

Case Report-V

Thyroid Carcinoma as Second Malignant Neoplasm After Hodgkin's Lymphoma

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ABSTRACT

The prognosis of Hodgkin's lymphoma is excellent. However late complications like second malignancy may occur in survivors. We report here 2 of case of Hodgkin's lymphoma who developed papillary carcinoma thyroid as second malignancy. Patients underwent surgery and radioactive iodine(I-131) ablation therapy. These cases highlight the importance of long term follow up in Hodgkin's lymphoma.

INTRODUCTION

Improvement in treatment modalities has led to high cure rates resulting in better long-term survival of patients with Hodgkin's lymphoma (HL). However, late complications such as second malignant neoplasm have been observed in survivors.

Secondary leukemias and solid tumours eg breast cancer, soft tissue sarcomas and thyroid cancer are common second neoplasms. Kowalczyk et al. reported second malignant neoplasms in 20 of the 849 children treated for Hodgkin's lymphoma (2.36%). The most frequent second malignant neoplasms were soft tissue sarcoma and thyroid cancer²

We report here two long-term survivors of pediatric Hodgkin's lymphoma who developed papillary carcinoma of thyroid as second malignant neoplasm.

Case 1 An 18 year old adolescent boy presented with painless swelling in the neck of 1 month duration. On examination there was a firm, nodular, irregular swelling 4.5 x 3 cm in size on left side of the front of the neck, which moved with deglutition. There was no associated cervical lymphadenopathy. Patient was treated for HL at the age of 6 years at another hospital. Four years later, at the age of ten, he presented with relapse of HL in cervical and axillary group of lymph nodes for which he was retreated with combination chemotherapy and involved field radiotherapy to neck (36Gy).

In view of prior exposure to chemotherapy, radiation and location of the swelling, it was highly suspicious of a thyroid tumour. Fine needle aspiration cytology(FNAC) was reported as papillary carcinoma of thyroid. He underwent near total thyroidectomy. Whole body radioiodine (I-131) scans 6 weeks post surgery showed residual thyroid tissue for which 50 mCi I-131 ablation therapy was administered. Presently he is alive and disease free and is on replacement therapy.

Case 2: A 17-year-old adolescent boy presented with a painless, nodular swelling in the neck. There was associated left cervical lymphadenopathy.

Eleven years ago, at the age of 6 years, he was diagnosed to have HL for which he received combination chemotherapy and mantle field radiation (36Gy).

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FNAC from the left sided neck swelling was revealed as metastatic carcinoma. He underwent completion thyroidectomy and left radical neck dissection. Histopathology revealed papillary carcinoma of thyroid. Residual thyroid tissue and lymph node metastasis were ablated with 200 mCi of I-131. Follow up scan at 6 months post I-¹³¹ therapy showed persistent radioiodine uptake in neck node. He received second dose of 200 mCi of I-131 therapy. Patient continues to be disease free for the past 3 years as confirmed by serial negative whole body scan I-¹³¹ scans.

DISCUSSION

Currently, almost 75% of children and adults with newly diagnosed Hodgkin's lymphoma achieve long-term survival, and therefore are at risk for long-term complications resulting from the disease and its treatment.³ Sagar et al from India have previously reported a single case of micropapillary thyroid carcinoma as second malignant neoplasm after treatment for HL.⁴ Both our cases were treated with combination chemotherapy and neck irradiation and subsequently developed carcinoma thyroid.

In a study by Kowalczyk et al the estimated cumulative risk of second malignant neoplasm following HL was 5.1% at 20 years and 7% at 25 years.² The thyroid gland anatomically is often in the radiation field and hence is at risk. Epidemiological studies after the Chernobyl disaster clearly establish the thyroid gland's marked sensitivity to ionizing radiation particularly during early childhood.^{5,6} Longitudinal studies by Tucker and others have shown significantly high incidence of thyroid carcinoma following radiation treatment for HL in children.^{7,9}

Sklar et al. observed 20 cases of thyroid cancer among 1791 survivors of HL diagnosed during childhood and adolescence.⁹ The relative risk of thyroid cancer in the HL survivors was 18.3 compared to that in the general population, the latency period for the development of thyroid cancer varied from 5–26 years and the

absolute excess risk was greater for males than females. They also reported that those treated with high doses of radiation to the thyroid gland are at substantially increased risk of thyroid related complications. Studies by Ivanov et al and Nikiforov et al while reporting a high incidence of thyroid cancer among exposed young children also observed a short latency period (mean 5.8 year), almost equal sex ratio, predominant histology to be papillary carcinoma with a more aggressive histology and clinical course.^{5,6}

A multicentric study by Black et al. involving 58 hospitals in Germany, Austria and Switzerland, reported 57% cases of second malignant neoplasms, in childhood as carcinoma thyroid.¹⁰ It was suggested that although radiotherapy appears to be an important risk factor in secondary thyroid carcinoma, genetic determinants and chemotherapy must also be considered. Whether treatment is a direct or indirect cause of second malignant neoplasm or whether the prolonged survival induced by such treatment allows for the development of second malignant neoplasm in a genetically susceptible subject cannot be answered with certainty. Clearly patients treated with both radiation and chemotherapy (alkylating agents) have the highest incidence of all second malignancies.¹¹

Robinson et al. also observed that the behavior of radiation-induced thyroid cancer in a host with prior malignant neoplasia appears to be more aggressive than that of de novo (non-radiation-induced) thyroid cancer.¹²

Thyroid cancer, that arises, as second malignant neoplasm is itself associated with good prognosis. However, for better treatment outcome it should be detected as early as possible. A careful palpation of the thyroid gland must be performed routinely and throughout the entire lifespan of HL survivors and those who have undergone neck irradiation *per se*.

CONCLUSION

As second malignant neoplasms are a well-known late effect among long-term survivors of Hodgkin's lymphoma, a comprehensive, anticipatory, proactive follow-up care, which includes systematic lifelong surveillance, is necessary.

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