RESULTS OF THE TREATMENT OF SYPHILIS WITH SALVARSAN AT THE ROYAL NAVAL HOSPITAL, HASLAR.

BY

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SALVARSAN has been used at Haslar since the end of December, 1910. The number of cases treated down to March, 1912, is 340, and as the employment of this new remedy in syphilis is a subject of general interest, it has been thought advisable to publish a short summary of our results.

In the treatment of the first 20 cases an alkaline solution of the drug was administered intramuscularly: twenty-six injections were given in this way, and we were very favourably impressed by the method; the severe pain was well borne by the men, and no evidence of tissue necrosis at the injection site—a sequela described by many workers—occurred in any of our cases.

In the treatment of all our remaining cases the intravenous method has been used; the undoubted superiority of this method over all others has now for some months been generally recognized.

As regards the actual method employed for introducing the salvarsan solution into the vein, we have used at Haslar the injection method as opposed to the infusion method. The apparatus employed is McDonagh's modification of Schreiber's original design, and it has given the greatest satisfaction. It consists essentially of an all glass 20 c.cm. syringe, two-way cannula, and rubber connexions. The special needle supplied with this apparatus has proved invaluable; it is fitted with a small plate, concave underneath, which rests comfortably on the arm when the needle is inserted into the vein. We have never yet found it necessary to expose the vein before introducing the needle.

The cases treated represented examples of syphilis in all its stages—primary, secondary, tertiary, and latent.

At first salvarsan was used in those cases which had proved resistant to mercury and other forms of treatment; the great value of the new drug was soon demonstrated, and gradually its use became more general. For some months now it has almost entirely replaced mercurial injections as the routine treatment of syphilitic patients in hospital. This position it has attained for the following chief reasons:

1. In the majority of cases it clears up syphilitic lesions more rapidly than mercury.
2. Its spirochaeticidal action is greater.
3. Its effect in changing a positive to a negative Wassermann reaction is stronger than that of mercury.
4. Its tonic effect is greater.

Taking into consideration the above facts, which are now almost generally recognized by those who have had experience in the use of salvarsan, we must conclude that its ultimate curative effect on syphilis will also prove to be greater.

The tonic effect of salvarsan has, I think, not been sufficiently emphasized; it has been a marked feature in many of our cases, especially in those already anaemic, and debilitated by the disease or by injudicious mercurial treatment. A few days after an injection the patients report an increased sense of well-being, that they "feel better," and a gain in weight almost invariably follows.

This gain in weight was in many of our cases remarkable. One patient, a petty officer who had contracted syphilis four years previously, was admitted to hospital suffering from extensive ulceration of the soft palate; he had had two years' mercurial treatment; the Wassermann reaction was positive. He was given 0.55 gram salvarsan; in five days the ulceration had healed, and at the end of a week he had gained 8 lb. in weight.

The rapidity with which salvarsan clears up syphilitic lesions was especially seen in:

1. Cases suffering from ulcerative lesions of the tongue, palate, fauces, tonsils, pharynx, and of the mucous membrane of the mouth generally.
2. Cases of so-called malignant syphilis.
3. Cases with marked cachexia and loss in weight.
4. Laryngeal syphilis with loss of voice.
5. Primary syphilis.

It was in cases of early secondary syphilis with rash that the clinical results as regards rapidity of action appeared sometimes to be disappointing, but even here in the majority of cases the action of salvarsan was more rapid than that of mercury.

It may be of interest to record briefly three cases in which mercurial and other treatment had been employed for months (in one of the cases for years) with little or no effect, and in which the beneficial results of salvarsan treatment were especially striking.

CASE I.

A stoker, aged 26, was admitted to hospital on August 12th, 1910, suffering from a very chronic ulceration of the tongue. He had contracted syphilis thirteen months previously, and had had good courses of mercurial treatment. The condition proved most intractable, resisting all treatment. Four months and a half after the date of admission to hospital he received 0.6 gram of salvarsan intramuscularly, and in twelve days the tongue was well.

CASE II.

