

(7) When the animal is in severe hypo-chloremia and considerably dehydrated, the secretion of urine being greatly lessened, it apparently does not experience thirst for it drinks but little water. If then it is given a 1000 cc. of Ringer's solution intravenously, it promptly becomes thirsty and drinks large quantities of water. (8) The body temperature remains normal throughout the periods of dehydration. (9) Evidence of tetany has been uniformly absent except that occasional slight twitchings of the legs have been observed during the intravenous injection of Ringer's solution. For the most part the deviation from the normal has been in the direction of depression rather than excitation.

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Action of Iodized Oils on Serous Membranes.

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Iodized oils (Lipiodol "Lafay", and Lipiodin "Ciba") have been injected into the pericardium, pleura, peritoneum, and joint cavities in an endeavor to study the pathogenicity of these substances. Dogs were used throughout. Ten animals were injected intrapericardially with 15 to 20 cc. iodized oil; in each case the dog developed a sterile pericarditis with marked effusion. Death was in most cases due to a pneumonia which was probably secondary to an embarrassed circulation caused by the pericardial effusion. The pericardium was covered with a fibrinous exudate resembling that of the "shaggy heart" of pneumonia; there was thickening of the pericardium and it appeared congested. A few adhesions were commonly present, especially about the auricles. The exudate consisted of from 90 to 300 cc. of creamy fluid, which on microscopic examination showed oil droplets, fibrin, and leucocytes (chiefly lymphocytes). Direct smears of the effusion were always negative for bacteria, as were cultures. Microscopic examination of frozen sections stained with Sudan III and of ordinary hematoxylin and eosin preparations showed the fibrin layer covering the inner surface of the pericardium to be loaded with leucocytes and oil droplets. The pericardium itself contained many leucocytes and a few red blood cells. The first few layers of muscle fibers under the pericardium had undergone fatty degeneration.

Two dogs injected with olive oil as controls were negative when killed after 28 and 30 days, respectively. Two poppy-seed oil controls showed the same picture as that found in the animals injected with iodized oil

Seven animals were injected with from 10 to 18 cc. intrapleurally. In general, the results of intrapleural injections resemble those of intrapericardial except that the irritative action is not as marked. Some of the animals died in 10 days to 2 weeks; others survived 3 weeks and were then killed. Those least affected show only a very mild pleuritis with a few adhesions and no effusions; others show marked congestion, many adhesions, and 40 to 100 cc. of effusion. Direct smears and cultures were negative in all cases. Microscopic examination is essentially the same as in the intrapericardially injected animals.

Four dogs were injected intraperitoneally, using 18 cc. of iodized oils for each animal. One died of intercurrent pneumonia in 3 days; the oil was still in the abdomen and no pathology was present. The remaining 3 were killed in from 12 to 22 days; in no case was any inflammatory reaction found, and direct smears showed only oil with an occasional cell.

The right knee and shoulder joints were injected in each of 3 dogs, each joint receiving 2 cc. No difficulty in using the joints was exhibited by any of these animals. When killed in from 22 to 26 days a very mild reaction was found. The joint cartilages showed no change, but there were areas of fibrin deposit on the capsule which microscopically showed leucocytic infiltration. All joints were sterile.

The iodized oils call forth the greatest reaction from the pericardium, less from the pleura, very little from the joints, and none from the peritoneum. This suggests that the amount of motion of a tissue is a factor in its susceptibility. Certainly the marked irritating action of these substances on the pericardium proves that iodized oils are not harmless in all parts of the body.

We suggest the intrapericardial injection of iodized and plain oils as an excellent test of their pathogenicity. Further studies will be performed along this line.