A 72 yo woman with a history of Graves’ disease, a-fib, and hyperparathyroidism initially presented to care for weight loss. She was found to have hyperthyroidism and was treated with methimazole. Thyroid ultrasound revealed multiple nodules including a 17mm right lower pole nodule with irregular borders for which she underwent FNA. Pathology demonstrated atypical-cells of undetermined significance (AUS), but thyroseq revealed a BRAF V600E mutation. She underwent total thyroidectomy with pathology showing multifocal thyroid cancer, 12mm and 0.8mm with 3/11 involved lymph nodes (LN) and right parathyroid adenoma. Given a questionable lower left lung nodule on prep CXR, she underwent CT chest which revealed a 2 cm lung nodule. She had video assisted thoracoscopic (VATS) left lower lobe wedge resection with completion left lower lobectomy for a 3 cm lung adenocarcinoma with negative margins and 33 negative LN.

She was subsequently treated with RAI after recovery from VATS. Pretreatment thyroglobulin was 0.8 ng/ml with negative margins and 33 negative LN. She was subsequently treated with RAI after recovery from VATS. Pretreatment thyroglobulin was 0.8 ng/ml with negative thyroglobulin antibodies. One month after RAI treatment, ultrasound of the neck revealed suspicious bilateral level IV LN which appeared to have been present prior to completion of RAI remnant ablation of the thyroid. This case illustrates a rare presentation of PTC occurring concomitantly with 2 other primary malignancies. The case is especially intriguing as the other 2 primary cancers appear to have been present prior to completion of RAI remnant ablation of the thyroid cancer. It has long been known that there may be a risk of a second primary malignancy in patients treated with high dose radioactive iodine. However, in this novel case it appears the etiology of the other 2 cancers is unrelated to RAI ablation. Importantly, this patient demonstrates a BRAF V600E activating mutation found in 40-60% of all PTC, and especially common in the classic variant. While this mutation occurs early in tumorigenesis, it predisposes to loss of differentiation and promotes tumor invasion and progression. It has also been implicated to play a role in other malignancies as well, commonly of the breast and lung. Additionally, the BRAF V600E mutation in thyroid malignancy may prove to be a valuable treatment target given the recent discovery of kinase inhibitors specifically targeting the mutated kinase isofom.

We present a patient with no known history of malignancy who presented with 3 de novo primary malignancies. This case may demonstrate an increased risk of malignancy in patients with thyroid cancer not necessarily related to radioactive iodine treatment.

Conclusion

References