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Experimental pneumonia produced by Streptococcus hemolyticus.

By MARTHA WOLLSTEIN and S. J. MELTZER.

[*From the Laboratories of the Rockefeller Institute for Medical Research, New York.*]

Pulmonary lesions were produced by the insufflation of a strain of *Streptococcus hemolyticus* isolated in Texas and kindly given us by Dr. Avery. The cultures proved to be highly virulent for white mice. A quantity of the culture was insufflated intrabronchially into twenty-four dogs. The dose varied from 1 to 3 c.c. per kilo. Of these animals nine died in less than twenty-four hours, one died on the third day, and the rest were killed three to fifteen days after the inoculation. Dogs which survived more than two days went on to recovery, although they were ill for several days. Streptococcemia was found in all the animals which died early. It was also found in one of two dogs which was killed on the third day and in one of two killed on the fourth day after injection. Later than the fourth day no streptococci were found in the blood. Blood stained pus was present in the pleural cavity in three dogs, all having streptococci in the heart's blood. One of these animals died on the third day, one was killed on the third day and one on the fourth day. In the rest the pleura was normal. Empyema seemed to have developed before the third day.

The pneumonic lesion, in its early stage (twenty-four hours after injection), consisted of intense congestion, edema and small hemorrhages without pleurisy. After forty-eight hours the congestion and edema were still more marked and areas of bronchopneumonia had developed. The solid areas coalesced to some extent, but never became massive. The lungs in these dogs, even on the third day, were never very solid. The lesions involved usually more than one lobe. Resolution had begun on the fourth day, but in one instance there was a distinctly solid area of bronchopneumonia present on the seventh day. In the second week only areas of darker color were left. In no case had organization occurred.

Cultures from the lungs gave streptococci on the first, second, third and fourth days, but remained sterile on the fifth and sixth

days. One case which presented an area of bronchopneumonia still unresolved on the seventh day gave a growth of streptococci from that area. Later than the seventh day the lungs contained no streptococci.

Microscopic examination of the sections made from lungs within twenty-four hours after insufflation of the culture showed congestion of all the vessels with the formation of thrombi in some of them. The alveolar contents consisted of red cells and coagulated serum, but there were practically no hemorrhages. On the second day the microscope showed that the alveoli were packed with polynuclear cells, little fibrin and many red blood cells. The solid areas surrounded inflamed bronchi. Infiltration of the framework of the lungs was present but not intense in any case. An abscess had formed in one lobe in one of the three cases with empyema.

The pulmonary lesion produced by the insufflation of the *Streptococcus hemolyticus* resembled the lesion found in human lungs from which the same organism was cultivated in that it was a bronchopneumonia with marked edema and a large amount of hemorrhage; it differed however from the human lesion by the lack of any tendency toward organization. In the experimental series empyema occurred in 12 per cent. of the cases and a pulmonary abscess was present only once.

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The prognostic value of the creatinine of the blood in nephritis.

By VICTOR C. MYERS and JOHN A. KILLIAN.

[*From the Laboratory of Pathological Chemistry, New York Post-Graduate Medical School and Hospital, New York.*]

At the May, 1914, meeting[1] attention was called to the accumulation of creatinine in the blood in advanced chronic interstitial nephritis, data being reported on two cases at that time. It was then suggested that the retention of creatinine might be of etiological importance in uremia on account of its containing the toxic guanidine group, and further that the creatinine might be of considerable prognostic value in advanced nephritis. Further study

[1] Myers and Fine, PROC. SOC. EXP. BIOL. AND MED., May 20, 1914, xi., p. 132.