sleep became normal, the speech and mental faculties improved daily, he was able to take longer walks without fatigue, and before the middle of October he entertained the ladies of the house at their work by reading aloud to them. Before he left the fibrillar tremblings of the lips had disappeared, there was no sign of anaemia, his face was bright and intelligent, he carried himself erect, and he seemed fully restored to his former good health. On the voyage he sent a letter from Las Palmas and another from Capetown, both of which are perfect in calligraphy, expression, and sentiment. In his younger days he could whistle very prettily, but during his illness he could not utter a sound. In the former letter he jokingly remarked that he now whistled all day, and in the second he wrote lovingly of the pleasure of seeing his children in a few days. I think, therefore, that his recovery is complete, for the time being at least, and I confidently hope that it will be permanent.

I am convinced in my own mind that the cure is due to the arsonate. The symptoms appeared to be those of

general paralysis of the insane, and though I have seen remissions in such cases, I have never before witnessed so complete a disappearance of the symptoms. Krafft Ebing has it, "No syphilis, no general paralysis." Dr. Clouston, however, writes: "I cannot agree that syphilis is the sole cause always . . . mental shock and strains of all sorts will of themselves cause the disease." I have notes of two other cases of general paralysis of the insane which had no history of syphilis. My patient had no hereditary tendency, and there was not the slightest suspicion of a specific taint. I examined him carefully, and taxed him on the subject before and after his recovery. Dr. Ford Robertson found in the meninges of some deceased patients a bacillus closely resembling the Klebs-Loeffler bacillus of diphtheria, and Dr. Clouston suggests that "mind strain is a predisposing cause to the bacterial invasion." This theory, it seems to me, tallies with the case which I have related, and may also explain how the recovery was brought about by the arsonate.

INTRAVENOUS INJECTION OF SOAMIN IN CEREBRO-SPINAL MENINGITIS.

TWO CASES WITH RECOVERIES.

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So far as I can discover from the literature of cerebro-spinal meningitis, the intravenous injection of an arylarsonate has not been employed in treatment. During the last few years these salts have had a wide success in the treatment of spirochaetal and trypanosome infection, and have also proved useful in malaria. It seems a logical inference that they might prove inimical to infection from other lower organisms propagating in the body fluids. The reports of the officers of the R.A.M.C. on the injection of sodium para-amino-phenyl-arsenate, or soamin, for syphilis show that the drug is well tolerated in large doses. Intravenous injections of atoxyl and soamin have been largely used in the treatment of sleeping sickness, and I have published a successful case elsewhere (see bibliography).

It is seldom justifiable to publish a new treatment as successful unless a very large number of cases are available; the coincidence of a reaction towards health in the cellular organism with the advent of a fresh remedy is not infrequent. In the present instance, apart from the result of treatment, one case has an intrinsic interest from the prolonged simulation of a tertian fever. The clinical examination of both cases was as complete as the resources of our laboratory permitted; Gram-negative diplococci were isolated from the spinal fluids resembling the *Diplococcus intracellularis meningitidis*. The first case appeared likely to succumb to the disease when the treatment commenced; the second case had been less prolonged though more acute, the strength was more conserved, and the response to treatment rapid; in the former, recovery was slower, though uninterrupted.

CASE I.

Mary M., aged 23, domestic, admitted July 21st, 1909, complaining of pain in back and limbs, severe headache, and loss of power in the limbs. Four weeks previously she had been treated for "influenza"; after one week in bed and three days up, pains appeared throughout the body, vomiting without apparent cause was frequent, and she became delirious.

On admission she looked extremely ill, face flushed and blotchy, no petechiae or rash, lips covered with sordes, head slightly retracted, emaciated, abdomen retracted, no roseola, no swelling in the appendix region. Leucocytosis 13,000 white cells per c.mm. No enlarged glands, spleen and thyroid normal size. Widal's reaction negative. Pulse 100, low tension, regular. Heart slightly dilated, no murmurs. Respirations 24, lungs healthy. Kidneys not palpable; urine free from albumen, pus, blood, and sugar. Menses regular, occasional slight leucorrhoea. On vaginal examination organs healthy, no tumour or abscess, no discharge, no gonococci on film from vaginal swab.

Nervous system emotional, cries querulously when handled, memory sluggish, no coma. No fits or abnormal movements. Articulation slow, but clear. Slight photophobia; pupils large, unequal, circular; react to light and for accommodation; discs clear, no retinal haemorrhage; no ptosis, nystagmus, or strabismus. No facial paralysis. Hearing unaffected; both tympanic membranes healthy; no history of aural discharge.