

Solid Cell Nest and Ectopic Thymic Tissue of the Thyroid Gland

—Process of Its Incorporation into the Thyroid Gland—

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KEY WORDS

Solid cell nests (SCN), Ectopic thymic tissue, Thyroid

INTRODUCTION

So-called solid cell nests (SCN), probably representing results of the ultimobranchial bodies (UBB), are reported to be found in 21-60% of serially sectioned thyroid glands^{1), 2)}. Ectopic thymic tissue also can be found in the thyroid gland, although much less frequently than SCN¹⁾. The presence of both tissues in the thyroid gland is theoretically reasonable from the aspect of embryonic development. However, the process of the incorporation of both tissues into the thyroid gland has not been sufficiently clarified. Recently, we encountered two cases, in which UBB remnant and thymic tissue adjacent to the thyroid gland appeared to be incorporated into the thyroid gland during the process of expansive growth of the thyroid gland. This finding is unique and we report here both cases briefly.

CASE REPORTS

Case 1 :

A 64-year-old man was found to have a laryngeal carcinoma, and underwent a total laryngectomy combined with left lobectomy of the thyroid gland. The left lateral lobe of the thyroid was attached to the trachea, but microscopic examination failed to detect any evidence of invasion of the laryngeal carcinoma into the thyroid gland. SCN were found incidentally in the middle portion of the left thyroid lobe, and were embedded in the interlobular fibrous tissues (Fig. 1). The

nests were made up mostly of pale staining, cuboidal to spindle-shaped epithelial cells, forming multilayered solid and cystic structures (Fig. 2). The cystic structures contained an alcian-blue-positive mucinous material. Immunohistochemically, the epithelial cells comprising SCN were positive for carcinoembryonic antigen (CEA) (Fig. 2a) and keratin. A few calcitonin-positive cells were also intermingled (Fig. 2b). Beneath the thyroid capsule, and closely adjoining the SCN, an intrathyroidal inclusion of fat tissue was found, which contained tiny foci comprising cuboidal epithelial cells and some lymphocytes, similar to UBB remnants (Fig. 1 and inset). This finding suggested that the SCN found in this case was formed by the incorporation of the UBB remnants adjacent to the thyroid gland in the process of expansive growth of the thyroid gland.

Case 2 :

A 30-year-old woman was diagnosed with Graves' disease associated with hyperthyroidism. Medical treatment of the hyperthyroidism was unsuccessful, and so a subtotal thyroidectomy was performed. The resected thyroid gland was routinely sectioned and examined. An ectopic thymic tissue was incidentally found in the middle portion of the right lateral lobe of the thyroid (Fig. 3 and inset). The ectopic thymic tissue was composed of an abundant lymphoid tissue containing well-developed Hassall's corpuscles (Fig. 3

