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Introduction of Iodized Oil into Respiratory Tract of Dog.

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While the introduction of substances opaque to the X-ray was begun as early as 1905 it was not until the work of Sicard and Forrestier¹ in 1921 that the practice became general. They used a chemical combination of iodine and poppy-seed oil which is called lipiodol. This is now in general use in diagnosis and in limited use in therapy. Our immediate interest was whether it injured a normal healthy lung.

During the past 2 years we gave dogs repeated doses of lipiodol. During the year 1926-27 most of the work was done by M. I. Smedal and P. A. Duehr.

In one group the dogs were given 2 cc. per kilo body weight and repeated when their urine became iodine free. This period varied from 23 to 67 days. The first 4 dogs belong to this group. In the remaining dogs the treatment was empirical as is often the case in the clinic. Five small dogs averaging about 8 kilos were selected and the oil introduced at convenient periods.

In both groups the several methods of administering the oil were used. Errors as well as hits are recorded so that one may have an idea of how much oil each dog received.

No. 1 received 10 cc. in the right lung Jan. 1; 10 cc. in the pre-tracheal fascia Feb. 17; autopsied April 26.

No. 2 received 10 cc. in both lungs Feb. 26; 10 cc. in the stomach March 26; 10 cc. in both lungs April 2; autopsied May 3.

No. 3 received 7 cc. in both lungs Feb. 17—most of this was soon coughed up and swallowed; 7 cc. in both lungs Feb. 26; 12 cc. in both lungs April 23; autopsied May 4.

No. 4 received 12 cc. in both lungs April 23; autopsied May 4.

¹ Forrestier, J., *Radiology*, 1926, vi, 303.

No. 5 received 5 cc. in the left lung Dec. 20; 5 cc. in both lungs Jan. 3 and 21; 8 cc. in the pretracheal fascia Feb. 17; 8 cc. in the right lung and stomach March 19; 9 cc. in the left lung March 26; autopsied April 27.

No. 6 received 10 cc. in the right lung Aug. 23; 10 cc. in the stomach Sept. 8, 15, 27; 10 cc. in the left lung Oct. 8; 10 cc. in the right lung Oct. 22 and Nov. 8; 10 cc. in both lungs Nov. 22; 10 cc. in the right lung Dec. 5; autopsied March 16.

No. 7 received 10 cc. in the stomach Aug. 27; 10 cc. in both lungs Sept. 8; 10 cc. in the right lung Sept. 15; 10 cc. in the stomach Sept. 27; 10 cc. in the right lung Oct. 8, 22, Nov. 8; 10 cc. in both lungs Nov. 22; 10 cc. in the right lung Dec. 6; autopsied March 15.

No. 8 received 10 cc. in the right lung Aug. 23; 10 cc. in both lungs Sept. 8, 15; 10 cc. in the right lung Sept. 27; 10 cc. in the left lung Oct. 8; 10 cc. in both lungs Oct. 22 and Nov. 8; 10 cc. in the right lung Nov. 22; died of hemorrhagic diarrhea Dec. 12.

No. 9 received 5 cc. in both lungs Aug. 23; 10 cc. in both lungs Sept. 8; 10 cc. in the stomach Sept. 15; 10 cc. in both lungs Sept. 27; 10 cc. in the right lung Oct. 8, 22; 10 cc. in the left lung Nov. 8; 10 cc. in both lungs Nov. 22 and Dec. 6; autopsied March 5.

In the first group iodine tests of the urine were made regularly as were also differential blood counts. While these latter were of interest to us we do not feel that they were accurate enough to report. While an occasional animal lost in weight their health on the whole was excellent. The greatest amount of oil given any one dog was 75 cc.; the longest period that any dog was under observation was 205 days.

At autopsy the lungs were studied in detail and in this we had the cooperation of various members of the Department of Pathology. Some attention was given to the other organs, especially the kidneys and spleen. The gross findings as a whole were negative. The microscopic examinations in some cases showed a small amount of fibrosis and in occasional areas toward the periphery there was a chronic passive congestion.

Pinkerton² recently reporting a series of observations on the use of various oils in diagnosis found that iodized poppy seed oil produced practically no reaction. He, of course, was using but one dose.

² Pinkerton, A., *Arch. of Path.*, 1928, v.