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# ECTOPIC SOLID THYMUS GLAND OF THE NECK

BY

Nobuhiko KOMI*1

ABSTRACT

The first case in Japan of ectopic solid thymus gland of the neck in a 2-month-old boy is presented. Reports of cases of ectopic thymic tissue or thymoma in Japan are reviewed.

According to Patten's Human Embryology, the thymic primordia in man appear late in the sixth week of gestation as ventral out-growths of the third pharyngeal pouches. By the early part of the seventh week, the primordia have considerably elongated but are still connected with the pharyngeal pouches and remain associated with the pair of parathyroid glands derived from the third pharyngeal pouches.

During the seventh week, they increase rapidly in mass and their distal tips begin to approach each other as they swing toward the midline just caudal to the thyroid primordium. By the middle of the eighth week the distal tips of the thymic primordia have made contact with each other and have started to descend under the sternum into the mediastinum where they lie in contact with the parietal pericardium. At any portion along this path of descent the entire gland or portions thereof may be left behind.

Glimour[1], in 1941, reported 13 cases showing thymic tissue of unusual portions. Eleven of these were infants. In one there was unilateral hyperplasia with complete absence of descent from the neck.

Since Hyde et al. reported, in 1944, the removal of a cystic thymus gland weighing 36 g from the right side of the neck, 46 cases of incompletely descended ectopic thymus tissue in the neck have been documented in the English medical literature as described by Hinds et al.[2]

Because of the rare occurrence of solid ectopic thymus gland of the neck, it was felt that the first case in Japan should be added to world medical literature.

## CASE REPORT

A 2-month-old boy was admitted to Tokyo Medical and Dental Uni-

*1 古味信彦: 2nd Department of Surgery (Chief: Prof. E. HAMAGUCHI), School of Medicine, Tokyo Medical and Dental University (Tokyo Ika Shika Daigaku).
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versity Hospital with a mass in the left anterior cervical triangle, just below the angle of the left mandible and anterior to the sternocleidomastoid muscle. It was first noted when he was 20 days old after which it gradually increased in size.

The family history was noncontributory. He was born of a 23-year-old primi-gravida, primi-para mother, following a normal full-term pregnancy and uncomplicated delivery. Body weight at his birth was 3,000 g.

Examination of the neck revealed a small egg-sized soft mass in the left anterior cervical triangle as shown in Fig. 1. No fluctuation was noted. No abnormal swelling of the cervical lymph nodes was revealed. The infant was well developed and well nourished, weighing 6,000 g. There were no abnormalities of eyes, ears, nose, throat, or heart, but phimosis and bilateral scrotal hydrocele were seen.

Enlarged right lobe of the thymus gland was noted on his preoperative roentgenogram of the chest, as shown in Fig. 2.

Laboratory data:

| | | |
|---|---|---|
| Blood: | Erythrocytes | $424\times10^4$ |
| | Hemoglobin | 12.0 g/dl |
| | Leucocytes | 9,000/mm$^3$ |

Urinalysis and fecal analysis were normal.

Definitive diagnosis before surgery was not made, but it diagnosed as a parenchymatous soft lobulated tumor similar to lipoma.

Operative findings:

About 3 cm transverse cervical incision was made just above the mass under GOF anesthesia.

A soft, encapsulated, lobulated, pale gray-tan tumor, $3.7\times2.8\times2.5$ cm, was noted with no difficulty in extirpation. Exact localisation was on top of the carotid sheath just medial to the anterior border of the sternocleidomastoid muscle, as shown in Fig. 3.

Grossly, the tumor was lobulated and parenchymatous, as shown in Fig. 4. Microscopically, it was a normal thymic tissue including Hassall's corpuscles, as shown in Fig. 5. No malignant changes were noted.

Postoperative course was uneventfull, and the patient was discharged on the 7th postoperative day.

Follow up study:

When the patient was 8 months old, 6 months after the surgery, a follow up study was made.

