Primary Hodgkin's Disease of the Thyroid Gland

—Report of an Autopsy Case—

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Though malignant lymphoma such as lymphosarcoma and reticulosarcoma is not so infrequent lesion of the thyroid gland, primary Hodgkin's disease of the thyroid has been regarded to be extreamely rare occurrence.[1] As far as the authors reviewed the literatures, only two cases have been reported in recent several years.[2][3] In these two cases, however, only the thyroid gland and a few lymph nodes were histologically examined and it remained uncertain whether the thyroid gland was the primary lesion or not.

In this paper, an autopsy case of primary Hodgkin's disease of the thyroid gland has been presented and histological features of the various organs has been described.

REPORT OF A CASE

Clinical Course — The patient was a 83-year-old female, who first noticed painless swelling of the anterior cervical region in January, 1967. About 4 months prior to her death, she began to have attack of cough, stridor and obstructive feeling of the upper respiratory way. Then she was admitted to a hospital for a month and received conservative therapy. At the end of August, she noted rapid enlargement of the neck and was hospitalized to Yamaguchi Prefectural Central Hospital with chief complaints of dyspnea, nonproductive cough and stridor.

Physical examination on admission revealed bilateral, firm, painless thyroid enlargement. In the right cervical region, a solitary enlargement of a lymph node was found. On laryngoscopic examination, the vocal cords appeared almost normal except for slow movement.

On the third hospital day, she suddenly had attack of cough and severe dyspnea, and expired.

Laboratory examinations were not performed except for Triosorb test which was 25.3 % (normal : 25–35%).

Autopsy Findings — Postmortem examination was performed 3 hours after death. The thyroid gland was markedly enlarged (the left lobe : $10\times5\times4.5$ cm., the right lobe : $11\times4.5\times4$ cm.). It was almost encapsulated with thin connective tissue encircling the trachea and the esophagus. The isthmus was also enlarged. On section the thyroid parenchyma was almost completely replaced with loosely lobulated, grayish white tissue with spotted areas of hemorrhage. On the posterior surface, the tumor was adherent to the muscles but no invasion to the trachea or adjascent tissue was found.

Solitary enlargement of the lymph nodes varying from thum-size to small pea-size was noted in the cervical, paratracheal and anterior mediastinal regions. Cut surface of these lymph nodes was grayish white.

The spleen was 75 gm. in weight and cut surface revealed moderate congestion and prominent lymph follicles. The other gross findings were as follows : arteriosclerosis, senile nephrosclerosis, atrophy of the liver (860 gm.) and brown atrophy of the heart. The direct cause of death was obstruction of the upper respiratory tract due to edema of the glottis.

Histological Findings — The thyroid gland was entirely replaced by a dense neoplastic infiltrate consisting of reticulum cells, lymphocytes, neutrophils, eosinophils, monocytes and multinucleated giant cells, and no alveolar pattern was demonstrated (Fig. 1). Histological features were varied from a place to another within the thyroid tumor. In some areas, series of lymphoid cells (lymphocytes and lymphoblasts) were predominant forming follicular pattern (Fig. 2, 5). In another area, fibrosis with infiltrate of eosinophils, lymphocytes, neutrophils, reticulum cells and occasional giant cells of Reed-Sternberg type was noted (Fig. 3, 4, 6, 7). And in occasional fields, atypical reticulum cells were predominant and in such area Reed-Sternberg cells were rather numerous (Fig. 8, 9). Reticulum fiber was well developed in the granulomatous area (Fig. 4) and also in sarcomatous region. Residual thyroid tissue with acidophilic degeneration of the epithelial cells was found at the periphery of the tumor mass.

The enlarged lymph nodes showed monotonous appearance and were completely replaced by giant follicles consisted of lymphocytes and lymphoblasts with loss of normal architecture (Fig. 10). Multinucleated giant cells resembling Reed-Sternberg cell were sparsely found within the follicles (Fig. 11). There was no proliferation of atypical reticulum cells and the reticulum fiber was only developed around the follicles.

The spleen was congestive and the lymphoid follicles were markedly enlarged, where multinucleated giant cells were occasionally found (Fig. 12). The bone marrow was hypoplastic and there was no invasion of atypical reticulum cells. From these microscopic findings, Hodgkin's disease of the thyroid gland with

systemic involvement of the lymph nodes and the spleen was established. The other histological changes were as follows : arteriosclerotic contracted kidney, focal lymphocytic infiltration in the adrenal cortex, fatty infiltration of the pancreas and brown atrophy of the myocardium.

