A REPORT ON SIX CASES OF SYphilis TREATED BY SALVARSAN AT THE STATION HOSPITAL, NOWSHERA.

By Captain E. V. Aylen.
Royal Army Medical Corps.

The following notes on six cases of syphilis, treated by salvarsan, may be of interest to the readers of the Corps Journal.

In each case the method of administration was the same, namely, by intramuscular injection of a neutral suspension of the drug into the muscles of the gluteal region. Each case received two injections, preceded by a hypodermic injection of morphia.

Five of the six cases were fresh untreated cases of syphilis, and the remaining one was a severe case of gummatous ulceration of the pharynx, tonsils, tongue and scalp, which previously had been treated with mercury, both by inunction and by intramuscular injections as well as by potassium iodide. In this case the patient, before treatment by salvarsan, was unable to speak above a whisper, and could only swallow fluids with great difficulty. Three days after the first injection he could speak quite well and could swallow minced foods without difficulty. The five fresh cases were all undoubted and well marked cases of syphilis; in three of them the presence of the Spirocheta pallida was demonstrated before the injections were given.

I was unable to have Wassermann's test carried out before the injections, but subsequently, owing to the kindness of Lieutenant-Colonel Sir D. Semple, I have had it performed in four cases at the Central Research Institute, Kasauli. Arrangements have now been made to supply the divisional laboratory with a suitable centrifuge, I shall therefore be able to carry out Wassermann's test myself in future cases.

Of the twelve injections given only one was followed by pain of any severity, and only one by any rise of temperature.

In the case where pain occurred after the injection, I am of opinion that it was caused by the injection not being made deeply enough. A certain amount of induration also followed, but disappeared after a few days rest in bed, as did also the pain. In the case where pyrexia occurred, the rise of temperature was very slight and subsided after two days. In all six cases active signs of disease disappeared extremely rapidly after the first injection, and so far there have been no recurrences. In the cases where S. pallida were found previous to injection I was unable to find any parasites two days after the first injection.

In administering intra-muscular injections I think that unpleasant after-effects may be reduced to a minimum by attention to the following points: (a) The suspension of the drug should be quite neutral, as acid or alkaline injections are more liable to cause pain afterwards. (b) In the preparation of the suspension care must be taken to get the powder in as fine particles as possible. At least half an hour's careful grinding with a...
glass rod in a glass mortar is necessary. Large or gritty particles, besides being liable to block the needle of the syringe, are likely to cause pain afterwards. (c) The injection should be made as deeply as possible into the muscles of the upper part of the gluteal region. Superficial injections may cause subsequent necrosis of overlying skin and tissues. (d) A preliminary hypodermic injection of morphia is useful to prevent any subsequent local pain.

Three out of the four cases that have had Wassermann's test carried out at the Central Research Institute are still positive to the test, though it is of course too soon after the injections to expect a negative reaction.

In one case, however, that of Lance-Corporal C., in which spirochetes were found in the sore before injection, a negative Wassermann reaction was obtained nine weeks after the first injection and six weeks after the second. I am inclined to think that if Wassermann's reaction continues to be negative for six months after a patient has lost all signs of disease, the patient having had at least two injections of salvarsan, he may be considered cured, and his name removed from the syphilis register.

I should like to have the opinions of others on this very important point.

NOTES ON CASES.

Case 1.—Gunner P., 75th Battery, Royal Field Artillery, was placed on the Syphilis Register on June 27, 1910; he had been treated by mercurial inunction, two courses of injections of mercurial cream and one of calomel cream.

When admitted to hospital on March 30, 1911, he had a large gummatous ulcer of the right tonsil and a smaller one on the left. There was some ulceration of the posterior wall of the pharynx and considerable edema of the fauces, so that he was only able to swallow liquids, and found great difficulty in articulation. There was some ulceration of the dorsum of the tongue and of the skin over the occipital region. He was very weak and debilitated.

April 4.—Salvarsan 0·4 grm. injected into the gluteal muscles.

April 5.—Temperature last night 101°; this morning 99·6°; very slight pain at the site of injection.