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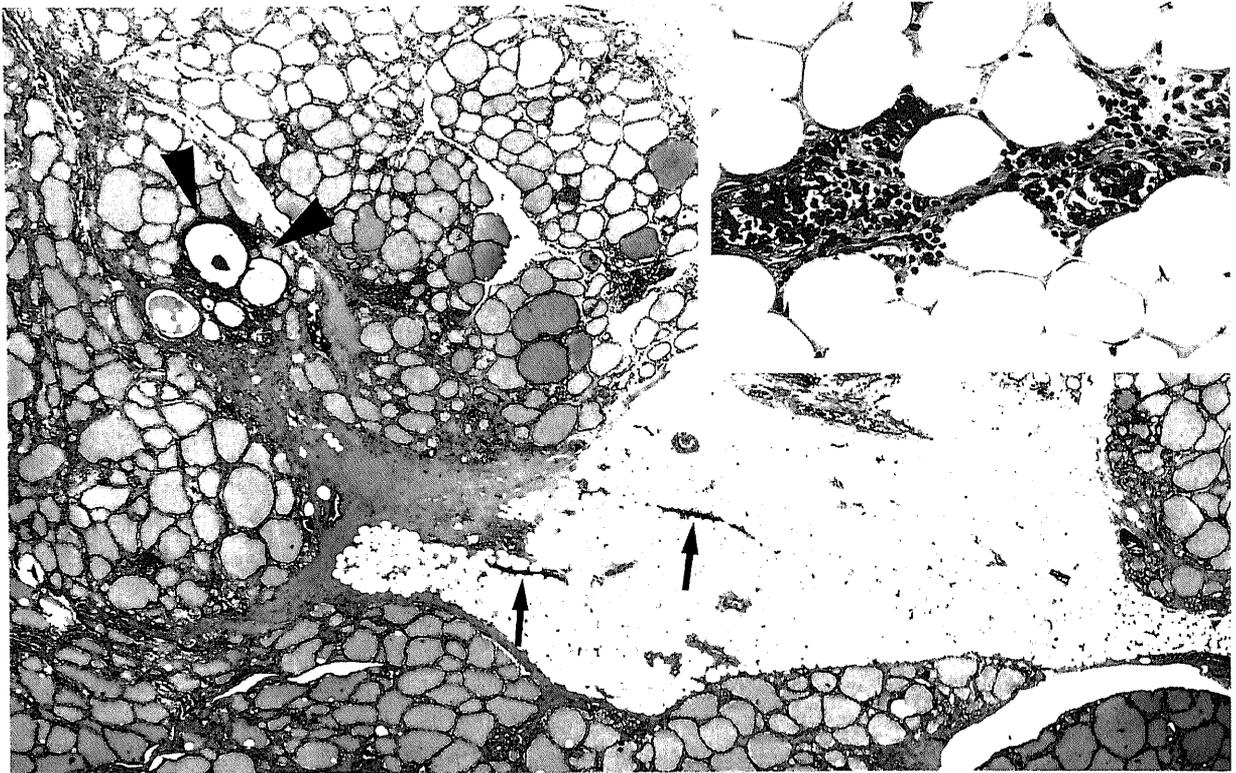


Fig. 1. Case 1. SCN with cystic space (arrowheads) are found in close to the inclusion of fat tissue containing UBB remnants (arrows). Inset : UBB remnants are composed of cuboidal epithelial cells and some lymphocytes. (H&E, x20 ; Inset, x200)

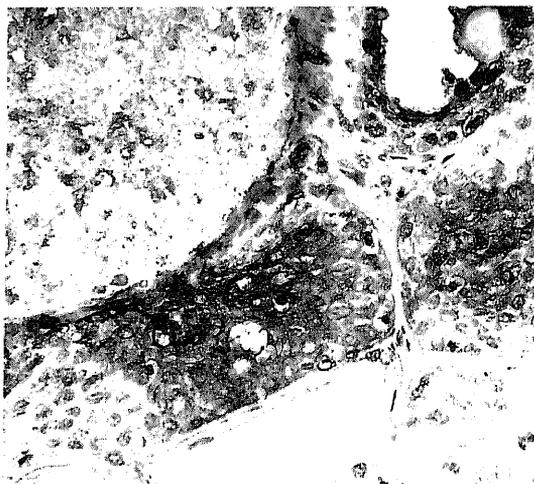


Fig. 2a

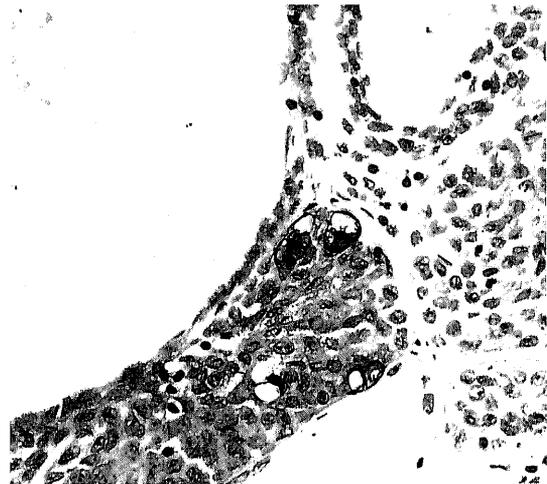


Fig. 2b

Fig. 2. Case 1. (a) SCN show a strong positive reaction for CEA. (b) A few calcitonin-positive cells can be identified in the SCN. (Immunostain using ABC method, x200)

and inset). The ectopic thymic tissue was embedded in the interlobular fibrous septa and extended from the thyroid capsule to the center of the thyroid gland (Fig. 3). This finding suggested that the ectopic thymic tissue found in this case was also formed by

the incorporation of the thymic tissue remnants abutting on the thyroid gland in the process of the expansive growth of the thyroid gland.

