

digestion of the serum. The study of this process revealed the fact that the substances, resulting from autodigestion of the serum are toxic to homologous animals—and possibly identical with so-called anaphylatoxin. Last year¹ I described a method in which making use of anaphylatoxin formation I was able to diagnose tuberculosis. In this communication I wish to describe an improvement of the method which makes it possible to apply this test not only to tuberculosis, but to any condition where Abderhalden test or complement deviation test could be applied.

The technique is as follows. 2 c.c. of the serum of the patient is injected in the guinea pig and the next day the guinea pig's blood is collected. This blood, containing at the same time complement and antibody (passively transmitted) is allowed to form anaphylatoxin in a test tube by combining it with tuberculin, placenta, tumor tissue or any other substratum, after which the serum is collected and injected into a normal guinea pig. The test can be made by intravenous or intracutaneous inoculation. In the first case one obtains an acute anaphylactic shock, in the second a local reaction as described by me as serum-skin test.

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On the tonus of the vaso-motor center in shock.

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The experiments here reported were designed to show if possible whether the vaso-motor center is paralyzed or shows evidence of any considerable degree of tonus during surgical shock.

White rabbits were used. One superior cervical sympathetic ganglion was removed and the auricularis magnus nerve on the same side cut. The connections of the blood vessels of the denervated ear with the vaso-motor center were therefore severed.² Twenty-four hours or more later the animal was etherized and shock induced by opening wide the abdomen, manipulating the

¹ PROC. SOC. EXP. BIOL. AND MED., 1914, XI, pp. 90-92.

² Meltzer, *Amer. J. Physiol.*, 1903, IX, p. 57.

abdominal viscera, and by applying cold water. When the blood pressure had fallen to a low level, *e. g.*, 19 to 25 or 30 mm. Hg., the normal ear, that is, the ear still connected with the vaso-motor center was practically always blanched and bloodless. Even with this low blood pressure, however, the vessels of the denervated ear, contained in most cases, definitely though, as would be expected with low blood pressure, slightly more blood than the normal ear. If at this stage a clamp was applied to the abdominal aorta just below the diaphragm the blood pressure in the anterior portion of the body usually rose quickly to a relatively high level, for example, from 18 mm. Hg. before clamping to 75 or 85 mm. Hg. afterward. With this rise in blood pressure there developed a striking contrast in the appearance of the two ears. The vessels of the denervated ear become gorged with blood, while the vessels of the normal ear in almost every case remained practically maximally constricted. If the connection of the vessels of the normal ear with the vaso-motor center was severed, either by cutting the nerves, destroying their conductivity by the local application of ether, or by freezing the nerves with ethyl chloride, the vessels of the normal ear also became widely dilated.

These experiments have shown that at the time when the rabbits were apparently deep in shock the vaso-motor center was not only not paralyzed but was maintaining a tonus in the vessels of the normal ear of sufficient strength to prevent dilatation of these vessels if the blood pressure was raised to 75 or 85 mm. Hg. or in some cases even higher.