

The background of the slide is a dark blue gradient. A large, faint watermark of the University of Virginia seal is visible. The seal features a central building with columns, the year '1819' below it, and the words 'UNIVERSITY OF VIRGINIA' around the perimeter.

Low Yield of Ultrasound in Evaluating for
Papillary Thyroid Cancer Recurrence with an
Undetectable Serum Thyroglobulin Level

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No Disclosures

Introduction

- Total thyroidectomy is standard of care for patients with differentiated Papillary Thyroid Cancer followed by radioactive I-131 (RAI) therapy.
- Following initial therapy, many patients will undergo serial thyroid bed/neck ultrasounds (US) with serum Thyroglobulin (sTG) measurements to monitor for local recurrence.

Introduction

- Thyroglobulin is a storage form of T4 and T3. It is synthesized only by thyroid follicular cells and released into the serum with thyroid hormones.
- sTG concentration depends on presence of thyroid tissue, injury to the thyroid (post biopsy, radiation, surgery, etc) and degree of TSH receptor stimulation.
- sTG values have the highest sensitivity and specificity for detection of recurrent disease following total thyroidectomy and ablation.
- However, there are some limitations regarding sTG measurements related to thyroglobulin antibodies, which can decrease the amount of sTG available for binding to the assay.

Purpose

- To determine if an undetectable sTG level, in the absence of thyroglobulin antibodies, allows US to be obviated.
- Evaluate possible secondary gains if US can be obviated including decreasing the number of medical imaging studies, biopsies and biopsy related complications, and their associated costs.

Methods

- Retrospective chart review identified 82 patients from January 2010 to December 2011 who underwent surgical and RAI therapy for papillary thyroid cancer, followed by postoperative US and sTG levels drawn within 60 days prior to or following the US.
- We reviewed the patient's imaging results, sTG levels, follow up imaging, and any biopsies performed.

Results

- 82 patients underwent a total of 243 thyroid bed/neck US from April 2010 to September 2016, ranging from 1 to 9 postoperative/post-RAI US for an individual patient.
- Of these 243 instances, there were 8 exams (3.3%) in 7 (9.8%) patients where the sTG level was undetectable and sonography raised the possibility of disease recurrence.

Results

- Of these 7 patients where the sTG level was undetectable and sonography raised the possibility of disease recurrence:
 - 0 had biopsy proven metastatic disease.
 - 1 patient underwent US-guided fine needle aspiration with resultant benign pathology
 - 2 patients were lost to follow up
 - 4 patients had follow up US demonstrating stability of findings, suggesting benignity.

Discussion

- Thyroid bed/neck US rarely identifies recurrent papillary thyroid cancer when the sTG level is undetectable in patients with a history of papillary thyroid cancer after thyroidectomy and RAI therapy.
- Obtaining US in these patients leads to unnecessary imaging exams and potential biopsies without improving the detection of recurrent disease.

Clinical Application

- By decreasing the number of US obtained in patients post thyroidectomy for papillary thyroid cancer will decrease unnecessary imaging exams and biopsies without negatively impacting detection of recurrent disease.

Thank You!

