

Southern Branch.

Tulane University, December 13, 1927

3833

Experimental Chronic Pericarditis. Further Contribution to the Study of Cardiac Hypertrophy.

GEORGE R. HERRMANN AND JOHN H. MUSSEY.

From the Department of Medicine, School of Medicine, Tulane University.

Within the past year and a half we have performed pericardiotomies on 60 dogs through the more or less avascular midsternal route and have introduced into the pericardium various substances, as bacterial antigen, organic and inorganic compounds. Morphine and ether anesthesia by the intratracheal method with artificial respiration were employed. Electrocardiograms and roentgenograms were made before and at intervals after operation and just before death when it was possible to do so. At autopsy the sternum, with the anterior mediastinum, the pericardium, heart and lungs intact, was carefully removed together and subsequently dissected and weighed.

Six dogs died at the end of the first week with serous, fibrinous, and purulent pericardial effusion and with conspicuous anterior mediastinitis from the sternal wound to the heart. The heart weight-body weight ratios of these dogs ranged from 0.00988 to 0.00812, and were, thus, below the maximum normal of 0.01000, but above the average of 0.00798 established in a series of 200 normal dogs of all mongrel breeds, of various ages, sexes, and sizes.¹

One dog survived for 200 days with thick, anterior mediastinal bands of adhesions, but without any visceral adhesions. In this instance the heart weight-body weight ratio was found to be 0.00916. Another dog with a pure anterior mediastinitis for 10 days had a H. W./B. W. ratio of 0.00914. Five dogs had partial visceral synechia as well as heavy anterior mediastinal bands of adhesions for 212, 108, 83, 81 and 43 days, and these presented, respectively, H. W./B. W. ratios of 0.0133, 0.0100, 0.0131, 0.0079, 0.0082; thus

TABLES.

<i>Anterior Mediastinitis with Purulent Pericarditis.</i>			<i>Anterior Mediastinitis Chronic Without Visceral Adhesions.</i>		
No.	Days	Ratio	No.	Days	Ratio
106	8	0.00988	128	200(†)	0.00916
119	8	0.00812	122	11	0.00914
123	6	0.00880			
137	6	0.00854	<i>Complete Synechia with Chronic Anterior Mediastinitis.</i>		
138	6	0.00860			
140	4	0.00886			
<i>Partial Synechia with Chronic Adhesive Mediastinitis.</i>			No.	Days	Ratio
No.	Days	Ratio	150	252	0.01420
130	212	0.01330	156	221	0.0133
147	108	0.01000	148	116	0.0117
149	83	0.01310	146	111	0.0114
132	81	0.00790	145	97	0.0091
125	43	0.00956	131	62	0.01030
			140	45	0.01000
			115	42	0.01180
			135	33	0.0090
			133	14	0.01000

presenting evidences of some cardiac hypertrophy, especially in dogs with the more extensive lesions for longer periods of time.

The dogs had complete synechia of the pericardium as well as anterior mediastinal anchorage for periods of 252, 220, 116, 111, 97, 62, 45, 42, 33, and 14 days, and these presented H. W./B. W. ratios of 0.0142, 0.0133, 0.0117, 0.0114, 0.0091, 0.0103, 0.0100, 0.018, 0.0090, and 0.01000, respectively. Thus, with two exceptions, there is evidence of considerable hypertrophy of the heart as a result of the experimentally produced chronic adhesive mediastino-pericarditis. Pathologically increased work, of course, suggests itself as the etiological factor of the hypertrophy.

¹ Herrmann, G. R., *Am. Heart J.*, 1925, i, 2.

3834

Blood Volume Changes in Carbon Arc Irradiation.*

H. S. MAYERSON. (Introduced by Henry Laurens.)

From the Laboratory of Physiology, Tulane University, School of Medicine.

In previous communications^{1, 2, 3} evidence was reported suggesting an increase in blood volume following carbon arc irradiation, which dilution was believed to mask actual increases in the physical and chemical blood constituents. In the present study we sought to

* Aided by a grant from the David Trautman Schwartz Research Fund.