A stoker, aged 28, was admitted to hospital on September 28th, 1908, suffering from malignant syphilis of the mouth and skin. Syphilis had been contracted two months previously, and he had had one course of seven mercurial injections. Every form of treatment was tried in this case, but with little or no effect on the progress of the disease. In December, 1908, he was invalided, but his condition was so bad that he could not be discharged, and he remained in hospital under treatment for more than two years. In November, 1908, his weight was 147 lb.; in November, 1910, 98 lb. At the end of this time he was a mere skeleton, his body was covered with ulcers, and his tongue, as a result of severe ulceration of the posterior half, was reduced to almost one-third of its original size. The hard palate was perforated, and his speech could not be understood. His left knee and left ankle became affected with the disease early in 1911, and he was practically bedridden. On March 12th, 1911, 0.34 gram salvarsan was given intramuscularly. Improvement was rapid and striking. In a few days the joint symptoms had gone and he was able to walk about. One month after the injection only two of the skin ulcers remained unhealed, and the whole of the mucous membrane of the mouth was clean and healthy. A second injection of 0.35 gram was given two months after the first. When, one month later, he was discharged from hospital one ulcer on the leg only remained unhealed.

CASE III.

A stoker, aged 22, was admitted to hospital on July 5th, 1911, suffering from severe ulceration of the posterior pharyngeal wall, tonsils, and palate. He had contracted syphilis twenty-two months previously, and he had had twenty-eight mercurial injections. The condition had been present two months, the ulceration advancing in spite of treatment, and the uvula and part of the soft palate had been eaten away. On July 6th 0.5 gram salvarsan was given intravenously; in ten days, before a second injection had been given, all the lesions had healed.

Three cases only failed to respond to salvarsan, and these had also proved intractable to mercury and other treatment. Two of these suffered from gummatous ulceration of the skin and subcutaneous tissues; in the third the lesion was leucoplakia, with chronic ulceration of the tongue.

We have had little experience of the use of salvarsan in syphilitic lesions of the nervous system, but, judging from the results of other workers, the field for its use in such cases is not a large one, and, if given at all, it should be exhibited with the greatest care. Two cases only, suffering from early cerebral syphilis, were treated at Haslar, and both showed a marked improvement. Two cases suffering from advanced choroiditis were treated; permanent damage to sight had already resulted and the lesions were progressing. In both cases the progress of the disease was checked by the salvarsan.

Latent Syphilis.

Eight cases received salvarsan treatment. One of these requires special mention because of the interesting sequelae of the injection.

This patient was admitted suffering from chancre and bubo. He had contracted syphilis ten years previously, and had had two years' mercurial treatment. The Wassermann reaction was positive, and he was most anxious to have the "new treatment." A few days after an injection of 0.5 gram salvarsan he complained of his tongue, which was found to be enlarged; ulceration followed, extending along each border. This was followed by gummatous ulceration of the fauces. The condition cleared up after a second injection.

It is of interest to note that the last syphilitic manifestation from which this patient suffered was "ulceration of the tongue" three years previous to the salvarsan injection.

Primary Syphilis.

The number of cases of primary syphilis treated was thirty-four, and, so far, in none of these have any secondary symptoms developed. Twelve of these received the treatment from three to seven months ago. It is in these early cases of syphilis that the *therapia sterilisans magna* effect of salvarsan is best seen. Already authentic cases of a second infection of syphilis after cure of the primary disease by salvarsan have been reported. In this account of our results at Haslar I am able to report another case of reinfection. The case was as follows:

Reinfection.

The patient was admitted on November 7th, 1911, suffering from a primary chancre of the tongue, with typical syphilitic enlargement of the glands under the jaw. On November 23rd the diagnosis of syphilis was confirmed by the Wassermann reaction which was positive. An injection of 0.5 gram salvarsan was given, followed in seven days by a second injection of 0.55 gram. He was discharged on December 16th. On January 24th he was again admitted to hospital said to be suffering from chancroid. At the base of the glans penis he had a sore, which he stated appeared about eight to ten days after exposure to infection when he was on Christmas leave. The prepuce was much swollen, and the day after admission to hospital the sore could not be exposed. Two weeks later a hard sore could be distinctly felt. On February 16th the Wassermann reaction was positive. On March 13th circumcision was performed, and a typical large Hunterian chancre was found at the base of the glans. On March 16th a typical papulo-roseolar syphilitic rash had developed on the trunk.

