ECTOPIC THYROID TISSUE CAUSING CORD COMPRESSION

Gülhis Deda, M.D., Tahsin Teziç, M.D., Uğur Karagöl, M.D., Ayşehan Akıncı, M.D., Fatih Kökeş, M.D., Ayşegül Akçayüz M.D.,

Dr. Sami Ulus Children's Hospital Department of Pediatric Neurology (GD, UK), Department of Pediatric Endocrinology (TT, AK), Department of Pathology (AA), Ankara Hospital Department of Neurosurgery (FK), Ankara, TÜRKİYE

Turkish Neurosurgery 2 : 77 - 79, 1991

SUMMARY :

A-7 year-old girl who was admitted to Dr. Sami Ulus Children's Hospital was diagnosed as cord compression at Thoracic 6-7 level. Pathological examination of the removed material revealed thyroid tissue. Aspiration material from the thyroid nodule was also benign. The mass causing cord compression was diagnosed as mediastinal ectopic thyroid tissue. Review of the literature showed that this is the first recorded case of mediastinal ectopic thyroid tissue causing cord compression.

KEY WORDS :

Ectopic thyroid tissue, Cord Compression.

INTRODUCTION

Ectopic thyroid tissue can be located from the lingual to the mediastinal area and in the literature there are reports of ectopic thyroid tissue in the right carotid thyroid tissue (9), lingual ectopic thyroid (7), intrathoracic ectopic thyroid (2), substernal goitre (5), intralaryngotracheal thyroid (6) but we could not find any evidence of ectopic mediastinal thyroid tissue causing cord compression.

Our patient showed cord compression at thoracic 6-7 level and the mass was revealed as ectopic thyroid tissue.

CASE REPORT

7 year-old-girl was admitted to the Department of Pediatric Neurology in Dr. Sami Ulus Children's Hospital in 1990 becuse of impaired gait for 2.5 months and one month previously she became unable to walk.

Physical examination revealed: Palpable thyroid with left-sided hard nodule. Strength in the lower extremities was MRC: 1/5 in both legs and almost normal in the upper extremities. Tonicity of the lower extremities was increased but normal in the upper extremities. There was hypoaesthesia at thoracic 6-7 level. Deep tendon reflexes were elicited as +++/+++ in the lower extremities. There was bilateral Babinski sign and Achilles clonus. Myelography showed total block at T 6-7 level (Fig. 1). Chest X-ray revealed a mediastinal mass at thoracic 6-7 level (Fig. 2). On 25 July an epidurally located mass

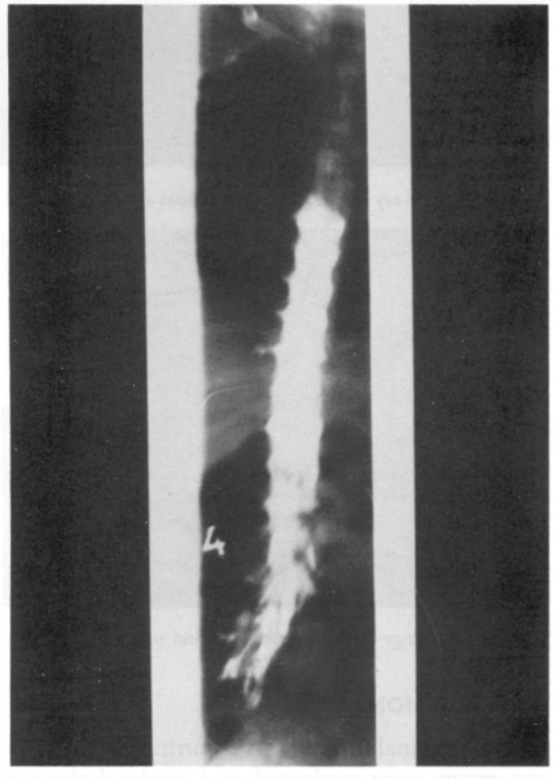

Figure 1 : Myelography showing total block at thoracic 6-7 level.

was subtotally resected. Histology showed normal thyroid tissue (Fig. 3). Thyroid ultrasonography revealed; a semi-solid solitary nodule of 25 to 10 mm. in size in the left lobe of the thyroid, the right lobe was intact. Thyroid function test just after the operation were as follows;

T3 : 210 ng./dl FT3 : 5.5 pg./dl.
T4 : 12 ug./dl. FT4 : 2.3 ng./dl.

One month after operation thyroid hormone functions were unchanged.

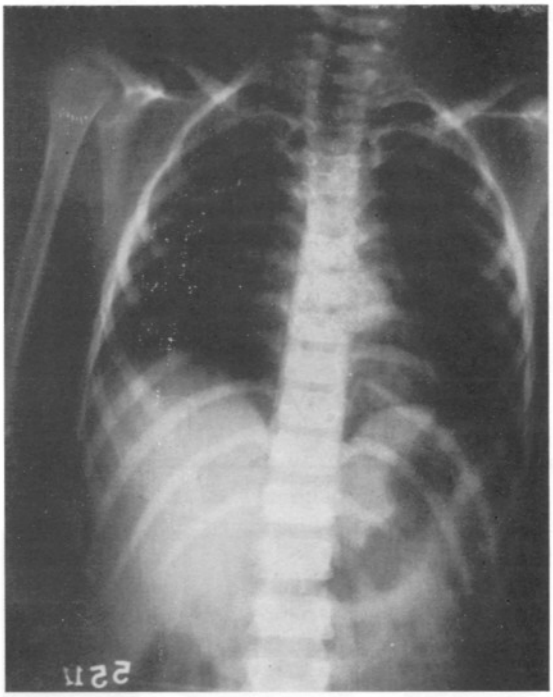

Figure 2 : Chest x-ray showing mediastinal mass at thoracic 6-7 level.

