

5062

Experiments Leading to a Possible Basis for Vaccine Therapy in Acute Rheumatic Fever.

B. J. CLAWSON AND G. E. FAHR.

From the Department of Pathology, University of Minnesota, and the Department of Medicine, Minneapolis General Hospital.

The experiments and observations of Swift¹ and Birkhaug² showed that there is marked similarity in the hypersensitiveness (allergy) to streptococci in animals made hypersensitive experimentally and in patients having acute rheumatic fever.

With this similarity in mind we have carried on a series of experiments in animals to determine the relation between hypersensitiveness and the concentration of antibodies in the blood.

Rabbits were made hypersensitive to streptococci according to Swift's method by injecting 5 cc. of agar heavily seeded with streptococci into the subcutaneous tissue in one area. In from 12 to 15 days these rabbits were injected subcutaneously with 1/100 of a standard amount of streptococci in each of 10 places on the right side and with 1/1000 of the amount in each of 10 places on the left side. The character, number, and size of these nodules were used as an indicator of the degree of hypersensitiveness of the animals. Some of these hypersensitive animals were injected intravenously with streptococci from 3 to 5 days before the multiple subcutaneous injections were made. The serum of the animals was tested for agglutinins at the time of the multiple subcutaneous injections and 5 days later when the animals were killed and the nodules examined.

The following facts were observed: 1. In the hypersensitive animals gross lesions, often large abscesses, were frequently seen. 2. The humoral immunity as indicated by agglutinins was relatively low. 3. Giving an intravenous injection of streptococci to these hypersensitive animals, in from 3 to 5 days before the multiple subcutaneous injections in the back, prevented the development of subcutaneous nodules. 4. These desensitized animals showed a high humoral immunity as indicated by a high agglutinating titer. 5. The high humoral immunity appeared to be the factor which prevented the development of subcutaneous nodules.

The fact that hypersensitiveness in rabbits injected with strepto-

¹ Derick, C. L., and Swift, H. F., *J. Exp. Med.*, 1929, xlix, 615.

² Birkhaug, K. E., *J. Infect. Dis.*, 1929, xlv, 363.

cocci and agar is similar to the hypersensitiveness in patients with acute rheumatic fever, and the fact that hypersensitive animals may be made nonsensitive and the further progress of the lesions retarded by giving intravenous injections of streptococci led to the inquiry whether patients with acute rheumatic fever, who are known to be hypersensitive to streptococci, might be made nonsensitive, the further progress of the lesions retarded, and the development of new lesions prevented by giving intravenous injections of streptococci.

Eight patients having acute rheumatic fever were injected intravenously from 4 to 9 times with killed streptococci. The initial doses contained from 25 to 100 million organisms and the final doses one billion each. The agglutinating titers of the sera before any injections were made were from 1:0 to 1:400. The final titers following the injections ranged from 1:6400 to 1:100,000.

5063

Effect of Gastrostomy Feedings on Occurrence of Experimental Acute Pancreatic Necrosis After Ampullary Obstruction.

N. L. LEVEN AND O. H. WANGENSTEEN.

From the Department of Surgery, University of Minnesota.

Gall bladder disease is a factor common to the majority of cases of acute pancreatic necrosis. The mechanism by which gall bladder disease predisposes to pancreatic necrosis has not been established. In this study we have tried to evaluate the factor of reflux through the agency of mechanical obstruction at the ampulla in the cat. The terminal portion of the common bile duct embedded in the wall of the duodenum was exposed and a ligature placed creating a common channel of the bile and pancreatic ducts.

The criterion of pancreatic necrosis used in this work was the actual histological demonstration of necrosis in the pancreas. Post-mortem autolysis and fat necrosis were differentiated from true pancreatic necrosis by the absence of microscopic cellular reaction in these areas.

In a group of 7 cats, 1 developed pancreatic necrosis following simple establishment of ampullary obstruction. In another group air was injected into the gall bladder at the time the obstruction was established until the gall bladder became so distended that its contents were spontaneously evacuated. Through the agency of the