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Effect of Feeding Raw Liver to Dogs Infected with Endamoeba Histolytica.

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Cleveland and Sanders[1] have stated that, when *Endamoeba histolytica* is grown *in vitro* on slants of liver infusion agar covered with fresh horse serum-saline 1-6 containing rice flour, a medium is provided in which the organism will carry on its entire life cycle. Encystation begins within 18 to 24 hours after the slant is inoculated and continues for 3 days or more, the actual time for encystation requiring 4 to 6 hours. They believe that "there is evidently something in the dehydrated media . . . . which makes encystment possible," whereas "the whole process of growth and encystation may be upset by the use of contaminated media," *i. e.*, by bacteria or yeasts in the culture media.

We have utilized the Cleveland-Sanders technic in cultivating our Tulane canine strain (Strain A) of *E. histolytica* and have been able to confirm their results as to the value of the liver infusion medium. In a representative case an extremely rich growth of trophozoites was obtained within 72 hours after the culture was started. Four days later no active forms were found, but there were cysts in great abundance. This culture was continued by inoculation with the cysts through 3 subcultures and then discontinued. In another case abundant growth of trophozoites was maintained for 9 days, when no trophozoites but large numbers of cysts were found. These latter were utilized through 5 subcultures, after which an overgrowth of Giardia and bacteria was apparently responsible for the death of the amebae.

Daily observations of our canine strain of *E. histolytica,* cultivated *in vivo* over a period of 10 months has failed to produce a single instance in which other than trophozoites were passed in the stool. This same statement also applies to our more recent Strain B (of canine origin) and Strain C (of human origin, in which only cysts were used for the first experimental inoculation). In all of our infected animals the stools were dysenteric or diarrheic in character or consisted of feces mixed with a large amount of mucus. We therefore had a series of infected dogs on which it was desirable to test *in vivo* the effect of liver substance on *E. histolytica.*

[1] Cleveland, L. R., and Sanders, E. P., *Arch. f. Protistenkde.*, 1930, **70**, 223.

Four animals on a balanced diet, carrying Strain A, were utilized for this experiment. In each case the dog had been infected for a week or more, showed active symptoms of dysentery, and was passing trophozoites of *E. histolytica* in the stool. A single portion of 250 gm. of fresh calf's liver was fed to each animal. In each case the bowel movements were markedly reduced within 24 hours and the stools became semi-formed, although considerable blood and mucus was incorporated with the feces. In 3 of the 4 animals cysts were present in the passed stools within one to 7 days and continued intermittently until the death of the animal (a few days to 3 weeks later). In each case proctoscopic examination over the period revealed active lesions, with trophozoites at the site of the lesion. In the one animal in which cysts were not formed *E. histolytica* trophozoites were present on the day following the liver meal but were not recovered subsequently. The animal died a week later of a profound bacteremia.

This feeding test suggests an important rôle which liver substance plays in providing a medium favorable for encystation of *Endamoeba histolytica* in its natural habitat in the bowel. The fraction of the liver responsible for this phenomenon is the subject of a further study. We believe, however, that the dehydration of the large bowel content is intimately associated with the problem of encystment.

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The Panama Strains of Human Strongyloides.

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The studies of Grassi,[1] Perroncito[2] and particularly those of Leuckhart[3] demonstrated that there were 2 different strains of the human Strongyloides, *S. stercoralis,* the one consisting entirely of a parasitic generation and the other having both a parasitic and a

[1] Grassi, G. B., *Rend. Inst. Lomb. sci. e. lett. Rendic.*, Milano, 2 ser., 1879, **12**, 228.

[2] Perroncito, E., *Atti Accad. Lincei*, Ser. 3, 1879-1880, **1**, 381.

[3] Leuckart, R., *Gesellsch. d. Wissensch. Math. phys. Klasse.* Leipzig, 1882, **34**, 85.