

1

2 3

:
:
X
(pertechnetate)
CT 7
, FP,
-hCG, CEA 가 , 가 가
,
: 7
가 95% 1 2 95% 3 가
. CT 3 X
:
CT

, 가 가
5 15
가 (follicle)
60 1994 1999 5
가 가 (1). (pertechnetate)
25 CT X CT
,
(2-7). (Graves' disease)
가
, CT
(8-11).

T3,
T4가 가 TSH (thyroid stimulating hormone)가
가
CT CT/T-9800 scanner, GE high speed
advantage system(General Electric Medical System,
Milwaukee, U.S.A.) Somatom Plus 4(Siemens, Erlangen,
Germany) 8-10 mm, pitch 1

7 30 ml Iopromide (Ultravist 370,
Schering, Germany) 80 ml 20

1
2
3

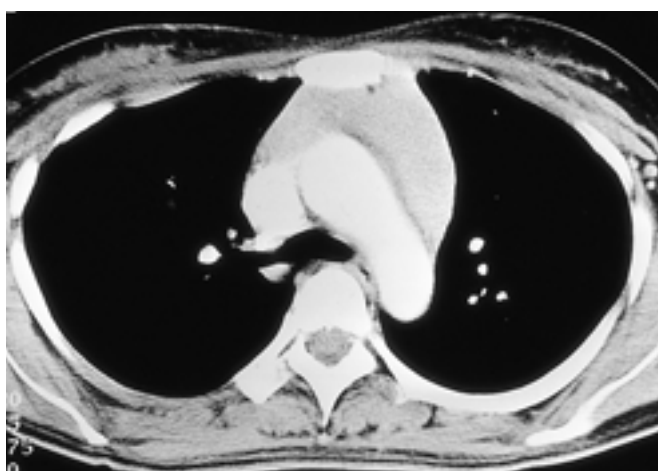
2000 2 17 2000 6 21

CT 1 . 4 4.5
 2 X
 (percutaneous needle biopsy)
 (TSH receptor antibody, thyroglobulin antibody, microsomal antibody),
 alpha-fetoprotein (FP), beta-human chorionic gonadotrophin (-hCG), chorionic embryonic antigen (CEA)
 가 , , X
 CT
 , ,
 가 가 ,

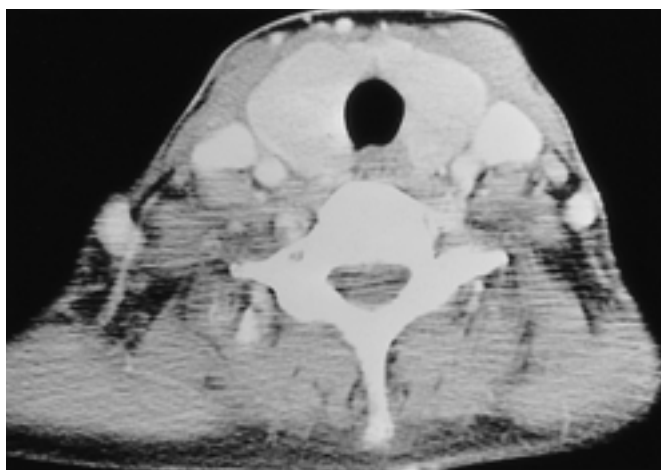
2 가
 Park (12) Murakami (8)
 7 16-36 26
 1 . 7
 (thyrotoxicosis)
 FP, -hCG, CEA 가 (



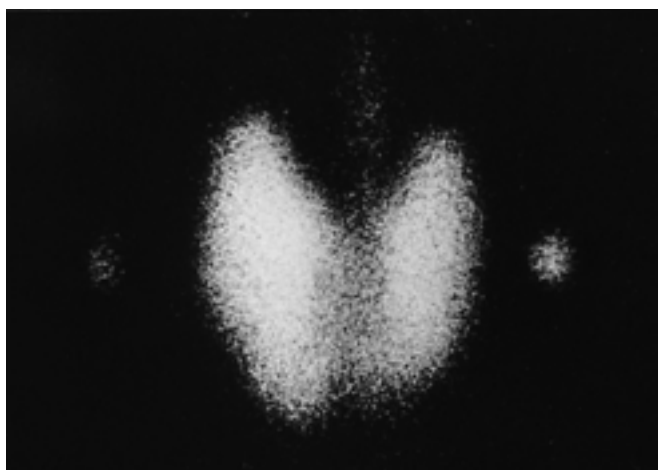
A



B



C



D

Fig. 1. A 33 year-old woman with complaint of palpitation and heat intolerance.

A. Chest PA demonstrates superior mediastinal bulging (arrows).

B. A contrast-enhanced CT scan reveals a well-enhanced anterior mediastinal soft tissue with preservation of bi-lobed thymic contour.

C. Both lobe of thyroid gland are enlarged.

D. A per technetate scan demonstrates diffuse enlargement of thyroid gland with increased uptake.

CT (Table 1). 6 7 95% 1 가
 95% (Table 2).
 CT 3 가
 1 (Fig. 1, 2). (Fig. 2C). 4 (papillary carci-
 3 noma)
 1 4 X 2

