

including a 1.8 cm hypoechoic, complex nodule in the left inferior gland and a 1.7 cm isoechoic nodule in the right inferior gland. Fine needle aspiration of the left nodule was suspicious for papillary thyroid carcinoma and the right nodule showed lymphocytic thyroiditis. The patient underwent total thyroidectomy and pathology demonstrated a benign left nodule and an incidental 0.3 cm right papillary thyroid carcinoma. The patient started levothyroxine 150 mcg daily (1.8 mcg/kg) post-operatively with subsequent TSH of 18.1 mIU/mL. His dose was increased to 200 mcg daily (2.4 mcg/kg) and TSH was still elevated at 11.7 mIU/mL. His levothyroxine dose was subsequently increased to 250 mcg daily (3 mcg/kg) and TSH is outstanding.

**Conclusions:** This case highlights the diagnostic challenge in nonTR-RTH. It also demonstrates the complex management of patients with RTH and concurrent hypothyroidism. Such patients need close monitoring and aggressive titration of levothyroxine to achieve desired hormone levels.

1. Dumitrescu AM, Refetoff S. The syndromes of reduced sensitivity to thyroid hormone. *Biochim Biophys Acta* 2013;1830:3987-4003.

2. Barkoff MS, Kocherginsky M, Anselmo J, Weiss RE, Refetoff S. Autoimmunity in patients with resistance to thyroid hormone. *J Clin Endocrinol Metab* 2010;95:3189-93.

## Thyroid

### THYROID NEOPLASIA AND CANCER

#### **Comorbidity of Primary Hyperparathyroidism and Papillary Thyroid Cancer. A Single Center Outcomes**

*Nektaria Papadopoulou, MD, PhD<sup>1</sup>, Eleni Papanikolaou,*

*Administrator<sup>1</sup>, George P. Chrousos, MD, ScD<sup>2</sup>,*

*Evangelos Karvounis, MD, PhD, fACS<sup>3</sup>.*

<sup>1</sup>Unit of Translational and Clinical Research in Endocrinology,

Medical School, National and Kapodistrian University of

Athens, ATHENS, Greece, <sup>2</sup>EPI, UNIVERSITY RESEARCH

INSTITUTE, ATHENS, Greece, <sup>3</sup>Center of excellence of Thyroid

and Parathyroid Surgery, Euroclinic Hospital, ATHENS, Greece.

#### **MON-489**

**Introduction**Concurrence of primary hyperparathyroidism in patients with thyroid disease has been previously reported by several studies. However, comorbidity between primary hyperparathyroidism (PHPT) and papillary thyroid cancer (PTC) has been sparsely described by previous, mostly case-series studies, and is considered rare. Since pathophysiological mechanisms behind the two diseases are supposed to be different, any link between these diseases has not been explained as yet. **Hypothesis:** Aim of the study was to investigate the possible concurrence for the two diseases in people who underwent thyroidectomy for suspected thyroid nodules. **Methodology** Retrospective observational study that included 2913 patients (24% men with mean age 49.82 yrs, 76% women mean aged 47.73 yrs), who underwent total thyroidectomy during the last 13 years (2005-2018) at the Department of Endocrine Surgery, Euroclinic Hospital, in Greece. The patient-groups were categorised according to histopathology criteria of the thyroid and/ or parathyroid glands (in case of comorbidity of primary hyperparathyroidism (PHPT) diagnosed prior to surgery). **Results:** Statistical analysis revealed benign histopathology findings in 1945 patients (64%), while

