Case Report:

Ectopic cervical thymus

V. Shanthi,[1] N. Mohan Rao,[1] B.A.Rama Krishna,[1] K. Venkata Murali Mohan,[1] P.V.Pradeep[2]
Departments of [1]Pathology, [2]Endocrine Surgery, Narayana Medical College, Nellore

ABSTRACT

A 21-year-old female presented with a history of slowly enlarging nodular painless mass on the right side in the anterior part of the neck. The patient was asymptomatic except for cosmetic disfigurement. Thyroid function test results were within normal limits. On fine needle aspiration cytology, it was diagnosed as colloid nodule. A right hemithyroidectomy was performed in view of cosmetic disfigurement; histopathological examination of the excised specimen revealed ectopic thymic tissue adjacent to thyroid. This case is reported to emphasize the possible clinical and surgical presentation of this rare entity.

Key words: *Ectopic thymus, Thyroid, Nodule*

Shanthi V, Mohan Rao N, Rama Krishna BA, Murali Mohan KV, Pradeep PV. Ectopic cervical thymus. J Clin Sci Res 2012;3:138-40.

INTRODUCTION

Ectopic thymic tissue adjacent to the thyroid gland is a rare entity and an entirely incidental finding either per-operatively or at autopsy. Ectopic thymus from congenital maldescent generally remains dormant and is often found incidentally during thyroid surgery. Most reported cases of ectopic thymus occur in the prepubertal pediatric population, correlating with a period of maximum growth of the thymus. Adult cases of ectopic thymus are exceedingly rare, most likely due to age-related involution and replacement by fibro-adipose tissue. Occasionally, intrathyroidal masses can originate from thymic tissue and can be misdiagnosed as thyroid neoplasms or other nodular thyroid pathologies.[1] Hereby we report a case of ectopic thymic tissue, which was encountered in association with a thyroid nodule.

CASE REPORT

A 21-year-old female presented with a nodular mass on the right side in the anterior part of neck. Physical examination revealed a firm, smooth-surfaced nodular mass measuring 3.0 x 2.5 cm on the right side of the neck, regional lymphadenopathy was not present. Her secondary sex characteristics were in accordance with her age and her menstruation cycles were regular. There was no family history of thyroid disease. Thyroid function test results were within normal range. A fine needle aspiration on the right thyroid nodule revealed a few clusters of benign appearing follicular epithelial cells in the background of colloid and was diagnosed as colloid nodule. Because of cosmetic disfigurement, the patient underwent right hemithyroidectomy and the specimen was sent for histopathological examination.

On gross examination the right hemithyroidectomy specimen exhibiting smooth external surface weighed 14 g and measured 6 × 4.5 × 3 cm and cut surface revealed a well-circumscribed gray-brown nodule that measured 2 cm in diameter. A small reddish brown ovoid nodule was seen attached to the inferior aspect of the thyroid gland measuring 0.6 × 0.5 × 0.2 cm. Microscopically, the nodular mass of the thyroid showed follicles of varying sizes filled with colloid. Some of follicles were cystically dilated. Sections which included the reddish brown ovoid nodule also revealed thymic tissue with Hassall's corpuscles (Figures 1 and 2).

DISCUSSION

Ectopic thymic tissue can be explained by maldescent of the thymus during embryologic

Received: 5 February, 2012.

Corresponding author: Dr V. Shanthi, Associate Professor, Department of Pathology, Narayana Medical College, Nellore. **e-mail:** santhijp@gmail.com

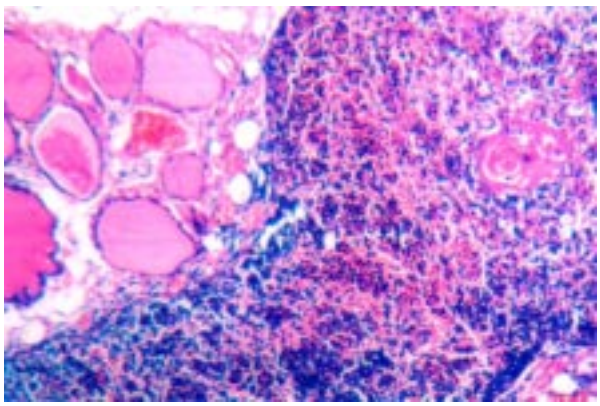

Figure 1: Photomicrograph showing thyroid follicles and adjacent thymic tissue with Hassall's corpuscles (Haematoxylin and eosin × 100)