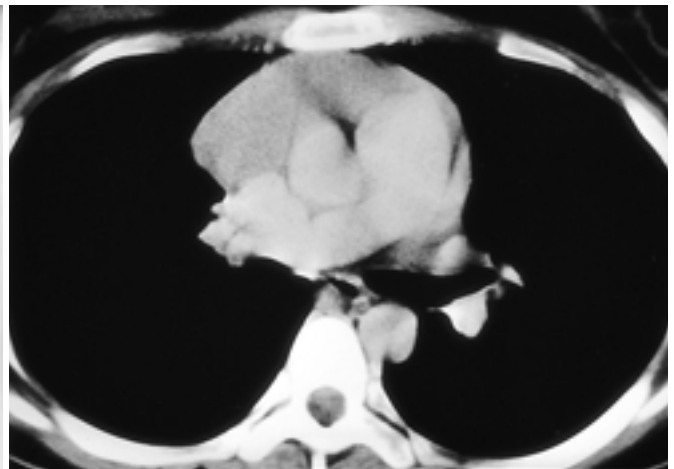
Table 1. Summary of Clinical Data in Seven Patients with Thymic Enlargement and Hyperthyroidism

Case	Age/Sex	Pathology	Treatment	Follow-up chest PA(mediastinal widening)
1	36/M	-	PTU + 131I	-
2	33/F	-	Methimazole	-
3	31/F	-	PTU + Op. + 131I	No change 1 month later
4	24/F	-	Methimazole	No change 1 month later
5	24/F	Thymic tissue	PTU	-
6	18/F	Thymic tissue	PTU	-
7	16/F	Thymic tissue	PTU	-

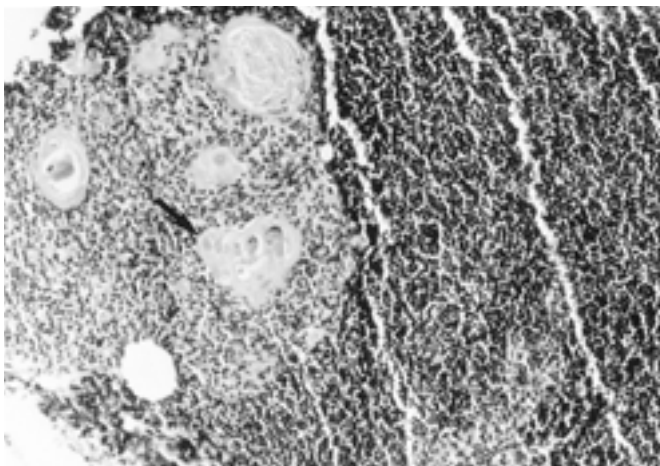
PTU: propylthiouracil, Op.: operation (near total thyroidectomy), 131I: radioactive iodine, TSH Rc.: thyroid stimulating hormone receptor



A



B



C

Fig. 2. A 16 year-old woman with fatigue and heat intolerance.
A. Mediastinal bulging (arrows) is seen on chest PA.
B. An anterior mediastinal soft tissue is homogeneously enhanced on a contrast-enhanced CT scan (**B**).
C. Fine needle biopsy specimen reveals normal thymic tissue. This island is predominantly composed of small lymphocytes, but epithelial cells and Hassall's corpuscle (black arrow) is visible (H-E stain, $\times 200$).

Table 2. Thymic Size and Thickness of Both Lobes

Case	Age	Size(mm ²)	Thickness(mm)	
			Right	Left
1	36	607*	13.2 [†]	12.5 [‡]
2	33	1833*	22.7 [†]	24.9 [†]
3	31	687*	16.9 [†]	17.2 [†]
4	24	1669*	20.6 [†]	25.3 [†]
5	24	2601*	32.8 [†]	27.1 [†]
6	18	1178	17.8 [‡]	17.5 [§]
7	16	2019	31.1 [†]	17.4 [§]

* : larger than mean + 2SD

[†] : thicker than mean + 2SD

[‡] : thickness between mean + 1SD and mean + 2SD

[§] : thinner than mean + 1SD

Note. The data of the size of thymus in persons below 20 years is not available

가

가 CT

가

(9, 17).

(nicotinic acetylcholine receptor)

가

가

(TSH receptor, TSH Rc.)가

(TSH

receptor antibody) 가

TSH Rc 가

TSH Rc 가 T 가

(18, 19).

CT

X 가

(13).

25%

(14).

Michie (15)

38% , 5%

(lymphoid follicular hyperplasia)

가

가

20

가

가

20

(8, 11, 16).

가

가

가

CT 2

가

(anterior mediastinum)

(, ,), ,

(,

), (teratoma), (seminoma)

(lymphangioma), (16).

(

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Thymic Enlargement in Patients with Hyperthyroidism¹

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Purpose: To evaluate the radiologic findings and clinical feasibility of thymic enlargement in patients with hyperthyroidism.

Materials and Methods: Seven patients with hyperthyroidism and anterior mediastinal bulging revealed by chest radiography were evaluated. The CT findings were analyzed with regard to the shape of the anterior mediastinal mass, surrounding infiltration, and enlargement of mediastinal lymph nodes. Whether or not tumor markers (alpha-fetoprotein, beta-human chorionic gonadotrophin, and chorionic embryonic antigen) showed increased levels was determined, and the size and thickness of the anterior mediastinal mass were measured and compared with previously described age-matched thymus data. In addition, changes in the thyroid gland were evaluated.

Results: In all seven patients, anterior mediastinal masses were bi-lobed, with no surrounding infiltration or enlarged mediastinal lymph node, and tumor marker levels showed no increase. The masses were therefore considered to be thymus. In six patients, the size of the thymus exceeded two upper standard deviations of mean value and in one patient, it was smaller than this. In three patients, PCNB (percutaneous needle biopsy) revealed normal thymic tissue and in two, follow-up chest PA demonstrated no interval change. CT showed that in three patients, the thyroid glands were diffusely enlarged.

Conclusion: In patients with hyperthyroidism, an anterior mediastinal mass seen on chest radiographs was due to thymic enlargement. The recognition of CT findings of thymic enlargement in such patients may avoid unnecessary biopsy.

Index words : Thymus, CT
Mediastinum, CT
Thyroid, hyperthyroidism

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