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Apparent spontaneous regression of malignant neoplasms after radiography: Report of four cases

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ABSTRACT

INTRODUCTION: On rare occasions, an apparently spontaneous regression of unknown etiology is observed in a neoplasm. We report a series of 4 patients with apparent spontaneous regression of malignant lymphomas after radiography.
PRESENTATION OF CASE: All four of the tumors were malignant lymphomas. The regressions occurred between 1 and 2 months after the radiographic examinations. All four patients later underwent relapse and needed additional treatments: surgery, chemotherapy and/or radiation.
DISCUSSSION: Four cases had the following features in common: (1) the neoplasms were radiosensitive, (2) the regression occurred after radiography, (3) none of the neoplasms was in the advanced stage, and (4) the doses received through radiographic exposure were a little higher than usual because CT was included for most of the patients.
CONCLUSION: We suspect that the apparently spontaneous regression of malignant lymphomas was caused by the small radiation doses received in the radiographic examinations.

1. Introduction

In very rare cases, the seemingly unprompted healing of malignant lymphoma or cancer has been observed. This kind of regression of a neoplasm without treatment is generally defined as complete or incomplete, as general or local, and as temporary or permanent. The cause of this apparently unprompted process is as yet unknown. Four malignant lymphoma patients were seen in our clinic; this phenomenon had occurred in each of them, in each case after radiography. The relationship between the apparently spontaneous regression and the radiography that had been performed was investigated, and the literature was examined for comparable cases.

2. Presentation of case

Four patients exhibiting apparently spontaneous regression of their cases were seen in our clinic between 1972 and 2015. They were investigated clinically and histologically, and the types of malignant lymphoma found were categorized according to the World Health Organization (WHO) classification. The normal ranges of the antibodies are given in below parentheses. Levels of anti-thyroglobulin antibody (TgAb; <0.3 U/ml), and anti-thyroid peroxidase antibody (TPOAb; <0.3 U/ml) were determined with RIA kits (Cosmic Corporation, Tokyo, Japan).

2.1. Patient 1

A 69-year-old woman noticed a tumor in the front of her neck 2 weeks before she visiting our clinic. The tumor grew rapidly. The left lobe of the thyroid was hard and was enlarged to 3 × 5 cm, and it exhibited the following characteristics: a smooth surface, with a silhouette defect appearing in the ^{131}I scintigram; a solid homogenous low-density area in the ultrasound; and a low-density area in the CT. Two adjacent, enlarged lymph nodes were palpated. Thyroid cancer with lymph node metastases was suspected, but a fine needle aspiration biopsy (FNAB) revealed no cancer cells. Many radiographic procedures (e.g., chest X-rays, soft X-rays, and tracheal tomography, etc.) were performed to obtain more infor-

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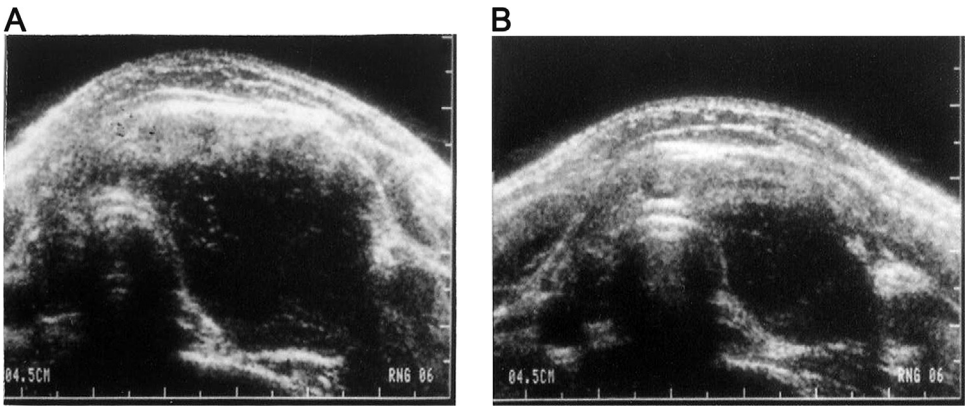

Fig. 1. Clinical course of patient 1. (A) This nodule appears as a solid, low-echoic mass in the ultrasound images. (B) 2 months later, the nodule was reduced in size by half. Malignant lymphoma was suspected.