Laboratory data:

| | | |
|---|---|---|
| Blood: | Erythrocytes | $440\times10^4$ |
| | Hemoglobin | 11.6 g/dl |
| | Leucocytes | 8,000/mm$^3$ |

(A) (B)

Fig. 1. Local findings of the neck
(A) Tumor in the left anterior cervical triangle.
(B) Tumor just below the angle of the left mandible and anterior to the sternocleidomastoid muscle.

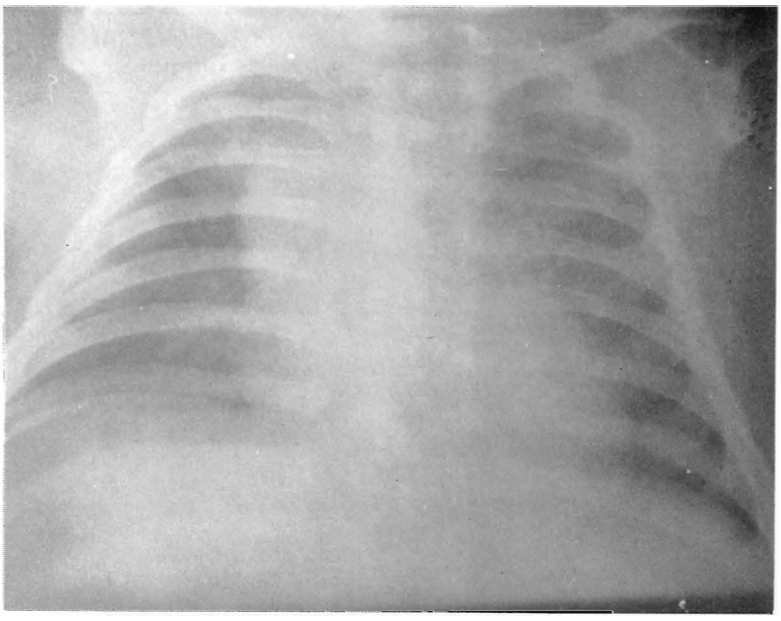


Fig. 2. Chest X-ray findings
Enlarged right lobe of the thymus gland, but no shadow of left lobe.