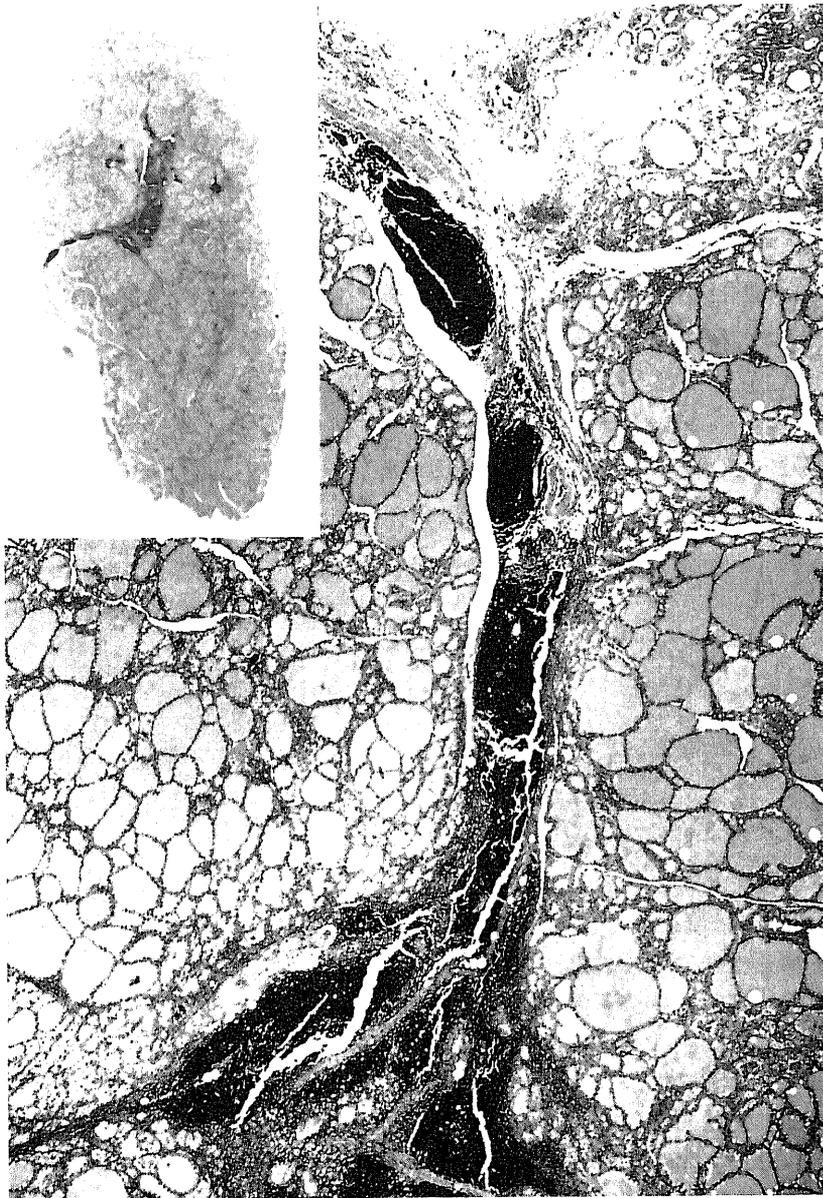


Fig. 3. Case 2. Ectopic thymic tissue, embedded in the interlobular septa, extends from the thyroid capsule to center of the thyroid gland. Inset : Macroscopic appearance of the thyroid gland on histologic slides stained with H&E.

DISCUSSION

The UBB in human embryos develop from the fourth and fifth branchial pouch complexes along with thymic and parathyroid tissues³⁾. They become incorporated within the lateral thyroid lobe as tiny solid and cystic cellular nests, known as SCN, and are believed to be involved in the development of para-follicular cells⁴⁾. Most SCN are believed to be formed by the fusion of UBB and lateral thyroid anlage in the fetal period, and they tend to disappear with growth of the thyroid gland⁵⁾. Not infrequently we

observe the remnants of UBB or thymic tissues in fat tissues adjacent to the thyroid gland. The present cases indicated the possibility that these extrathyroidal UBB remnants may also become incorporated into the thyroid gland in association with the expansive growth of the thyroid gland during postnatal life.

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甲状腺における solid cell nest および 迷入胸腺組織

— 甲状腺へのとり込みの過程 —

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