

ANTISTREPTOCOCCUS SERUM.*

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Three years ago I reported my impressions of the efficacy of antistreptococcus serum based on experience with 5 or 6 cases. In some of these the presence of the streptococci in the wound-discharges had been demonstrated, and in others staphylococci had been found both in the discharges and in the blood on culture. At that time my conclusion was that the serum rarely if ever did harm, and that in desperate cases the patient should be given the benefit of this treatment in connection with other and better known therapeutic measures. Further acquaintance with the subject has not caused me to modify the views I then held, though the percentage of recoveries due, apparently, to the employment of the remedy has not been encouraging.

Several cases in which there were clinical symptoms of the severest type of sepsis seemed to yield to the serum treatment instituted before it was possible to make an accurate diagnosis; but they one and all turned out to be either staphylococcus infections, or *local* streptococcus infections with constitutional symptoms but with no bacteria in the blood. No patient whom I have observed has ever recovered when streptococci have been clearly demonstrated in the blood stream. Recovery, however, is by no means uncommon when staphylococci—even in the blood—are the offending germs.

In my earlier cases the dose of the serum was, probably, far too small. If the fluid as usually prepared is to have appreciable effects, not less than 20 c.c. at a time should be given, while the toxic dose is, so far as I am aware, unknown.

Troublesome urticaria has a number of times followed the use of the serum, and has been regarded by me as one of its untoward effects. Abscesses containing streptococci appeared at the site of the injections in one case where the germs had been previously demonstrated by blood culture. The serum in this instance was obtained from the laboratory of the New York Board of Health, where it had been carefully tested and proved sterile. The injections, perhaps acting as traumatisms, seemed to cause places of lessened resistance which were directly attacked by the bacteria from the blood. The abscesses became very large before they caused noticeable local symptoms, though they were diffuse and even phlegmonous in character. The patient finally died. The case was one of general sepsis following amygdalitis with secondary cervical abscess. From two to three doses of 20 to 40 c.c. were given daily for eight days. The only fairly constant effect of each dose seemed to be a temporary lessening of the delirium.

I would outline the indications for the use of the antistreptococcus serum in the following manner:

Whenever there is severe sepsis with a visible cause, the first thing to do is to remove or thoroughly drain the contaminating focus or foci. The sediment of the urine, carefully drawn by catheter, should be stained for bacteria and examined. The discharge from the wound should be smeared on a slide, stained and examined with the microscope. Cultures should be made from the wound-discharges and from the blood.

If the urinary sediment contains streptococci the prognosis is extremely bad and treatment by the serum should at once be instituted in addition to energetic efforts by other means in the direction of general and local antisepsis.

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If the patient's condition is extremely serious and streptococci are found in the smear from the wound the serum should be used.

If streptococci are found in the wound-discharge but not in the urine, and if the general condition in spite of elevation of pulse and temperature is not decidedly alarming, it is better to await the result of the blood-culture test, meanwhile treating the patient on general principles.

If no streptococci are found by these examinations, and the patient's condition is not truly desperate, the result of the cultures must be awaited, resorting to the serum treatment if the disease becomes alarming in the meantime. Blood culture is sometimes annoyingly slow, a negative examination perhaps becoming positive at the expiration of from three to seven days.

As a final word it must be admitted that the efficacy of the remedy as now prepared has not been proved.

Treatment by the antistreptococcus serum is most strongly indicated in the presence of systemic infection by living streptococci, but the prognosis still remains bad. Antistreptococcus serum may be used in any case of grave sepsis when the exact bacteriologic diagnosis is in doubt, but never to the exclusion of other rational therapy.

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THE MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS IN THE TREATMENT OF SARCOMA.

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In a paper before the Academy of Medicine March 1, 1900, I gave a brief résumé of the cases of sarcoma thus far treated by myself with injections of mixed toxins. In the few minutes allotted to me this evening it will scarcely be possible to do more than give a short abstract of these results. My recent experience has given me no reason to change the conclusions already expressed in earlier papers; I still find the round-celled sarcoma is much less susceptible to the inhibitory action of the toxins than the spindle-celled, and the melanotic is even less affected. In regard to the method of preparing the toxins, the technique and administration, I have nothing new to add. The preparation which I still believe to be the best is the mixed unfiltered toxins of erysipelas and bacillus prodigiosus made from cultures grown together in the same bouillon and sterilized by heating to 58 C. In children and in patients much reduced in strength it is safer to use the filtered toxins. The toxins, to be of value, must be made from very virulent cultures, the virulence being kept up by frequently passing the cultures through rabbits.

The dose depends very largely on the vascularity of the tumor and the condition of the patient. The initial dose should seldom be larger than $\frac{1}{2}$ minim, and the injection when possible should be made directly into the tumor itself. Strict aseptic precautions should be taken, since the administration of the toxins increases the liability to infection from other organisms if pathogenic germs are present.

In regard to the duration of the treatment, fortunately we are able in most cases tell within three or four weeks whether or not the toxins are likely to prove beneficial. If no improvement is noted at the end of this

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