Relapses.

At the time of writing only six of the cases treated are known to have relapsed or to have developed other syphilitic lesions. In all the Wassermann reaction remained positive. Two of these had received only one injection, and quickly yielded to further treatment. In two others, both of which had suffered originally from very severe secondary syphilis, what have been described as neuro-relapses, occurred. As such cases are important, I give below a short account of each:

CASE I.

A stoker, aged 25, suffering from a very severe papular rash; three injections of mercury had led to little improvement, and he was given two injections of salvarsan each 0.5 gram. Three months after being discharged he was again admitted suffering from symptoms which pointed to an affection either of the left auditory nerve or of the labyrinth—namely, vertigo, tinnitus, and internal ear deafness. The symptoms began suddenly with pain in the left side of the head about one week after he left hospital. The onset of deafness was sudden. There was no nystagmus. Energetic mercurial treatment was tried, also potassium iodide in large doses, but with little benefit. The Wassermann reaction remained positive.

CASE II.

A stoker, suffering from severe secondary syphilis, received two injections of salvarsan each 0.5 gram in September, 1911. About two months later paralysis of the right facial nerve suddenly developed. Admitted to hospital again in February, he was found to have complete paralysis of the right side of the face; no other lesions or symptoms were present. This patient at the time of writing is still under treatment, but so far has shown no improvement under large doses of potassium iodide, together with massage and electricity locally. Wassermann reaction remains positive.

In the two remaining cases which relapsed the lesions rapidly cleared up under further treatment.

Effect of Salvarsan Treatment on the Total Days' Illness.

An important consideration, when discussing the advantages and disadvantages of salvarsan treatment, especially in the services, is the effect such treatment will have in reducing the total days' sickness of syphilitic patients in hospital. That a reduction must occur is evident to those who have had an opportunity of observing the clinical results. In September last the reduction in the number of days' sickness was shown by comparing the results of corresponding cases of syphilis treated in hospital during 1910 before salvarsan was introduced. This reduction was especially seen in cases suffering from ulcerative lesions of the mouth, tongue, and throat, the average number of days' sickness for each case being reduced to almost one half.

To demonstrate this effect of salvarsan further, a comparison has been made between the total days' sickness from syphilis in Haslar during the last six months of 1910, before salvarsan was introduced, and the total days'

sickness during the past six months, when the drug was in very general use.

Table showing Duration of Sickness Before and After Introduction of Salvarsan.

	Total Number of Cases.	Total Days' Sickness.	Average Number of Days' Sickness for each Case.
First period of 6 months, salvarsan not used	305	8,371	27.4
Second period of 6 months, salvarsan used	326	6,458	19.8

Comparing these two periods it is seen that the average number of days' sickness for each case was reduced by 7.6 days.

Sequelae of the Injection.

Local.—565 intravenous injections have been given at Haslar, and in no case has any local trouble such as thrombosis or abscess occurred. The skin over the vein chosen is thoroughly cleansed with ether soap immediately before the needle is introduced. A sterile pad is applied afterwards, and removed on the following morning.