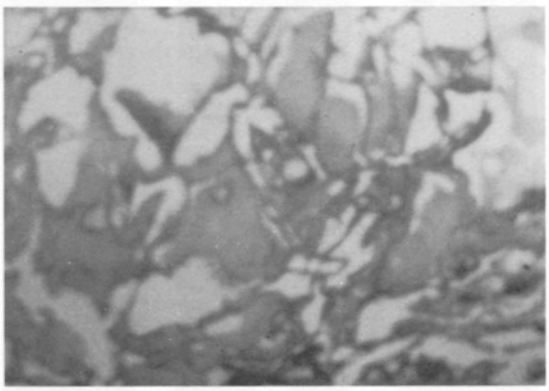

Figure 3 : Histology showing normal thyroid tissue.

DISCUSSION

Eighty spinal cord tumors occurring in a pediatric age group were evaluated and epidural thoracic tumors were as follows: ganglioneuromas, neuroblastoma, blood-borne metastases, dermoid, leukemia, teratoma, neurofibroma (3).

Our patient's mass was evaluated as normal thyroid tissue. Aspirated material from the goitre also revealed normal thyroid tissue. There was no evidence of malignancy in either the mass at the spinal cord or the goitre; we presumed that the mass at the thoracic level was ectopic thyroid tissue.

The thyroid is embryologically an offshoot of the primitive alimentary tract, from which it later becomes separated. During the third to fourth week in utero, a median anlage of the epithelium arises from the pharyngeal floor in the region of the foramen cecum of the tongue, i.e., at the junction of the anterior two thirds and the posterior third of the tongue. The main body of the thyroid, referred to as the median lobe or median thyroid component, follows the descent of the heart and great vessels and moves caudally into the neck from this origin. It divides into an isthmus and two lobes, and by seven weeks it forms a "shield" over the front of the trachea and thyroid cartilage. It is joined by a pair of lateral thyroid lobes originating from the fourth and fifth branchial pouches. It is from these lateral thyroid components, now frenquently called the ultimobranchial bodies, that the C cells (parafollicular cells) enter the thyroid lobes. C cells contain and secrete calcitonin and are the cells that give rise to a medullary carcinoma of the thyroid gland. As the gland moves downward, it leaves behind a trace of epithelial cells known as the thyroglossal tract. It is from this structure that both thyroglossal duct cysts and the pyramidal lobe of the thyroid develop. The eventual mature thyroid gland takes on many diffeent configurations owing to the embroyogical development of the thyroid and its descent.

Variations involving the median thyroid angale represent an arrest in the usual descent of part or all of the thyroid-forming material along the normal pathway. Ectopic thyroid development can result in a lingual thyroid or in thyroid tissue in a suprahyoid, infrahyoid or intratracheal location. The entire gland or part of it may descend caudally, which results in thyroid tissue located in the superior mediastinum behind the sternum, adjacent to the aortic arch or between the aorta and pulmonary trunk, within the upper portion of the pericardium, and even within the interventricular septum of the heart. Most intrathoracic goitres, however, are not true anomalies but rather are extensions of pathological elements of a normally situated gland into the anterior or posterior mediastinum (4).

When reviewing the literature there were reports of ectopic thyroid tissue in the right ventricle of the heart which is rare (1,8), aberrant right carotid thyroid tissue (9), lingual ectopic thyroid (7), intrathoracic ectopic thyroid (2), substernal goiter (5), intralaryngotracheal thyroid (6), but we could not find any evidence of ectopic mediastinal thyroid tissue causing compression of the spinal cord.

In our patient the thyroid function tests just after operation and one month later were within normal limits. These normal values were probably due to the normally-acting pretracheal thyroid tissue. In conclusion this seems to be the first published case of mediastinal ectopic thyroid tissue causing cord compression.

Correspondince : Gülhis Deda. M.D.,
Dr. Sami Ulus Children's Hospital
Department of Pediatric Neurology
Ankara TÜRKİYE.

REFERENCES

1. Doria E, Adostoni P, Fiorentini C: Accessory thyroid tissue in the right ventricule. Chest 96 (2): 424-425, 1989
2. Hall TS, Caslowitz P, Caroline P, et al: Substernal goiter versus intrathoracic aberrant thyroid: A critical difference. Ann Thorac Surg 46:684-685, 1988
3. Hendrick EB: Spinal cord tumors in children, in Youmans JR (Ed): Neurological Surgery: WB Saunders, 1982, pp, 3215-3216
4. Kaplan EL: Developmental abnormalities of the thyroid, in DeGroot LJ (Ed): Endocrinology: WB Saunders, 1989, pp, 796-801
5. Katlic MR, Grillo HC, Wang C: Substernal goiter, Analysis of 80 patients from Massachusetts General hospital. The American journal of Neurosurgery 149:283-287, 1985
6. Osammor JY, Bulman CH, Blewitt RW, et al: Intralaryngotracheal thyroid. The Journal of Laryngol and Otology 104:733-736, 1990
7. Ramos-Gabatin A, Pretorius HT: Radionuclide turnover studies on ectopic thyroid gland-Case report and survey of the literature. The Journal of Nuclear Medicine 26 (3): 258-262, 1985
8. Richmond L, Whittaker JS, Deirahiya AK, et al: Intracardiac ectopic thyroid: A case report and review of published cases. Thorax 45(4): 273-294, 1990
9. Rubenfeld S, Joseph UA, Schwartz MR, et al: Ectopic thyroid in the right carotid triangle. Arch Otolaryngol Head Neck Surg 114(8): 913-915