COMMENT

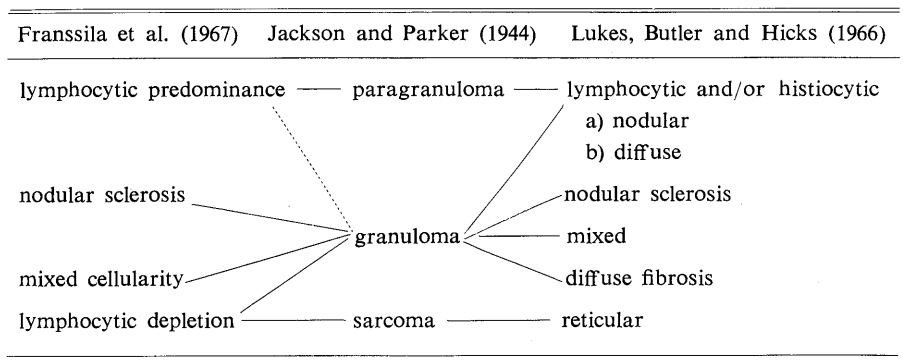
Thyroid tumor showed variable but characteristic findings. Most diagnostic feature was presence of multinucleated giant cells. These cells were large with basophilic cytoplasm and contained two or several nuclei situated closely together or overlapping. The nuclei were round or oval in shape with prominent eosinophilic nucleoli. These giant cells have been designated as Reed-Sternberg cells and have been regarded to be an essential feature for a diagnosis of Hodgikin's disease.[4] In addition, mononuclear giant cells and twin-nucleated "mirror image" cells were also found. In some areas, the lesion was consisted entirely of lymphocytic proliferation revealing nodular pattern. In some areas, on the other hand, the lesion was consisted of wide variety of cell types such as eosinophils, plasma cells, lymphocytes, reticulum cells and a few diagnostic Reed-Sternberg cells. In these areas, the reticulum fiber was moderately developed and fibrosis was also prominent. In occasional areas, pleomorphic reticulum cells were predominant and Reed-Stergberg cells were also numerous. Reticulum fibers were moderately proliferated among the individual cell or surrounding a small group of cells. From these histological findings, a diagnosis of Hodgikin's disease of the thyroid gland was made.

But it still remains uncertain whether the thyroid gland was a primary lesion or secondary one due to invasion from the other organs or sites. The lymph nodes were also involved, but their histological picture was monotonous showing the same appearance as that of follicular lymphoma. In these follicles, diagnostic Reed-Sternberg cells were occasionally found. Therefore. it might be probable that the lesion of the lymph nodes did not preceded that of the thyroid and that the thyroid gland was initially involved. Lymphoma is commonly regarded to arise as a systemic lesion, and in this case both the thyroid and lymph nodes were systemically affected by Hodgikin's disease.

Hodgikin's disease of the thyroid gland is considered to be extreamely rare occurence. Reviewing the literatures, Roberts and Howard[3] collected 12 cases of primary Hodgikin's disease of the thyroid, and they reported an additional one case. In our avairable literatures, only two cases[2][3] have been reported in recent several years. As to the origin of lymphoma in the thyroid gland, the possible association of Hashimoto's disease with malignant lymphomas has been pointed out by some authors.[5][6][7] Lidsay and Dailey[7] examined 8 cases

of malignant lymphoma primarily arised in the thyroid gland and in their cases the thyroid gland of 7 of the 8 patients displayed the lesion of Hashimoto's disease. They concluded that a significant relationship might exist between these two processes. In such cases the malignant lymphoma was associated with areas of tumor-free tissue showing Askanazy-cell metaplasia, lymphocytic infiltration, germinal lymphoid follicles and fibrosis. In the present case, however, the process was far advanced and the thyroid gland was almost completely replaced by lesion of Hodgikin's disease, and it was undetermined if the lymphoid hyperplasia or Hashimoto's disease preceded or not.

