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Trawling to Targeted Therapy in Thyroid Cancer

Ryan P*, McDermott E and Crown J

*St. Vincent's University Hospital, Dublin 4, Ireland.

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ABSTRACT

Thyroid cancer is well known as the most common endocrine cancer worldwide. Differentiated thyroid cancer is the most common subset of this disease and within this category; papillary thyroid cancer makes up the majority. For years this disease has been managed both surgically and with radiation therapy. Since the introduction of new molecular diagnostic techniques, three has been the development of a new treatment arm for certain types of differentiated thyroid cancer. This has given patients worldwide, new hope in the treatment of recurrent thyroid cancer. Our case follows one such patient.

Case: In 1995 a 45 year old male presented to our institute with a neck lump. He underwent the routine examination and investigations that many before him underwent and was diagnosed with papillary thyroid cancer. Initially he received surgical and radiation based therapies and remained disease free for over a decade. Like many patients in similar situations, the disease recurred, thus requiring more therapies of a similar nature.

It wasn't until breakthroughs in molecular diagnostics in 2015 were it discovered that for the most-part, it was likely that parts of these treatments were somewhat irrelevant. It was only with the discovery of the BRAF V600E mutation and the introduction of novel multikinase inhibitors has he shown real progress in his fight against recurrent disease.

Keywords: Thyroid cancer, Differentiated thyroid cancer, BRAF V600E, Lenvatinib

INTRODUCTION

Papillary thyroid cancer makes up 80% of thyroid cancers [1]. They have been show to encompass several tumor types with specific genetic mutations, which signal through the MAPK pathway. BRAF V600E accounts for approximately 60% of these mutations [2]. This case follows a gentleman with recurrent PTC, first treated in 1995, who 21 years later, is benefitting from targeted therapy based on these recent molecular diagnostic breakthroughs.

CASE

A 45 year old gentleman presented to SVUH with a right-sided neck lump in 1995. He was otherwise asymptomatic with no past medical history. Following work-up he was diagnosed with PTC (Thy5) and treated with a total thyroidectomy. Histology showed multi-focal, node positive disease and he received radioactive-iodine-ablative therapy and thyroxine-suppressive therapy. He remained disease free until 2009 when he presented again with a right-sided neck lump. Fine needle aspirate biopsy showed recurrent disease, which was treated with a modified right-sided neck dissection and radioactive-iodine. Following further recurrence in 2014, he received more radioactive-iodine. In 2015 he presented with a right-sided neck lump again positive for recurrent disease, but no longer iodine avid. Molecular diagnostics showed it to be BRAF V600E positive and he was referred to medical oncology following MDT discussion.

In January 2016 he was started on Lenvatinib, a multikinase inhibitor. Twenty-three months later, the node is no longer palpable and there were "no cervical lymphadenopathy or masses" on imaging.

DISCUSSION

The incidence of thyroid cancers in the US has tripled in the last 40 years. At the forefront of treatment has been a surgical intervention and radiation therapy. Recent developments in molecular diagnostics have provided us with another treatment option, but with trials on these adjuvant therapies in their early stages, it remains to be seen

Corresponding author: Paul Ryan, Surgical Senior House Officer, St. Vincent's University Hospital, Elm Park, Dublin 4, Ireland, Tel: +353 87 875 6941; E-mail: paulcryan@rcsi.ie

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if this patient can be used as a benchmark for future thyroid cancer patients [3].

CONCLUSION

Multikinase inhibitors such as Lenvatinib appear to providing a new hope for patients with recurrent thyroid cancer. Our patient, 23 years after his initial diagnosis and multiple previous treatments, is finally showing both clinical and radiological proof that the BRAF V600E mutation might be controllable in the long-term, when treated with daily multikinase inhibitors.

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