

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.

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At the May, 1914, meeting¹ 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.

showed that as the permeability of the kidneys is lowered in conditions of renal insufficiency this becomes evident in the blood; first, by a retention of uric acid, later, by that of urea, and lastly by that of creatinine, indicating that creatinine is the most readily eliminated of these three nitrogenous waste products.¹ Theoretically, the amount of the increase of the creatinine in the blood should be a safer index of the decrease in the permeability of the kidneys than the urea, for the reason that creatinine on a meat free diet is entirely endogenous in origin and its formation (and elimination normally) very constant. Apparently the kidneys are never able to overcome the handicap of a high creatinine accumulation, for, we soon found that those cases in which the creatinine had risen above 5 mg. per 100 c.c. of blood rarely showed any marked improvement and almost invariably died within a comparatively limited time.² On the other hand, cases with high figures for urea, but without marked creatinine retention, generally showed improvement.

We have now had the opportunity of following 94 cases with creatinine values of 5 mg. or more. The outcome has been; died 83, unknown 3, unchanged 4, improved 2 and recovered 2. The two cases classified as recovered were acute cases in which the creatinine remained over 5 mg. for only a few days. Of the 83 known dead, 80 per cent. died in less than two months, although a few cases have lived as long as a year. There were a good many cases who were able to be up and about, and some who showed considerable clinical improvement. The creatinine gave us a better prognostic insight into these cases than either the blood urea or phthalein tests which were made simultaneously. It is our opinion that in these advanced cases of nephritis the blood creatinine furnishes a more reliable prognosis than any other test we possess.

¹ Myers, Fine and Lough, *Arch. Int. Med.*, 1916, xvii., p. 570.

² Myers and Lough, *Arch. Int. Med.*, 1915, xvi., p. 536.