Table 1. Comparison of histological classification of Hodgikin's disease



As Hodgikin's disease represents varied histological appearances and different prognosis, classification of this entity according to histopathological picture has been tried by several authors. The widely accepted classification was presented by Jackson and Parker[8)9)] in 1944, who subdivided Hodgikin's disease into three groups : paragranuloma, granuloma and sarcoma. This classification has long been employed. Lukes et al.[10)] subdivided the disease into following six groups : lymphocytic and/or histiocytic (LH) nodular, LH diffuse, nodular sclerosis, mixed, diffuse fibrosis and reticular. Recently, Franssila et al.[4)] classified Hodgikin's disease into four groups and pointed out the correlation between survivals and the different groups. The groups were lymphocytic predominance, nodular sclerosis, mixed cellularity and lymphocytic depletion. Comparison of histological classification of Hodgikin's disease by these authors are shown in table 1. In the present case, the thyroid gland showed mainly the lesion of granuloma type, but in some fields paragranulomatous and sarcomatous lesion was found. The lymph nodes, on the other hand, were entirely involved by lymphocytic nodular lesion. In the thyroid, transition of the lesions from lymphocytic nodular to diffuse or from granulomatous to sarcomatous type could be traced.

SUMMARY

An autopsy case of primary Hodgikin's disease of the thyroid gland with systemic involvement of the lymph nodes and spleen has been reported. Though the process was in advanced stage, it was histologically decided that the thyroid was primarily involved. The direct cause of death was glottis edema.

ACKNOWLEDGEMENT

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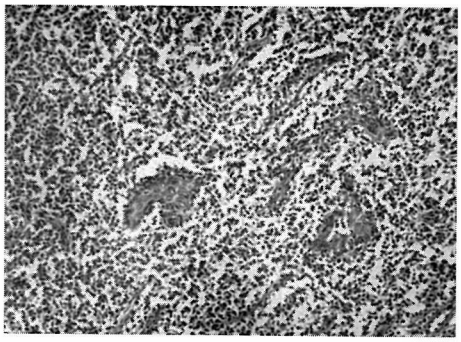

Fig. 1. Remnants of atrophic thyroid epithelium surrounded by a dense infiltrate of various kinds of cells. H.E. ×100

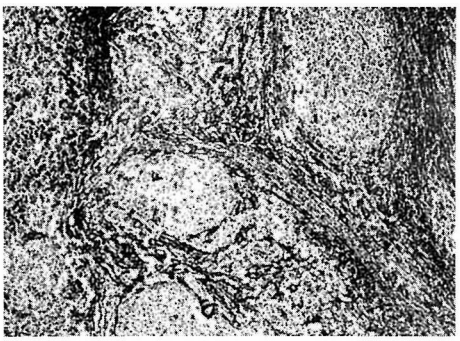

Fig. 2. Follicular pattern in the thyroid tumor which is entirely consisted of lymphoid cells. Pap's silver stain. ×40

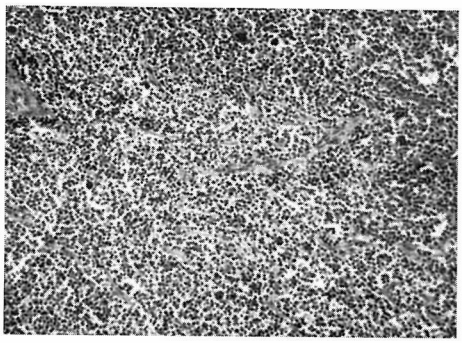

Fig. 3. Thyroid parenchyma is completely replaced by a dense infiltrate consisting of various kinds of cells. H.E. ×100

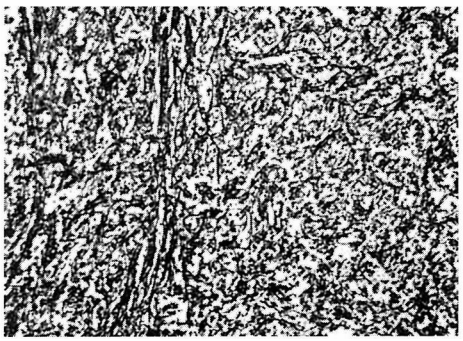

Fig. 4. Reticulum fibers are well developed in granulomatous lesion of the thyroid tumor. Pap's silver stain. ×100

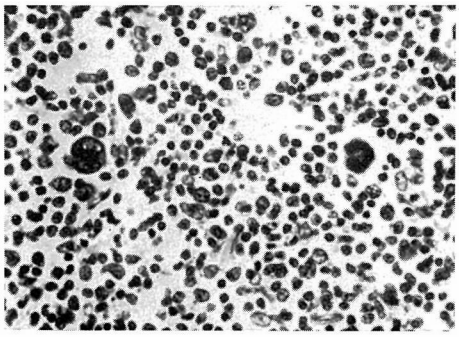

Fig. 5. In the lesion where lymphocytes and lymphoblasts are predominant, two Reed-Sternberg cells are seen. H.E. ×400

