

is therefore not only the dominant but the essential reacting organ in canine anaphylactic shock.

2. *Canine peptone shock.* The severity of the peptone reaction is reduced in dehepatized dogs, and is further reduced in completely eviscerated dogs. There are therefore important though not dominant hepatic and intestinal factors in this shock. In dehepatized dogs, recovery from the shock does not take place, the animals dying in about 60 minutes. The liver, therefore is the essential or dominant organ in peptone recovery.

3. *Canine histamine shock.* The severity of the histamine reaction is not reduced in dehepatized dogs nor in eviscerated dogs. The dominant reacting tissues in this shock, therefore, are either confined to the extra-hepatic and extra-intestinal parts, or are fairly evenly distributed throughout the body as a whole. Recovery from histamine shock takes place as promptly and completely in dehepatized and eviscerated dogs as in intact animals.

Canine anaphylactic, peptone and histamine shock, therefore, are not physiologically identical reactions, at least in so far as their initial or fundamental physiologic mechanisms are concerned. The secondary reactions due to low systematic blood pressure are presumably identical in the three shocks. In the later stages of each shock, the secondary reactions conceivably dominate the clinical picture.

87 (2047)

Histamine reactions in isolated canine tissues.

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Marked histamine reactions may be demonstrated by perfusion methods in isolated canine organs. The following are the reactions thus far studied:

1. *Isolated hind-quarters.* Distinct decrease in perfusion resistance (vaso-dilation), increasing the rate of perfusion flow from 15 per cent. to 200 per cent, depending upon the initial

vascular tone of the parts. At the height of the reaction, the perfusion rate is identical with the perfusion rate with amyl nitrite. Marked edema of the hind quarters, especially of the genitalia.

2. *Isolated intestines.* Distinct increase in perfusion resistance (vaso-constriction), decreasing the perfusion rate from 15 per cent. to 50 per cent., depending upon the histamine concentration used. Marked peristaltic movements during the first three minutes of the test, followed by edema, peritoneal transudation, and increased volume of intestinal contents.

3. *Isolated liver.* Marked increase in perfusion resistance (vaso-constriction), decreasing the perfusion rate as much as 90 per cent. with large histamine doses (1:25000). Edema, peritoneal transudation.

4. *Isolated lungs.* Marked increase in perfusion resistance (vaso-constriction), decreasing the perfusion rate from 50 per cent. to 75 per cent. depending upon the histamine concentration used. Marked pulmonary edema.

Histological study of these reactions will be reported later.

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The hepatic mechanical factor in canine anaphylactic shock.

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It has been assumed by certain observers¹ that the sudden pronounced fall in arterial blood pressure, the characteristic feature of acute anaphylactic shock in dogs, is due to a reduction in the available systemic blood volume as a result of splanchnic engorgement. This engorgement they believe is a passive congestion due to hepatic obstruction. We have endeav-

¹ Weil, R., and Eggleston, C., *Jour. Immunol.*, 1916, ii, 525. Simons, J. P., *J. A. M. A.*, 1919, lxxiii, 1437.