

Persistence of Pituitary Grafts in the Testis of the Mouse.

W. U. GARDNER* AND R. T. HILL. (Introduced by E. Allen.)

From the Department of Anatomy, Yale University.

Heterografts of fresh anterior pituitary tissue have been found to induce both physiological and structural changes, particularly in the gonads. Most implants have been made intramuscularly or subcutaneously. The fate of such implants has either remained unknown or they have been found to undergo necrosis and absorption. Many investigators have found the testis to be a favorable site for ovarian transplants. In some current experiments with mice we have found a very high percentage of successful ovarian grafts in the testis. It was decided to investigate the possibility of anterior lobe tissue becoming more or less permanently established in testicular tissue.

Mice from 22 to 50 days old, and from highly inbred strains, were used.† Littermate brothers or sisters were used as donors. In 12 mice one pituitary was implanted in one testis, and in one animal one pituitary was placed in each testis. The host animals were killed 3 to 12 weeks after implantation. The testes in which grafts had been made were sectioned serially and stained with modified Mallory's triple stain or hematoxylin and eosin. Pituitary tissue was found in the testes of 11 of the 13 mice which were killed. A well-established graft was found in each testis of one animal (1N—Table I). In the 2 unsuccessful cases the hosts' testes had undergone severe necrosis.

Intermediate lobe tissue persisted in most of the grafts, but not as uniformly as anterior lobe tissue. The pars nervosa consistently degenerated. Pars intermedia and pars anterior cells were easily recognizable (Figs. 1 and 2), as well as the normally distinct cleft between the 2 tissues. The anterior lobe tissue was, in all cases, very well vascularized, and appeared normal in arrangement, structure, and types of cells. Although no cell counts were made, the ratio of cells of the various types (acidophils, basophils, and chromophobes) seemed to be entirely normal. The extent of the anterior lobe grafts, as shown by measurements, indicates that most of the implanted tissue had been successfully maintained, as the pitui-

* National Research Council Fellow.

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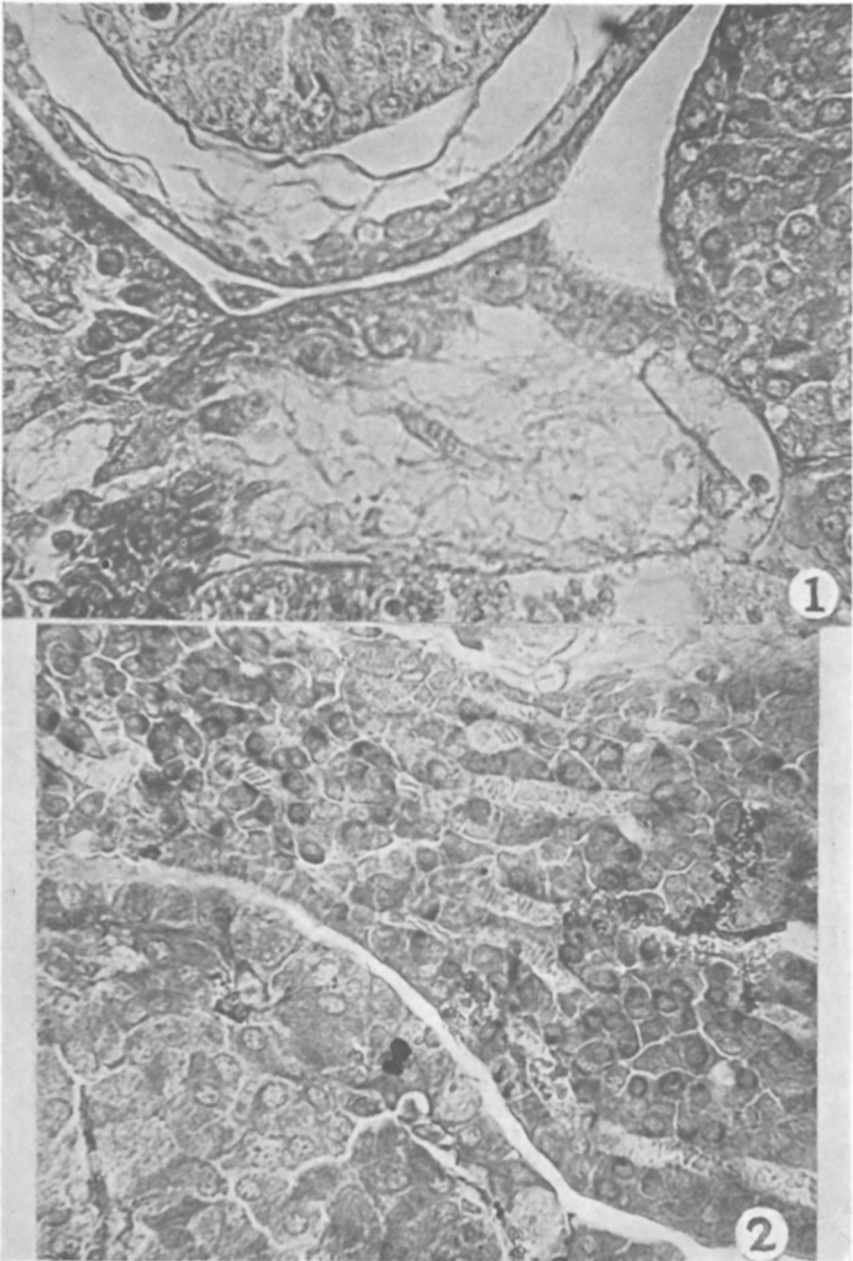


FIG. 1.—A photomicrograph of the grafted pituitary tissue recovered from the testis of mouse 5 CBA four weeks after operation. The pars intermedia appears at the upper right. A cleft extends down to the pars anterior cells at the lower border. A mass of necrotic tissue and a large blood vessel lie below the cleft. A normal testicular tubule is observed above the cleft. $\times 540$.

FIG. 2.—A photomicrograph of the grafted pituitary tissue recovered from the testis of a mouse, 7 N, eight weeks after operation. At the upper right were normal appearing pars intermedia cells separated from the pars anterior cells by the normal cleft. Basophilic, acidophilic, and chromophobic cells were present in the well vascularized pars anterior tissue. $\times 540$.

TABLE I.

Mouse No.	Age at grafting days	No. pits grafted	Age of graft days	Donor	Results*	
					Anterior lobe	Interlobe
1N	37	2	21	Brother	+	+
2A	50	1	21	Sister	+	
3A	50	1	21	"	+	+
4A	23	1	28	Brother	+	+
5 CBA	22	1	28	"	+	+
1 CBA	40	1	42	"	+	
8N	40	1	42	"	—	—
7N	40	1	57	"	+	+
10 CBA	27	1	57	"	+	+
9 CBA	27	1	86	"	+	+
3N	40	1	86	"	—	—

* + means good graft; — means no graft.

taries implanted were from immature animals. Mitosis was not observed, indicating that little or no hyperplasia of the persisting tissue was taking place.

Haterius, Schweizer, and Charipper,¹ after making implants of anterior lobe in the anterior eye chamber of rabbits and guinea pigs, observed disturbances of the cell nests and cord arrangement. Also vascular connections were not established. The eye implants show decided contrast to the above described testis grafts in which cell arrangement and ratios appeared quite normal, and in which an excellent host blood supply was established.

Experiments are now in progress to check on the function of anterior pituitary grafts in the testis.

¹ Haterius, Schweizer and Charipper, *Anat. Rec.*, **61**, No. 4.