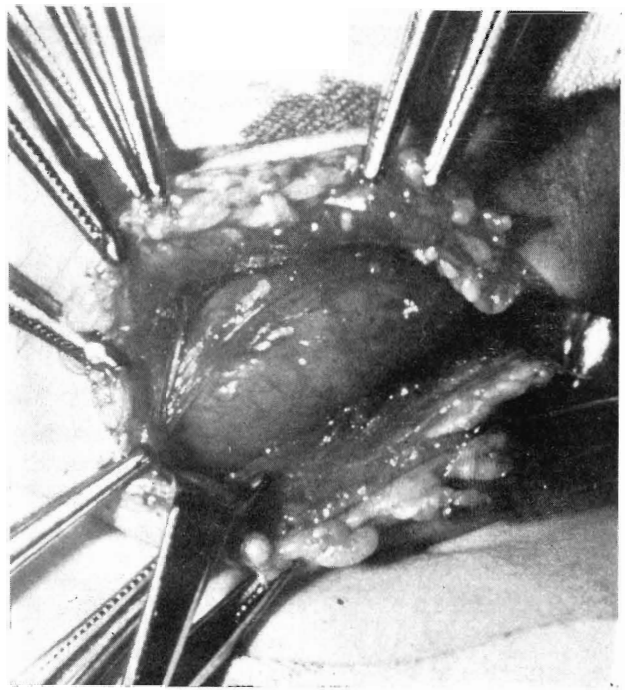
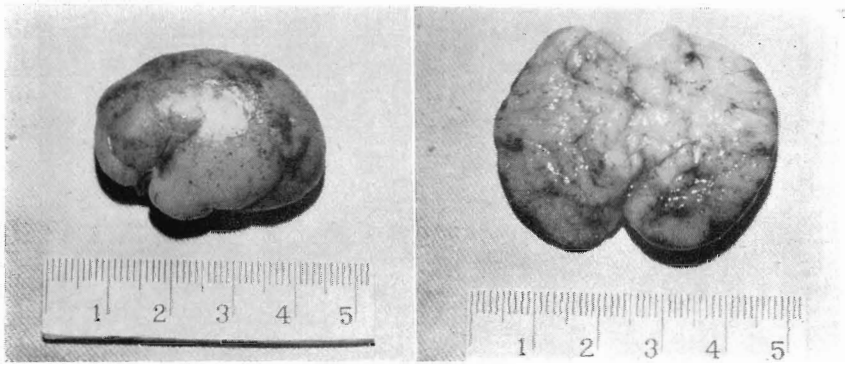
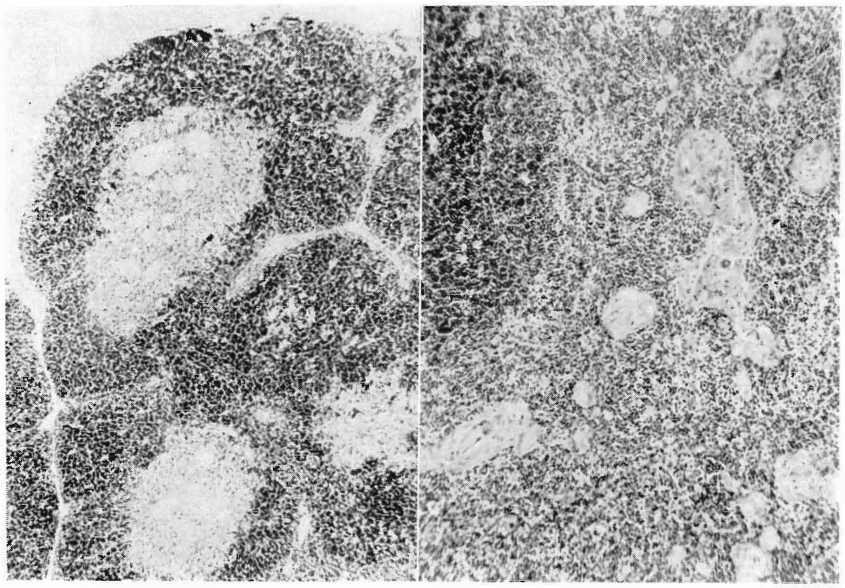


Fig. 3. Operative findings
Tumor was encapsulated and easily extirpated.




(A) (B)

Fig. 4. Surgical specimen
(A) Tumor was encapsulated and lobulated.
(B) Cut surface of the tumor revealed a coarsely lobulated, smooth, yellowish-white, fat-like surface, throughout which several areas of hemorrhage were scattered.



(A) (B)

Fig. 5. Histological finding showing normal thymic tissue in both cortical and medullary areas with Hassall's corpuscles. H. E.: (A) ×40, (B) ×100

| | |
|---|---|
| Lymphocytes | 64% |
| Monocytes | 8% |
| Neutrophiles | 27% |
| Eosinophiles | 1% |
| Basophiles | 0% |

Blood chemistry:

| | |
|---|---|
| Serum protein | 6.4 g/dl |
| Cholesterol | 161 mg/dl |
| Sodium | 145 mEq/L |
| Potassium | 4.5 mEq/L |
| Chlorides | 112 mEq/L |
| LDH | 390 Units |

Immunoelectrophoresis:

Results are shown in Fig. 6.

Fig. 7 shows the chest X-ray findings at 8 months of age, and no abnormal shadow of the right thymus gland is seen. It should be compared with the findings at the age of 2 months, as shown in Fig. 2. No local recurrence was revealed as shown in Fig. 8.

