

demonstration of fibrinolytic activity.

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Evidence for Function of Aberrant Thyroid Tissue in Thymus of Rats.* (22899)

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In the course of a study on the long-term effects of massive doses of I^{131} in rats, aberrant thyroid tissue in the thymus was found in unexpectedly high incidence in the untreated controls(1,2). In 21 normal female rats of the Sprague-Dawley strain whose ages ranged from 260 to 427 days, one or more thyroid follicles were found in routine sections of thymus of 8 rats. Cords or sheets of epithelium resembling that of the thyroid were found in an additional 4 rats; in these latter there was no follicular arrangement or association with colloid. An attempt has been made to demonstrate whether the thyroid follicles in the thymus take up radioiodine and incorporate it in colloid.

Methods. Female rats of the Sprague-Dawley strain received 50 $\mu\text{C/g}$ body weight of I^{131} when 55 days old and were autopsied 24 hours later. Histological sections were made of the thymus, and autoradiographs were prepared on Eastman Kodak 10 μ NTA stripping film.

Results. Fig. 1 illustrates the thymus of one of the rats at low magnification; thyroid follicles may be seen in the medulla. The tissue surrounding these follicles is characteristic of the thymic medulla. At higher mag-

nification (Fig. 2) it is seen that these follicles possess a cuboidal epithelium and are filled with colloid. The colloid variably appears deeply eosinophilic and homogeneous or pale staining and vacuolated—the latter suggesting resorption. The follicles also vary in autoradiographic density (Fig. 3), but all show some radioiodine concentration. Thus, in structure and in iodine concentration, these follicles are like those found in the thyroid gland proper.

Discussion. The possibility that accessory thyroids and aberrant thyroid tissue may occur, especially in the mediastinum, has long been recognized. Adequate embryological explanations may be derived by study of the development of the branchial pouches which are the anlagen of both thyroid and thymus (3). It has been shown that administration of thiourea to Wistar strain rats resulted in a high incidence of thyroid adenomata in the thymus(4). The objective of the present communication is to point out a relatively high incidence of accessory thyroid tissue in an animal commonly employed in endocrinological experiments, and to show that this aberrant tissue may be functional rather than merely rudimentary. The findings have a bearing on experiments where total thyroid ablation is critical; surgical thyroidectomy may not reach all the functional thyroid tis-

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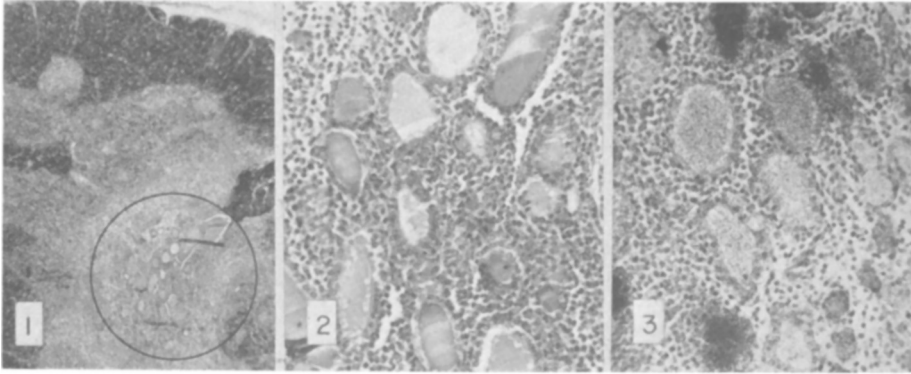


FIG. 1. Rat thymus; thyroid follicles in circled area. H and E $\times 20$.

FIG. 2. Thyroid follicles from field in Fig. 1. H and E $\times 130$.

FIG. 3. Autoradiograph of section of tissue neighboring that shown in Fig. 1 and 2. $10\ \mu$ NTA stripping film, 2 hr exposure, H and E $\times 130$.

sue, and might have to be followed routinely by radioiodine. It would, in fact, appear possible that following surgical thyroidectomy the resultant increase in pituitary output of thyrotropic hormone could stimulate aberrant thyroid tissue. This possibility has been recognized, for example, in the studies by Entenman *et al.* (5) in which surgical thyroidectomy was followed by hypophysectomy.

Critical studies are under way to compare the thymi of surgically thyroidectomized rats with those of rats in which thyroid ablation was accomplished by radioiodine. Already differences in the oxygen consumption in the two groups of rats have been demonstrated by metabolimetry.

Summary. Aberrant thyroid follicles have

been found in the thymi of female Sprague-Dawley rats. The accumulation of I^{131} by such follicles, shown autoradiographically, indicated their functional nature.

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