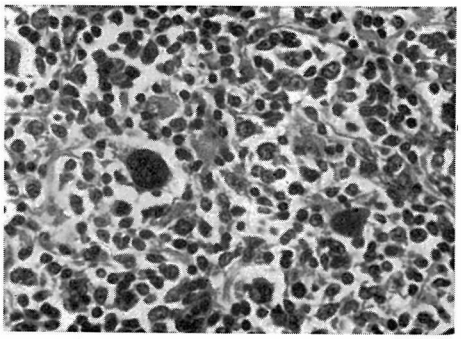

Fig. 6. The lesion is consisted of wide variety of cell types, and formation of fibrillar connective tissue is visible. H.E. ×400

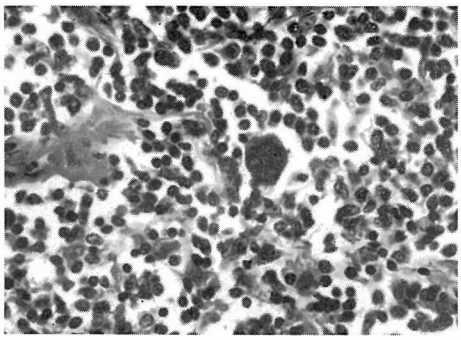

Fig. 7. Granulomatous lesion of the thyroid tumor, where a diagnostic Reed-Sternberg cell is seen. H.E. ×400

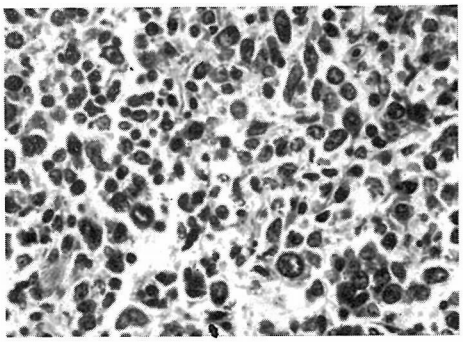

Fig. 8. The lesion is consisted of anaplastic reticulum cells which show nuclear pleomorphism and numerous mitotic figures. H.E. ×400

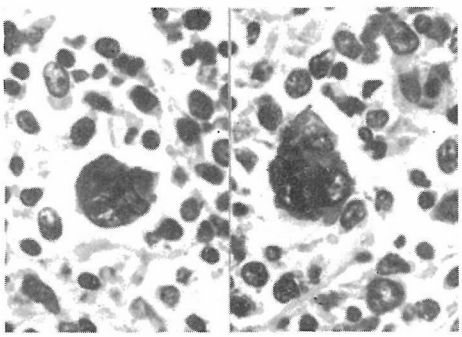

Fig. 9. A high magnification of Reed-Sternberg cells in the thyroid tumor. H.E. ×600

Fig. 10. The lymph node in the anterior mediastinum shows well circumscribed follicular pattern. H.E. ×40

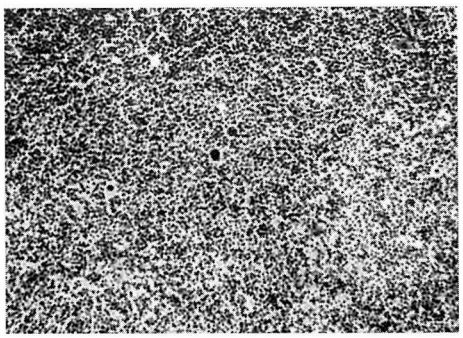

Fig. 11. Large follicles of the lymph node are entirely consisted of lymphoid cells with a few scattered giant cells. H.E. ×100

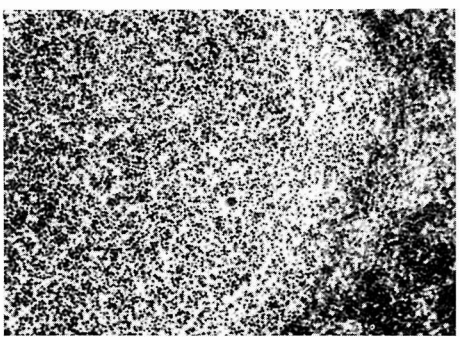

Fig. 12. In the spleen, the lymph follicles aremarkedly enlarged and occasionally contain variant of Reed-Sternberg cells. H.E. ×100