

with cholesterol and propylthiouracil, an even greater increase in both serum and liver cholesterol was found. 2) Separation of serum protein fractions by paper electrophoresis revealed that most of the cholesterol was associated with albumin and alpha globulin fraction in the rat, whereas, in man, the greatest proportion of cholesterol is found in the beta globulin fraction. This same general distribution was observed in all dietary groups regardless of their serum cholesterol levels, although rats receiving butter-cholesterol-propylthiouracil diet showed a slight shift of cholesterol toward the beta globulin fraction. 3) No diets induced a demonstrable change in mast cell count on tissue of rat ear.

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Received January 16, 1957. P.S.E.B.M., 1957, v94.

Experimental Production of Tuberculous Pericarditis.* (23028)

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We were interested in producing tuberculous pericarditis in animals to study frequency of development of the constrictive phase, to determine the effect of antituberculous drugs and to investigate the proper time for pericardiectomy. Prior to this study, no reference could be found concerning experimental tuberculous pericarditis, but after completing our work the report of Kinoshita(1) was found. Kinoshita produced tuberculous pericarditis in rabbits with or without preceding

sensitization, and his results were similar to those noted below.

Procedure. New Zealand white rabbits weighing approximately 5 kg were sensitized by subscapular injection of 1 cc dried heat killed bovine tubercle bacilli. Three mg of the ground material were suspended in each cubic cm of Bayol F. From 6 to 12 weeks later, skin tests with commercial tuberculin were carried out and approximately one-third of the original group discarded because of negative skin tests. In the remaining sensitive animals, 0.5 cc of milky suspension of

* Supported in part by grant from N. Car. Medical Fn.