General.—The greatest care has always been taken in the preparation of the saline solution and we have seen very few severe reactions. Rigors and vomiting were rare. From November, 1911, till February, 1912, the saline was sterilized immediately before use, but our results were not better than we had obtained previously using saline possibly sterilized one or two days before use. The highest temperature recorded was 103.8°. In 43 per cent. of the cases the constitutional sequelae were practically nil, the temperature did not exceed 99°, and the only complaint was slight headache. Headache has been the most constant sequela in our cases. Transient diarrhoea and abdominal pain have also been noted in many cases. Slight albuminuria was noted in six cases, but in only two did it persist for more than a few days. Herxheimer's local reaction was frequently seen in early secondary cases, the rash becoming much more marked four to six hours after the injection. This symptom was nearly always accompanied by a rise in temperature. No toxic affection of the eyes has followed its use. In no case were any symptoms of collapse seen, nor have we seen in any of our cases any alarming or dangerous symptoms follow the injection. Patients are placed on low diet for the day on which the injection is given. Afterwards they are kept strictly in bed till the following morning, the temperature and pulse being taken every hour up till 8 p.m. For some weeks now we have been using fresh redistilled water in the preparation of the saline solution, with very beneficial results.

The Wassermann Reaction.—In the large majority of the cases Wassermann's complement fixation test has been carried out before and after the injections. Later results have also been obtained in many cases at varying intervals after leaving the hospital. These tests have been carried out by Fleet Surgeon Bassett-Smith, who will shortly publish his results. It is sufficient to state here that treatment with salvarsan has proved superior to mercurial treatment in leading to the production of a negative Wassermann reaction.

Conclusions.

The general plan of treatment at present in use at Haslar is as follows:

Primary Syphilis.—Immediately a diagnosis of syphilis is made, one injection of salvarsan is given, followed eight to twelve days later by a second. When discharged to duty no further treatment is recommended in the absence of symptoms unless the Wassermann reaction becomes positive.

Early Secondary Syphilis.—Two injections of salvarsan are given as in cases of primary syphilis. Further treatment in the absence of symptoms is based on the Wassermann test. From our results, even in these early secondary cases, I believe two injections will in many cases cure the disease; but unless the Wassermann test can be carried out about once a month mercurial treatment supplemented with iodides is recommended.

Late Secondary and Tertiary Syphilis.—One or two injections of salvarsan are given according to the nature of the case, our aim being to clear up the lesions as quickly as possible. When discharged to duty, these cases are, as a rule, recommended for further courses of mercurial and iodide treatment.

Latent Syphilis.—Salvarsan is not recommended as a routine treatment in cases of latent syphilis. Its use here should be restricted mainly to early latent cases, and cases where previous treatment has been slight.

From our results so far at Haslar, we are of opinion that salvarsan, with or without mercury, is indicated in every case of syphilis with active signs of the disease, provided no contraindications are present.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

THE INGUINAL OPERATION FOR THE RADICAL CURE OF FEMORAL HERNIA.

I HAVE read with considerable interest Mr. Morton's paper in the issue of the BRITISH MEDICAL JOURNAL of February 24th on the inguinal operation for the radical cure of femoral hernia. I have practised this operation for the last seven years, and it has always been a matter of some surprise to me that the operation should receive such scant attention in textbooks of operative surgery.

In addition to being the only anatomical method, it is also the only one successful in closing the upper end of the crural canal, and it is the only method which gives an adequate view of the neck of the sac and its contents in cases of strangulation.

My experience has been very much the same as that of Mr. Morton. Out of 30 cases, 11 were for radical cure and 19 to relieve strangulation. The large number of these cases that come to the surgeon for the relief of strangulation as compared with those that came for a radical cure is due, I believe, to the fact that a femoral hernia does not, as a rule, reach a large size, and does not give much inconvenience until strangulation occurs.

I am not able to speak with any certainty of the after-results of the operation, because, so far, I have not gone into the matter, many of my cases having only been done a year or two. I would, however, advocate this operation as a routine in all cases of strangulation. The incision I employ is a curved one, beginning over the pubic spine, passing downwards and outwards an inch below Poupart's ligament, and then upwards, to cross that ligament at the junction of its outer and middle thirds. A flap of skin and fascia, convex downwards, is then dissected up, exposing the hernial sac and the aponeurosis of the external oblique. The sac is now separated from surrounding structures, and opened. An incision is now made through the aponeurosis of the external oblique; in the male the cord is hooked upwards and inwards; the fascia transversalis is now divided, and the peritoneum exposed. I now incise the peritoneum, so that a good view is obtained of the bowel, both limbs of the herniated loop can be seen, and their condition ascertained. Gimbernat's ligament may be divided from above, as Mr. Fagge suggests, but I find that in a large number of cases the ring can be stretched by the finger from above. The bowel is now drawn up from below, examined and replaced in the abdominal cavity; the sac also is drawn up above Poupart's ligament and cut off; after ligation any opening left in the peritoneum is stitched up, the operation being finished very much in the manner Mr. Morton describes.