April 7.—There is a decided improvement in the condition of the pharynx, tonsils, and tongue, and he can speak and swallow much better. Temperature last night 100·6; this morning 98·2°.

April 13.—The ulcer on the left tonsil has nearly healed. All edema disappeared four days after the injection. He can now eat solid food quite well. The gummatous ulcer on the scalp looks much better, and is beginning to heal. No swelling at the site of injection. Weight 9 st. 9 lb.

April 20.—The ulcers on the tonsils and pharynx are quite healed.
The ulcer on the scalp is nearly healed. He feels much better and eats and sleeps well. Weight, 9st. 10lb.

April 23.—Injected salvarsan 0·4 grm., preceded by morph. hyd. ½ gr.

April 24.—No bad after-effects followed the injection, either local or general.

April 27.—The ulcer on the scalp has quite healed, his throat is quite well. Weight 9 st. 13 lb.

May 11.—Discharged hospital to-day; to attend weekly. No signs of disease. Weight 10 st.

May 18.—Wassermann’s reaction positive.

Case 2.—Gunner B., 75th Battery, Royal Field Artillery, admitted on March 11, 1911, with condylomata round the anus, a macular and roseolar rash on the back and loins with general adenitis. Spirocheta pallida demonstrated in a scraping from the condylomata.

March 17.—Injected salvarsan, 0·4 grm., preceded by morph. hyd. ½ gr.

March 20.—No unpleasant after-effects, either local or general, followed the injection. No rise of temperature occurred. No spirochætae could be found in the condylomata two days after the injection, and to-day, three days after the injection, the condylomata have practically disappeared. The rash has faded, leaving only a few dusky coloured macules on the skin of the lumbar region. Weight 11 st. 2 lb. No decrease since the injection.

April 5.—No signs of disease. Injected salvarsan, 0·2 grm., preceded by morph. hyd. ½ gr. Weight 10 st. 12½ lb., a slight decrease.

April 11.—There was no rise of temperature after the last injection, and he complained only of slight local soreness. He was discharged hospital to-day to attend weekly. No signs of disease. Weight 10 st. 11 lb.

May 21.—Wassermann’s reaction positive.

Case 3.—Lance-Corporal C., 1st Royal Munster Fusiliers, admitted to hospital on February 25, 1911, with some ulceration and oedema of the prepuce, the inguinal glands on both sides were enlarged, indurated and tender. A scraping from the sore showed S. pallida. After admission an extensive roseolar and macular eruption developed on the abdomen, chest, thighs, back and arms. There was some swelling and redness of the pharynx and tonsils, with enlargement of the cervical and sub-maxillary lymphatic glands.

March 17.—Injected salvarsan, 0·4 grm., preceded by morph. hyd. ½ gr.

March 20.—No rise of temperature or unpleasant after-effects, either local or general, followed the injection. The sore has quite healed, and no spirochætae could be found in the sore the day after the injection. The rash has nearly disappeared; he has no pain and feels quite fit. Weight, 9 st. 9 lb., a loss of 3 lb. since the injection.
March 27.—The rash has completely disappeared, the glandular enlargement is much smaller. Weight, 9 st. 11 lb.

April 5.—Injected salvarsan, 0.2 grm., preceded by morph. hyd. ½ gr. Weight, 9 st. 12 lb. No symptoms.

April 7.—No unpleasant after-effects followed the injection. No rise of temperature occurred. Weight, 10 st. 1 lb.

April 11.—Discharged hospital to-day to attend. No signs of disease. Weight, 10 st. 1 lb.

May 20.—Wassermann’s reaction negative. Patient has been attending hospital weekly since his discharge, he has no signs of disease. Weight, 10 st. 4 lb.

Case 4.—Private W., 2nd Battalion, Royal West Kent Regiment. This patient was sent to me from Peshawar for treatment by salvarsan. On admission on April 5, 1911, he had an indurated sore at the junction of the glands and prepuce, with an excavated floor, and marked enlargement and induration of both sets of inguinal and cervical glands. He also had a rosetal eruption on the abdomen, thighs and chest, some congestion of the pharynx, his hair was coming out, and he appeared very anemic and debilitated. A scraping from the sore and some fluid from a blister failed to show the S. pallida, probably due in the case of the sore to the fact that it had been treated locally with lotio nigra in Peshawar.

