

DISTRIBUTION OF SPIROCHÆTA ICTEROHÆMORRHAGLÆ IN THE ORGANS AFTER INTRAVENOUS SERUM TREATMENT.

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The material here reported was obtained from eight cases of Weil's disease in which postmortem examinations were made. The patients had all received intravenous serum treatment before the 8th day of illness. The distribution of spirochetes within the organs differs somewhat in these patients from that in those receiving no serum treatment. The latter have already been described by us.¹ In Table I are given our findings on the density of the spirochetes in the various organs, and also the findings in four non-serum-treated cases showing no complications.

It will be observed that in the serum-treated cases the spirochetes are more sparsely distributed than in the other group. In the former we were able to demonstrate microorganisms constantly in the kidneys, often in the heart muscle and the appendix, but only once in the liver, suprarenals, and lymph glands, and in three cases in muscle tissue. The spirochetes were few in number and the specimens observed were markedly degenerated. With the exception of one case, but few spirochetes could be discovered in the liver, while in the non-serum-treated cases in this stage of the disease there was no difficulty in demonstrating spirochetes in that organ, although they were not numerous. In a patient dying on the 6th day, who had received no serum treatment, we found a dense distribution of spirochetes in the liver. The pancreas, with the exception of one case, and the spleen, lungs, and other organs of the serum-treated patients showed no spirochetes.

¹Kaneko, R., and Okuda, K., *J. Exp. Med.*, 1917, xxvi, 325.

TABLE I.
Spirochetes Found in the Organs in Weil's Disease.
Serum-Treated Cases.

Case No.	Age, yrs.	Sex.	Day of illness when serum was given.	Amount of serum, cc.	Day of death.	Liver.		Kidneys.		Supra-renal.	Spleen.	Lymph glands.	Appendix and intestine.	Pancreas.	Lungs.	Heart.	Bladder.	Prostate.	Muscle.
						Extra-cellular.	Intra-cellular.	Interstices.	Tubules.										
1	30	Male.	5	20	5	-	-	+	-	-	-	-	+	+	-	-	-	-	-
2	23	"	5	20	5	-	-	+	+	-	-	-	+	+	-	-	-	-	-
3	57	"	4	20	6	-	-	+	+	-	-	-	+	+	-	-	-	-	-
4	56	Female.	5	20	8	-	-	+	+	+	-	-	-	-	-	-	-	-	-
5	50	Male.	7	20	9	-	-	+	+	-	-	-	-	-	-	-	-	-	-
6	30	"	5	20	9	-	-	+	+	-	-	-	-	-	-	-	-	-	-
7	47	"	7	20	11	-	-	+	+	-	-	-	-	-	-	-	-	-	-
			8-10	40	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			3	20	11	-	-	-	+	-	-	-	+	-	-	-	-	-	-
			4	20		-	-	-	+	-	-	-	-	-	-	-	-	-	-
			5-6	20		-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	73	Female.	4	20	11	-	-	-	+	-	-	-	-	-	-	-	-	-	-
			5	20		-	-	-	+	-	-	-	-	-	-	-	-	-	-

Non-Serum-Treated Cases.

9	59	Male.				6	+++	+	++	+	+	+	+	+	+	++	++	+	+	+
10	45	"				7	+	+	++	+	++	+	+	+	+	++	++	+	+	+
11	28	"				8	-	+	+++	+	+++	+	+	+	+	+++	+++	+	+	+
12	14	Female.				10	+	+	+++	+	+++	+	+	+	+	+++	+++	+	+	+

+, very few spirochetes—one or a few in a preparation.

++, spirochetes sparsely distributed. The spirochetes can be found readily, more than 10 to 20 in a preparation, or one in several fields.

+++ , relatively numerous spirochetes, one or a few in a single or several fields, with numerous spirochetes in a preparation.

++++, numerous spirochetes, some being found in almost every field, and often numerous specimens in a single field.

-, negative finding in one or more preparations.

CONCLUSIONS.

On the basis of these findings we believe that we are justified in saying that the immune serum of Weil's disease is capable of destroying the spirochetes found within the organs in man, with the exception of the kidneys, and that the action of the serum upon the spirochetes is spirochetolytic and spirocheticidal. The scattered spirochetes in the kidney, on the other hand, are resistant to the action of the immune serum.

The spirochetes disappear almost completely from the organs during the convalescent stage of Weil's disease, even when no serum has been administered. The only organ to be excepted is again the kidney, but no comparison between serum-treated and non-serum-treated cases should be made in this respect, for spirochetes are found numerously in the kidneys even with serum treatment.

The disappearance of the spirochetes from the organs and tissues in Weil's disease seems to be not so marked with the subcutaneous serum treatment as with the intravenous method, but the manner of their disappearance is about the same.

We desire to express to Professor R. Inada, our appreciation of his interest in the work.