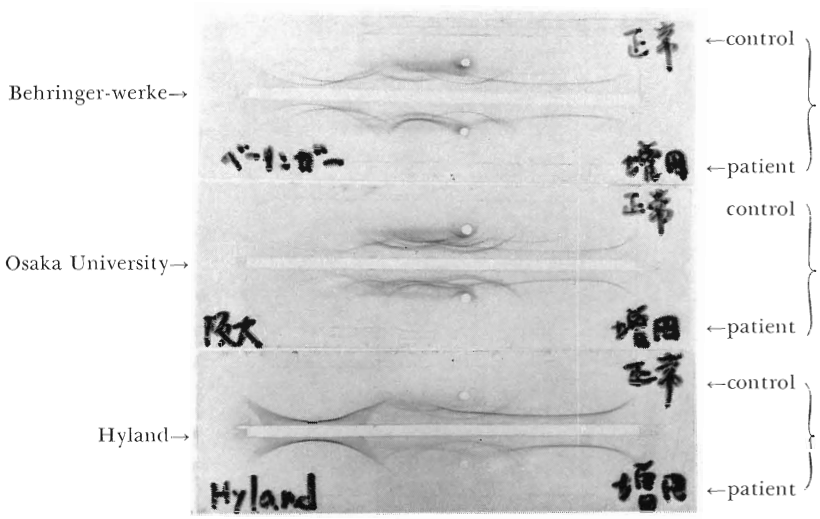



Fig. 6. Immunoelectrophoresis

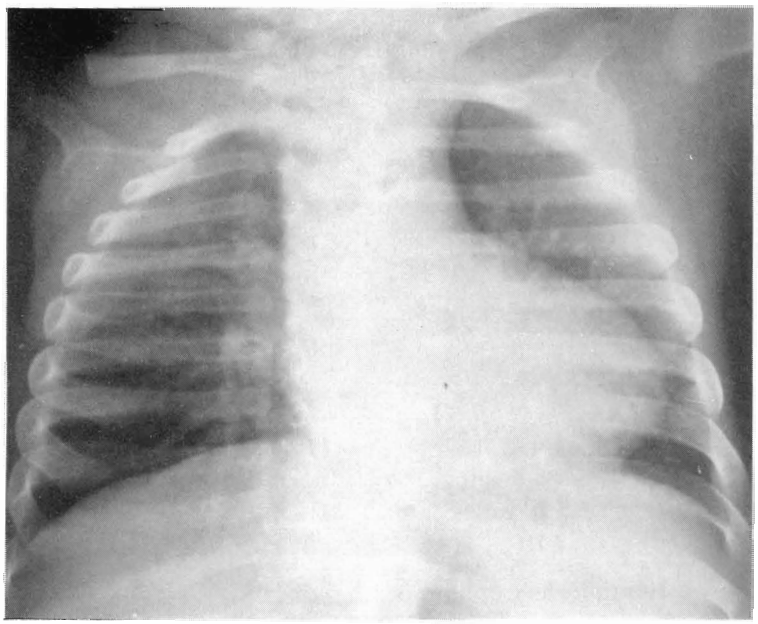


Fig. 7. Chest X-ray findings
Abnormal shadow of the right lobe of the thymus seen in Fig. 2 has disappeared.

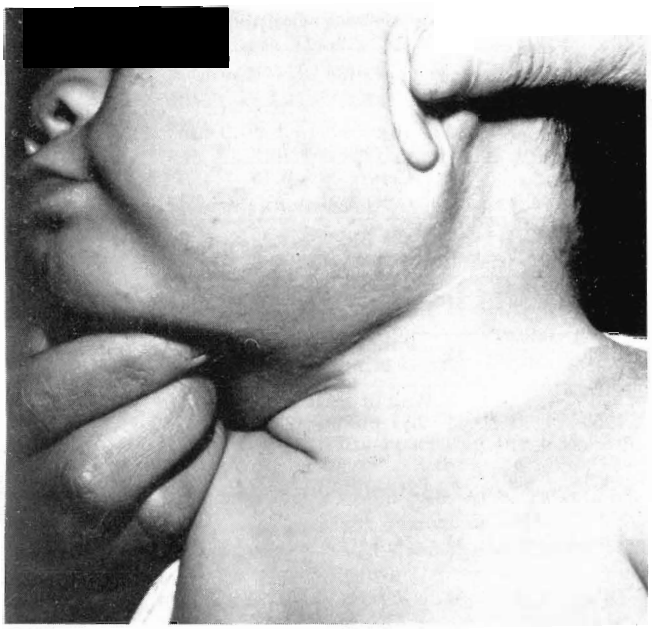


Fig. 8. No local recurrence of the tumor at 8 months of age.