April 7.—Injected salvarsan, 0.5 grm., preceded by morph. hyd. ½ gr.

April 13.—He complained of slight local pain and soreness after the injection, which entirely passed off after three days, and was never bad enough to disturb his rest. No rise of temperature followed the injection. He has now improved greatly in every way except as regards body weight, which shows a decrease of 2 lb. The sore on the penis, which was formerly a deep crateriform ulcer, with an unhealthy base and hard everted edges, has nearly healed up. The rash has practically disappeared, only a faint mottling remaining; the glandular enlargement is very much less. Weight, 9 st. 5 lb.

April 20.—The sore on the penis has quite healed, and the rash has disappeared. He feels quite fit. Weight, 9 st. 7 lb.

April 23.—Injected salvarsan, 0.4 grm., preceded by morph. hyd. ½ gr.

April 27.—No rise of temperature or unpleasant after-effects, either local or general, followed the injection. No signs of disease. Weight, 10 st.

May 6.—He was to-day sent back to Peshawar for duty. No signs of disease, and he feels quite fit. Wassermann’s reaction positive. Weight, 10 st. 3 lb., a gain of 7 lb. since admission.

Case 5.—Gunner B., 86th Heavy Battery, Royal Garrison Artillery, was sent in from practice camp on February 25, 1911, with a sore on the penis. On admission he had a large sloughy sore on the glans penis with
an indurated edge. A fortnight after admission he developed an extensive roseolous macular eruption on the thighs, scrotum and buttocks, with mucous patches on the buccal mucous membrane. The inguinal glands were enlarged and indurated. Weight, 10 st. 7 lb.

April 7.— Injected salvarsan, 0'5 grm., preceded by morph. hyd. $\frac{1}{2}$ gr.

April 13.— No rise of temperature followed the injection, and he complained only of slight local pain. To-day, six days after the injection, the sore on the penis has almost entirely disappeared; the rash is very faint, and the sores on the buccal mucous membrane have disappeared. Weight, 10 st. 5 lb.

April 20.—The only signs left now are faint discolorations, the remains of the rash on the buttocks and scrotum. He feels quite fit. Weight, 10 st. 5 lb.

April 23.— Injected salvarsan, 0'4 grm., preceded by morph. hyd. $\frac{1}{2}$ gr.

April 24.— No unpleasant after-effects, either local or general, followed the injection. No signs of disease.

April 27.— Patient discharged hospital to-day to rejoin his unit in Peshawar. No signs of disease. He feels quite fit. Weight, 10 st. 10 lb.

Case 6.— Private H., 1st Battalion, Royal Munster Fusiliers. This patient was admitted on April 10, 1911, with condylomata round the anus, a roseolous and macular eruption on the abdomen. He gave a history of a sore on the penis and a sore throat previous to admission. Scrapings from the condylomata showed S. pallida in large numbers. Weight, 9 st. 5 lb.

April 23.— Injected salvarsan, 0'4 grm., preceded by morph. hyd. $\frac{1}{2}$ gr.

April 24.— Slight local pain occurred a few hours after the injection. No rise of temperature.

April 27.—The condylomata have almost entirely disappeared, the rash has quite gone. No spirochætes could be found in the sores two days after the injection. Weight, 9 st. 9 lb.

May 3.— A painful indurated lump has appeared at the site of inoculation, the patient being kept in bed; he complains of nothing except slight pain at the site of inoculation.

May 8.— The lump is smaller and not so painful. The condylomata have entirely disappeared, and he feels quite fit. Weight 9 st. 8 lb.

May 11.— The lump has entirely disappeared, he has no signs of disease. Weight, 9 st. 9 lb.

May 17.— Injected salvarsan, 0'5 grm., preceded by morph. hyd. $\frac{1}{2}$ gr.

May 25.— No bad after-effects, either local or general, followed the second injection.

May 27.—Patient was discharged hospital to-day, to attend weekly. No signs of disease. Weight, 9 st. 9 lb.