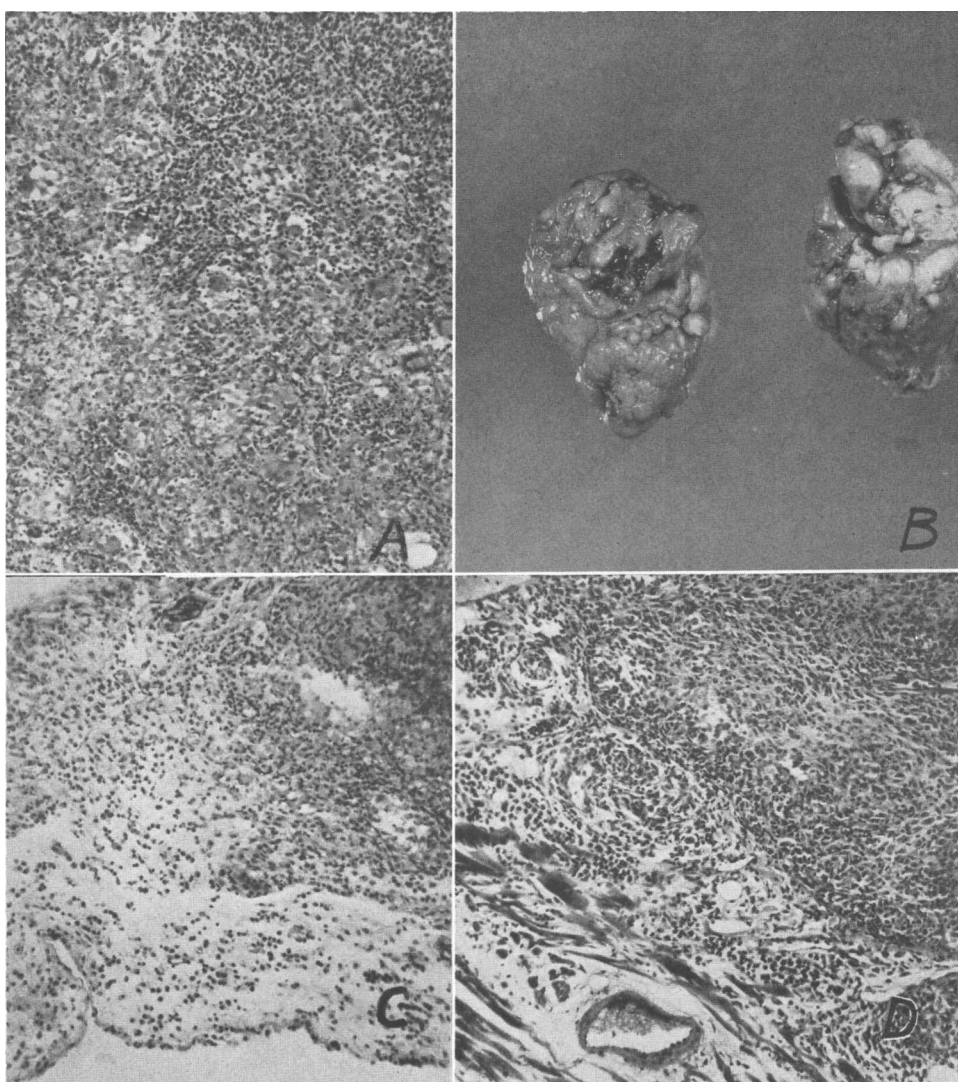


FIG. 1. (a) Tubercle formation in animal sacrificed at 4 weeks (X50). (b) Hearts of animals sacrificed at 10 weeks (left) and 12 weeks (right) showing diffuse epicardial involvement. (c) Pericardial sac from heart on right in b. Edema, cellular infiltration and increased vascularity present (X50). (d) Section from epicardium, same animal as c. Note reaction in cardiac muscle (X50).

live bovine tubercle bacilli were injected into the pericardium through small incision in the left fourth intercostal space. Twenty-five animals were injected. Two died and 2 were sacrificed on second postoperative day, one died on third day, 3 animals were sacrificed at end of 1, 2, 3, and 4 weeks and 2 at end of 6, 8, 10, and 12 weeks. Preoperative chest x-rays and electrocardiographs were made and these were repeated at time of sacrifice. No

special care and no drugs were given.

Results. All animals showed varying degrees of inflammatory reaction grossly. In 5, this was classified as slight, 13 as moderate, 4 as severe, and 3 as very severe. The earliest reaction was a loss of normal sheen of pericardium and epicardium with accumulation of cloudy, sometimes brownish, fluid. Later roughening of these surfaces was noted, and by the end of 2 weeks, grayish white,

raised, slightly irregular patches were seen. These areas varied in number, size, and height, but were present in all animals after the first week. In the slightest reactions found, a number of these granuloma were noted along coronary vessels and over the auricles. In the more extensive disease, patches were found over the epicardium of the ventricles, and lastly over the inner layer of the pericardial sac. In the later and more severe reactions, the entire heart was a nodular mass enclosed in a thickened sac. The fluid varied in amount and color; it was usually cloudy yellow in the later groups, but not infrequently hemorrhagic. Although loose fibrinous adhesions were occasionally noted, no dense adherence of the 2 layers developed. Cultures made in 12 animals were positive in 8.

Microscopically, the pericardium showed edema and increased vascularity in those with slight reaction. The tubercles showed round conglomerations with large macrophages in the center, epithelioid cells and lymphocytes in the surrounding zone and occasional giant cell formation. Capillary proliferation was

noted in some areas. No acid-fast stains were done.

The radiographic studies were not particularly satisfactory although gross enlargement could be noted at times. The electrocardiographic tracings frequently showed T wave changes, but were not diagnostic.

Discussion. At the time of sacrifice, anesthesia was obtained and the chest opened so that cardiac action might be observed directly. In those animals with the more severe reaction, no constrictive pericarditis had developed, but restriction of cardiac activity was evident. Based on the uniformly positive results obtained in this series, and the similar findings by Kinoshita, further studies over longer periods of observation should be carried out, to obtain more information regarding tuberculous pericarditis.

Summary. Tuberculous pericarditis was produced in sensitized rabbits by the intrapericardial injection of live bovine tubercle bacilli.

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Received January 28, 1957. P.S.E.B.M., 1957, v94.

Experimental Hypertension in Rats Produced by Dietary Condiments. (23029)

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Blair(1) reported that, in a group of persons undergoing routine physical examination, he had observed some degree of correlation between occurrence of hypertension with excessive use of condiments in the daily diet. He reported 50 cases, presenting the theory that excessive use of spices and condiments, especially pepper, mustard and ginger, is a common cause of hypertension; and stated his opinion that hypertension may be produced experimentally in animals by repeated feeding of these spices and condiments, and also that the damage produced may be irreversible. In pilot experiments (in cooperation with J. E. Owens, unpublished data) it

was found that rats, maintained on diets to which pepper, mustard and ginger had been added, developed hypertension. However, due to circumstances beyond his control, this work was not pursued further. Personal correspondence led to resumption of our studies on experimental hypertension.

Methods. Female rats (200-250 g) were used. Blood pressure was determined by photoelectric plethysmographic method of Kersten *et al.*(2). Each value recorded represents the average of at least 4 consistent readings in a single test period. Initially, the condiments were mixed in powdered breeder's diet. Later, for reasons to be discussed, a