The advantages of this method of operating consist in a good view of the parts concerned, easy access to the constricting agent; while any operation on the bowel, such as resection or the stitching up of a perforation, is a much more simple matter with the increased space at one's command. It was frequently a difficult matter to draw the bowel far enough down below Poupart's ligament to examine the site of constriction when operating by other methods, while the bowel stood some risk of being damaged in the process; and should damaged bowel slip back into the peritoneal cavity—a contingency which I have experienced—it can be rescued at once.

Oxford.

EDMUND C. BEYERS, F.R.C.S.

ANENCEPHALOUS MONSTERS.

MR. RONALD KIRKNESS records a case of anencephalous monster in the BRITISH MEDICAL JOURNAL of September 30th, 1911, page 755, which, in many particulars, is so like two cases I have recently met with that I am induced to send some particulars from my notebook.

The mother of the monster shown in the photograph was confined at the end of August, 1911. It was her fourth labour. The first two confinements were normal and healthy boys were born. The third labour produced a dead fetus, with abundance of liquor amnii. After the early months of her fourth pregnancy she rapidly increased in size, and became distended to such a degree that her friends felt certain she would bring forth twins. Labour commenced at the end of the eighth month. After several hours of weak pains I ruptured the membranes and at once there was an escape of an excessive quantity of amniotic fluid. In various vessels I collected and measured five quarts, but at least another quart must have escaped on the floor. The monster had been dead a few days.

The photograph, which was kindly taken by our house-surgeon at the Children's Hospital, shows the absence of cerebrum and of neck. The cervical vertebrae were wanting, the base of the skull being rigidly fixed into the dorsal vertebrae and the sternum. There was also a spina bifida in the dorsal region.

The other case, born six months ago, was the result of a third pregnancy. The first child, a girl, was normal in every way. The second labour occurred at the seventh month and was a placenta praevia, with dead fetus. The third labour was normal, except there was more than the usual amount of liquor amnii. The fetus was exceedingly well developed in body and limbs, but had an absence of frontal region of skull, and almost an absence of parietal region. She made no sounds and did not seem inclined for food. She lived in this state for two months. The mother of this monster has a narrow and high palate. I am inclined to ask the readers of the JOURNAL if this disaster is more frequently met with than formerly. During the year and a half I was house-surgeon to the Women's Hospital, and attended about 1,500 labours, I did not meet with a case. I am told by a member of the staff that cases of monsters are often met with now amongst the hospital patients.

Brighton.

GEORGE MORGAN, F.R.C.S. Edin.

CYST OF ABERRANT BILE DUCTS.

As cyst of the accessory bile ducts is of uncommon occurrence, the notes of the following case may be of interest.

On November 26th I was called to a man, aged 68, who had been taken suddenly ill. On my arrival he was *in articulo mortis* and expired in a few seconds. On inquiring from his relatives concerning his previous history I learnt that he had not been medically attended for over forty years, but that when 20 years of age he had suffered from some indefinite stomach trouble. He had never lived abroad.

Two days later I made a *post-mortem* examination. The body was that of an elderly man of spare physique. The cranial contents were normal. The lungs were healthy but showed sclerosis in parts; the bronchial glands were enlarged and darkened with carbonaceous particles. The heart was atrophied and exhibited fibrous and fatty degeneration.

On opening the abdomen there presented a swelling the size of a large orange. It occupied the fissure of the suspensory ligament and projected beyond the anterior edge of the liver. The swelling was globular and smooth, and was adherent to the left and quadrate lobes and to the