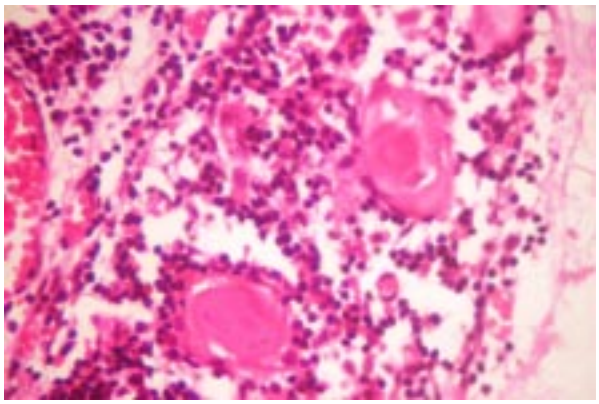

Figure 2: Photomicrograph showing thymic tissue with lymphocytes and Hassall's corpuscles (Haematoxylin and eosin × 400)

development. The embryologic development of the thymus originates high in the neck in early foetal life and reaches its final destination in the mediastinum only after a process of progressive descent. The thymus commonly shares its origin with the inferior parathyroid glands, both endodermic derivatives of the third pair of bronchial pouches. The thymus develops primarily from the ventral wing of the third pharyngeal pouch, whereas the inferior parathyroid glands develop from the dorsal wings of the same pouch. The primordia on each side migrate medially and fuse to form thymus by the eighth week. The adjacent parathyroid glands normally come to rest close to the lower pole of thyroid. The thyroid gland also descends in the midline of the neck anterior to the hyoid bone and comes to rest in the lower neck. The fusion of the right and left thymic primordial is never really complete. So the organ never entirely loses its paired nature. When the fusion is complete the thymus and the inferior parathyroid lose their connection with the pharynx and migrate caudally to their final location which is usually entirely in the anterior mediastinum between the sternum, parietal pericardium and thoracic inlet.[2]

On rare occasions, the thymus fails in its descent and appears as remnants, implants or accessory nodules anywhere along the cervical pathway from the angle of the mandible to the thyroid gland. The level of the thyroid gland is the most common site for ectopic thymic tissue, but other rare sites include base of the skull, middle ear, tonsil, submandibular gland, posterior aortic arch and skin surrounding a bilateral cleft palate.[3] Although our case represents ectopic thymic tissue adjacent to normally located thyroid gland, it is interesting to note that the converse may also take place. Maldescent during early embryologic development may also leave aberrant thyroid and parathyroid tissue within a normally placed mediastinal thymus.

Ectopic thymic tissue, like its normal counterpart, may also undergo transformation to thymic hyperplasia or even thymic neoplasms. In adults thymoma, lymphocyte-predominant thymoma or thymic carcinoma have been reported in few cases.[4] There has been no report of a child with malignancy arising from intrathyroidal thymic tissue to date. However, aberrant thymic tissue may be misinterpreted as a malignant nodule at surgery resulting in unnecessary resections in children.[5]

The presence of ectopic solid thymus in the neck can masquerade per-operatively as a lymph node metastasis and also any intrathyroidal nodular lesion encountered per-operatively should be sent for frozen section to identify any thymic tissue to prevent unnecessary radical neck dissection.

REFERENCES

1. Gimm O, Krause U, Wessel H, Finke R, Dralle H. Ectopic intrathyroidal thymus diagnosed as a solid thyroid lesion: case report and review of the literature. J Pediatr Surg 1997;32:1241-3.
2. Ballantyne JW. Manual of antenatal pathology on hygiene, the embryo. Edinburgh: William Green, 1904. Reprinted: Clinton: Jacobs Press;1991.p47-57.
3. Bale PM, Sotelo-Avila C. Maldescent of the thymus: 34 necropsy and 10 surgical cases, including 7 thymuses medial to the mandible. Pediatr Pathol 1993;13:181-90.
4. Hofman P, Battaglione V. Epithelial tumors with thymus differentiation of the thyroid gland and the neck. Arch Anat Cytol Pathol 1998;46:141-4.
5. Buyukyavuz I, Otcu S, Karnak I, Akcoren Z, Senocak ME. Ectopic thymic tissue as a rare and confusing entity. Eur J Pediatr Surg 2002;12:327-9.