

liver damage. Successful medical or surgical treatment of pathologic liver conditions was in every instance promptly followed by a rise of the subnormal diastase level which soon attained a normal value.

7755 P

Influence of Certain Foodstuffs on Lesions of *Endamoeba histolytica* Infection.*

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It has been shown^{1, 2} that raw liver and liver extract are distinctly beneficial to dogs suffering from acute amebic enteritis. On the other hand, ventriculin was found to be consistently harmful to the host. Furthermore, one of us (E.C.F.) discovered several years ago that dogs which were resistant to amebic infection on a balanced diet, could usually be infected when they were fed canned salmon. Our present inquiry is directed to the nature of the complex relations produced by these 3 foodstuffs on the wall of the large intestine, when the host has amebic enteritis. This report outlines our findings up to the present time and offers no explanations for the results obtained.

Twenty-six healthy young dogs have been used in the study. None were naturally infected with amebae. All were inoculated intracecally³ with the same human strain of *Endamoeba histolytica*. All were suffering from acute amebiasis of a few days' standing when the tests were made. Fresh pig's liver, ventriculin (furnished by Parke, Davis and Co.) and commercial canned pink salmon (grade B) were the foodstuffs employed. Only one animal died; the remainder were sacrificed.

In the liver series 150 gm. of unchopped raw liver were fed to one animal daily. Clinical improvement began about the ninth day, and on sacrifice 13 days later only a few small shallow amebic lesions were found in the cecum and rectum. In contrast, when only 60 gm. of finely chopped liver in liver juice were fed to the

* Aided by a grant from the David Trautman Schwartz Research Fund.

¹ Kagy, E. S., and Faust, E. C., *Proc. Soc. Exp. Biol. and Med.*, 1930, **28**, 252.

² Faust, E. C., and Kagy, E. S., *Am. J. Trop. Med.*, 1934, **14**, 235.

³ Faust, E. C., *Porto Rico J. Pub. Health and Trop. Med.*, 1931, **6**, 391.

host, improvement was noted on the fifth day, and on sacrifice 3 days later only a few shallow lesions were seen in the rectum. In 4 animals both the liquid and solid fractions of finely chopped liver were introduced into the large intestine. When only 12 gm. were used, 2 dogs showed clinical improvement beginning on the fourth day, and one failed to improve. Autopsy revealed only a few amebic lesions in the rectum of one host, numerous shallow lesions in the large intestine of the other 2. In a fourth dog, in which the liver, administered intracecally, was increased to 60 gm. *per diem*, marked improvement was noted on the third day and on sacrifice 2 days later very few pinpoint lesions were discovered. In another group finely chopped liver was autoclaved at 17 pounds pressure for 20 minutes and 60 gm. administered orally (2 animals) and intracecally (2 animals) *per diem*. All of these dogs became rapidly worse, were sacrificed on the eighth day, and were found to have multiple lesions throughout the large intestine, with many motile amebae in the lesions and in the lumen. In a third group the chopped liver was heated at 70°C. for 30 minutes to coagulate all proteins. The solid fraction, doubly filtered and washed, was fed orally in the amount of 85 gm. *per diem* to each of 2 dogs. The liquid fraction (250 cc. solution from 100 gm. raw liver) was also administered orally to each of 2 dogs. All 4 animals were sacrificed on the twenty-second day. Those receiving the solid fraction showed no improvement and at autopsy had numerous deep, undermining lesions, without healing. The other 2 had only a very few small, shallow amebic foci, with extensive healing.

In the ventriculin series in one group the commercial product was suspended in water and 10 gm. in 100 cc. of water were administered orally (one dog) and intracecally (2 dogs) *per diem*. In all 3 animals the infection became rapidly fulminating and on sacrifice (two on the 9th day and one on the 12th day), multiple deep amebic lesions were found throughout the large intestine of each dog and in one a general inflammatory condition was seen. In a second group the ventriculin, suspended in water and autoclaved (17 pounds pressure for 20 minutes), was then administered orally (2 animals) and intracecally (2 animals) in the amount of 6 gm. (suspended in 50 cc. of water) *per diem*. In all 4 of the animals improvement occurred and on sacrifice on the ninth day relatively few active lesions were found.

In the salmon series oral administration of the unaltered canned product was used routinely to exacerbate mild chronic or inactive infections. When, however, the unaltered product was macerated

and introduced intracecally, the host noticeably improved. On return to oral administration the infection promptly fulminated. When peptic and tryptic digests of salmon were introduced intracecally (30 cc. containing 25 gm. of the canned product *per diem*), the dogs became seriously ill on the sixth day and the condition rapidly fulminated. On sacrifice on the tenth day the large intestine of each dog was studded with amebic lesions.

In addition, liver and ventriculin (15 gm. each, suspended in 100 cc. of water *per diem*), and liver and salmon (15 gm. each *per diem*) were combined and administered intracecally. In the former experiment the liver failed to counteract the effect of the ventriculin but in the latter marked clinical improvement and recovery were effected and on sacrifice (on the 12th day) no amebae and no unhealed lesions were discovered.

7756 P

Water Balance in Adrenal Insufficiency and Inanition.*

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Recent reports of water balance studies during adrenal insufficiency in the dog^{1, 2, 3} indicate that in that animal urine volumes, following cessation of cortin injections in adrenalectomized animals, are maintained at or above normal levels in spite of lowered water intake, with little or no reduction until shortly before death. Harrop, *et al.*,² attribute the hemoconcentration which occurs during adrenal insufficiency to loss of fluid by way of the kidneys, and Swingle, *et al.*,³ also regard such loss as an important factor in reduction of plasma volume, though not the sole one.

The experiments herein reported were undertaken to ascertain whether similar results could be obtained with the cat, and whether

* Aided by a grant from the Carnegie Corporation of New York to the Carnegie Institution of Washington.

¹ Loeb, R. F., Atchley, D. W., Benedict, E. M., and Leland, J., *J. Exp. Med.*, 1933, **57**, 775.

² Harrop, G. A., Weinstein, A., Soffer, L. J., and Trescher, J. H., *J. Exp. Med.*, 1933, **58**, 1.

³ Swingle, W. W., Pfiffner, J. J., Vars, H. M., and Parkins, W. M., *Am. J. Physiol.*, 1934, **108**, 428.