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Cardiac Hypertrophy in Arteriovenous Aneurysm.*

GEORGE R. HERRMANN AND I. MIMS GAGE.

From the Departments of Medicine and Surgery, Tulane University.

Arteriovenous aneurysm offers an opportunity for the study of factors concerned in the production of cardiac hypertrophy. In the presence of an arteriovenous fistula between the carotid artery and jugular vein, we have confirmed the observation of an immediate enlargement of the cardiac shadow as the fistula is opened. This we feel can be nothing other than dilatation of the heart as a result of the blood shunt. Thus, one of the primary factors in this condition seems to be cardiac dilatation.

It is interesting to note that in a series, 10 dogs in each of which an arteriovenous aneurysm was produced, but thrombosed within a day or two, we found heart weight-body weight ratios ranging from .00690 to .00900, with an average of .00850, which, in our opinion, are not increased enough to be considered significant of actual hypertrophy. The ratios of left ventricular weight were likewise within our normal limits. (See Table I.)

TABLE I.
A-V aneurysm patent for short periods of time.

	Patent	P.O.	L/R	HW/BW
	Hrs.	Mo.		
306	36	4	1.638	.00990
307	48	½	1.230	.00980
310	12	3	1.790	.00690
311	24	½	1.570	.00970
313	36	1	1.260	.00704
314	12	1	1.680	.00970
316	24	2	1.300	.00750
317	12	1	1.820	.00836
319	12	2	1.554	.00810
320	18	1	1.482	.00915
		Averages	1.5	.00850
		Normal	1.4 to 1.8	.00798

In one dog, No. 366, 2 unsuccessful femoral fistulae and one unsuccessful carotid jugular anastomoses were attempted. During these operations the dog had a patent orifice for about a total of 4 days, and at autopsy a H.W./B.W. ratio of .00750 and a L/R ratio of 1.130 were found. In dog No. 355, in which a small slit-like fistula, 3.5 x 1.5 mm., persisted for 80 days, a H.W./B.W. ratio of .01000 and a L/R ratio of 1.420 were found. The left

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ventricular capacity was 17 cc., while the right ventricle held 14 cc. Dog No. 352, with a 2nd fistula measuring 4 x 2 mm. which had persisted for 40 days (a first, and unsuccessful, fistula had been made 80 days before the 2nd), presented a H.W./B.W. ratio of .01180 which was definitely greatly increased, while the L/R ratio was 1.050. The hypertrophy was thus definitely of the right ventricular type. Dog No. 351, with a carotid jugular fistula 3 x 2 mm. for 143 days, presented the greatest degree of general hypertrophy with a H.W./B.W. of .01250, while the right ventricular predominance was conspicuously indicated by the L/R ratio of 1.000.

We may conclude from these preliminary observations that a relatively high grade of cardiac hypertrophy can be produced and that there is relatively greater right ventricular hypertrophy as a result of arteriovenous aneurysm. The left ventricular capacity was 4 cc. and the right ventricle held 5 cc.

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Relative Mechanical Strength of Jejuno-Jejunostomies Performed With and Without Intestinal Clamps.

R. A. CUTTING. (Introduced by Henry Laurens.)

From the Department of Surgery, Tulane University Medical School.

The experiments reported in this communication were undertaken in an attempt to elucidate the rôle played by clamps in post-operative recovery from entero-enterostomies, especially with respect to the comparative mechanical strength of wounds made according to a "clamp" or a "clampless" technique. Twenty-nine dogs were used as experimental animals, of which 26 appear in the final report, one having died on the 2nd post-operative day of general peritonitis, and 2 others, though apparently recovering normally when killed and autopsied on the 4th post-operative day, having shown the presence of a small amount of pus in connection with their enterostomy wounds.

Two enterostomies, one with clamps and the other without clamps, were performed in each animal on the same day, the operative procedures consuming a period from November 9, 1927, to March 29, 1928. Enterostomies were performed in the upper jejunum some 10 inches apart and from 12 to 18 inches from the pylorus. The first enterostomy was performed with clamps in the first 13 animals and the second enterostomy in the second 13 animals;