mation about the tumor, but nothing further was discovered. These findings still suggested that the tumor was a malignant thyroid lymphoma (Fig. 1A). Two months later, the tumor shrank to about half of its original size, which was unexpected (Fig. 1B). Some connection was suspected between the tumor's shrinkage and the large number of radiographic examination. Regular radiotherapy sessions were recommended as additional treatment, but the radiologist refused to perform such procedures because the core biopsy diagnosis was Hashimoto's disease. After another month, the tumor had grown again, reaching approximately its former maximum size. A left hemithyroidectomy with dissection of the cervical lymph nodes was performed. The thyroid was observed to adhere to the surrounding tissues while it was being removed. Histological examination revealed a medium-sized diffuse malignant B cell lymphoma with lymph node metastases. Fibrosis, perhaps a result of the radiation, was found in this lymphoma. Forty gray (Gy) of postoperative radiation was administered. Twenty-one years later, as this report is being written, the patient is healthy and has not suffered any recurrences.

2.2. Patient 2

An 83-year-old woman noticed a tumor in the front of her neck. It was found to be a hard 2.5 × 3.0 cm nodule located in the right thyroid lobe. Anti-thyroid antibodies were present (TGAb, RIA, 32.2 U/ml; TPOAb, RIA, 63.1 U/ml). CT revealed a slightly heterogeneous solid tumor in the right thyroid lobe. A ^{201}Tl scintigram showed no silhouette defect. Thyroid cancer combined with Hashimoto's disease was suspected, but an FNAB detected no cancer cells, so no treatment was given. Unexpectedly, the tumor had disappeared one month after the first visit, and the patient therefore thought the lesion had healed. Another 8 months later, however, the tumor reappeared, so the patient returned to our clinic. The right thyroid lobe was hard and smooth, and had grown to 3 × 5 cm in size. The second FNAB diagnosis was of non-Hodgkin lymphoma or small-cell carcinoma. The serum was positive for soluble IL-2 receptor antibody (701 U/ml, normal range: 191–650 U/ml). A final diagnosis of malignant lymphoma of the thyroid was made. One month after a total of 40 Gy of X-ray treatment, the tumor had disappeared. The patient died naturally nine years later, at the age of 89, with no tumor recurrence.

2.3. Patient 3

A 51-year-old woman came to our clinic, one day after she noticed a tumor on the front of her neck. The left lobe of the thyroid was hard and smooth and had become enlarged to 5 × 8 cm. A malignant thyroid lymphoma was suspected, but the FNAB diagnosis was class II. A thyroid adenoma was diagnosed. The nodule was very large and was located inferiorly, so CT was carried out to confirm the extent of the goiter; the CT showed that the goiter was situated partially intrathoracically. Because of the nodule's size, surgery was recommended, but it had unexpectedly shrunk and had disappeared 2 months after the CT, so the patient thought it was completely healed and deemed surgery unnecessary. However, the lesion reappeared 7 months after the CT, (i.e., 5 months after the tumor disappeared), so she returned to our clinic when it had regrown and had become slightly larger than its original size. A second FNAB revealed a potentially malignant lymphoma. A total thyroidectomy was performed 7 months after the first visit. The histological diagnosis was malignant diffuse large-cell lymphoma. A fibrosis, possibly a consequence of the X-ray radiation, was found by microscopy. Postoperative chemotherapy (6 courses of R-THP-COP) was given. Now, 8 years after the operation, the patient is well, with no recurrence of the tumor.

2.4. Patient 4

A 60-year-old man noticed a fist-sized hard fixed tumor in the ileocecal region, where it was found to have caused an incomplete obstruction of the intestine. He was admitted to a nearby hospital. Ten plain abdominal X-ray examinations were performed, and ileocecal cancer was at first suspected. Upon instillation of barium through a Denis tube performed concurrently with a barium enema, a slight narrowing of the ileum due to the presence of the tumor was seen, but no shadow defect and no "apple core" sign were detected. Superior mesenteric arteriography revealed no vascular connection between the tumor and the intestine. The tumor had shrunk and disappeared one month later, but the subileus remained. Laparotomy was therefore performed, and it revealed a hemispherical tumor that was 3 cm thick, hard, and fixed to both the retroperitoneum and the intestine. The tumor was unresectable, and so ileo-colostomy was carried out. Biopsy of the tumor revealed a malignant lymphoma. The patient was reported later to have died as a result of tumor recurrence.

3. Discussion

The cause of the apparently spontaneous regression of certain neoplasms is unknown. These 4 cases suggest, however, that the small doses of radiation used in radiographic procedures may be capable of reducing the number and size of these neoplasms. Four cases had the following features in common (Table 1): (1) the neoplasms were radiosensitive, (2) the regression occurred after