## Discussion

Krech et al., in 1954, reviewed the literature of benign nonsyphylitic thymic cysts including mediastinal and cervical. Among them, cases of cervical thymic cysts are shown in Table 1. The case reported by Hyde et al., in 1944, is the first case that was successfully treated by surgery. Since then, there have been isolated reports[4–12] of thymic tissue in the neck, bringing the number in English medical literature to 46, as reviewed by Hinds et al.[2]

Table 1. Benign nonsyphylitic cervical thymic cyst[3]

| Author | Date | Age | Sex | Size | Diagnosed by |
|---|---|---|---|---|---|
| Polloson and Piery | 1901 | 1 1/2 Yr. | M | "fist size" | Partial excision |
| Pezeoller | 1929 | 5 Yr. | F | 1 cm | Partial excision |
| Hyde, Sellers, and Owen | 1944 | 5 Yr. | M | 7×5.5×3.2 cm | Excision |
| Smart | 1947 | 53 Yr. | F | 8×5×5 cm | Excision |
| Heinz | 1950 | 6 Yr. | M | ? | Excision |
| Weller, Pearce, and Rapoport | 1950 | 4 Yr. | F | 4×7.5×4.5 cm | Excision |

Table 2. Ectopic thymic tissue or thymoma reported in Japan

| Author | Date | Age (Yrs.) | Sex | Location | Size | Histology | Diagnosed by |
|---|---|---|---|---|---|---|---|
| Suzue[13] | 1927 | 5 mo. | M | Intestine | 5.1×0.9 mm | Thymic gland | Autopsy |
| Tokoro[14] | 1962 | 47 | M | Cervix bilateral | up to 4×3×2 cm | Lymphoepithelial lesions, recurr. | Excision |
| Yoshimatsu[15] | 1962 | 20 | F | Left upper lobe of lung | "fist size" | Dermoid cyst with thymic tissue | Excision |
| Nakamura[16] | 1963 | 38 | M | Supra-clavicula | "soy bean sized" | Malignant thymoma, metastasis | Autopsy |
| Niimi[17] | 1963 | 13 | M | Pulmonary hilus | "egg sized" | Thymoma | Excision |
| Nakaura[18] | 1965 | 53 | M | Wall of aorta and pulmonary artery | ? | Thymoma | Excision |
| Okuhara[19] | 1967 | 68 | F | Pericardium | over fist sized | Thymoma | Excision |
| Mizutani[20] | 1968 | 58 | M | Cervix | up to 15×5 cm | Malignant thymoma | Excision |
| Komi | 1970 | 2 mo. | M | Cervix | 3.7×2.8×2.5 cm | Normal thymus gland, solid | Excision |

in 1970.

Japanese medical literature describing ectopic thymic tissue or thymoma in different locations are reviewed in Table 2[13–20], but no ectopic thymus gland of the neck in an infant was found.

According to Hinds et al.[2], the cases of cervical ectopic thymus tissue reported in the English medical literature were mostly in children. The representative symptom is a cervical mass. Surgical removal was not difficult, and no recurrence has been reported. Ninety per cent were cystic in form and 10% were solid. Ninety-five per cent of the cases were unilateral.

The present case is the first typical case of ectopic thymus gland of the neck reported in Japan, and is extremely rare even among the cases which have appeared in world medical literature.

This ectopic thymus gland was easily extirpated, and no recurrence has been noted up to the present time of writing (1970). In addition, this solid thymus gland was seen in a 2-month-old infant, so it was felt that this case of ectopic thymus gland of the neck, successfully treated by surgery, is one of the youngest in the world.

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