papillary cancer was found in 978 (32%). Among patients with non-malignancy, 16 (11 women/5 men) had PHPT, but in those with papillary cancer, PHPT was diagnosed in 38 (33 women/5 men) individuals. The relative risk for the concurrence of PHPT and PTC was 2.033 (95%CI 1.69 to 2.43, P<0.0001). Age groups between 30 and 60 yrs were associated with the highest relative frequency of comorbidity (82%). A significant positive correlation was observed between less aggressive PTC histopathology findings and PHPT concurrence (P<0.0001). Interestingly, no patient with PTC and PHPT had either capsular invasion or regional/distant metastases. Moreover, most patients with comorbidity (92%) had a tumour diameter smaller (mean 6.3 mm) than those with PTC alone (mean 18 mm). **Conclusions:** Our study found that the comorbidity between primary hyperparathyroidism and PTC may be considered as possible. Endocrinologist's diagnostic approach may add serum calcium and parathormone levels in patients who undergo evaluation for suspected thyroid nodules. Patients with PHPT and PTC had mostly microcarcinomas, and histopathology findings showed a less aggressive PTC pattern. Further large cohorts as well as genetic studies, are needed to duplicate our results and further highlight possible common pathogenetic pathways behind PHPT and PTC concurrence.

## Thyroid

### THYROID CANCER CASE REPORTS II

#### **Encapsulated Follicular-Variant of Micropapillary Carcinoma Presenting with Distant Bony Metastasis**

*Ana Ramirez Berlioz, MD, Richa Patel, MD,*

*Bhavana Chinnakotla, MD, Camila Margarita Manrique Acevedo, MD, John Liu, MD.*

University of Missouri-Columbia, Columbia, MO, USA.

#### **MON-434**

**INTRODUCTION** The incidence of thyroid cancer has risen steadily over the last decades, in part due to increasing diagnosis of apparently low-risk well-differentiated cancers. The outcomes of well-differentiated thyroid cancers, including follicular variant papillary thyroid carcinoma (PTC), are believed to be quite favorable, with a largely indolent benign course. We examine an encapsulated follicular-variant of micropapillary carcinoma presenting with distant bony metastasis. **CASE** 55-year-old lady presented to clinic after biopsy of iliac crest (IC) mass revealed thyroid tissue. One year prior she started having dull pain at right hip, attributed to increased physical activity. She noticed a tender "lump" on her right hip. CT revealed destructive right iliac 8 cm mass with extraosseous soft tissue component, central necrosis, and eccentric calcifications; and right ovarian cyst. Right IC biopsy was consistent with thyroid tissue with positive Thyroglobulin and TTF-1 immunostains. Physical exam was normal, except for mild tachycardia, hypertension, right flank large rounded mass fixed to IC, tender to palpation without erythema or warmth on overlying skin. Thyroid ultrasound showed normal thyroid gland except 5.58 x 6.22 x 7.76 mm left lobe nodule without increased vascularity but with coarse peripheral calcification. FNA was unsatisfactory. Thyroid function tests revealed undetectable TSH, elevated FT4, FT3, and

markedly elevated thyroglobulin and TSI. PET/CT scan showed focal area of mild FDG avidity, corresponding to the right iliac crest mass, without additional areas of FDG avidity suggestive of metastatic disease or primary neoplastic process. Three weeks after presentation, patient began having symptoms of hyperthyroidism. As FT4 and FT3 continued to rise, she was started on propranolol and methimazole. Due to inadequate response, methimazole was switched to high dose propylthiouracil with mild improvement. Thyroid uptake and scan and SPECT-CT revealed increased thyroid uptake and thyromegaly consistent with Graves' disease and redemonstrated large right IC lesion with increased uptake in the periphery and central photopenia, suggesting metastatic thyroid malignancy. Pathology from total thyroidectomy reported encapsulated follicular variant of PTC, confined to the left lobe of the thyroid, without extrathyroidal extension, greatest tumor dimension 0.6cm. As metastasis to the IC were unlikely to have originated from this small encapsulated thyroid cancer, it was recommended to proceed with right oophorectomy for suspected malignant struma ovarii and IC lesion debulking. Surgical pathology revealed right ovary and fallopian tube without pathologic changes or features of teratoma and tissue from right iliac mass consistent with PTC. Patient is off all antithyroid medications and remains biochemically euthyroid, awaiting radioactive iodine therapy.

## Thyroid

### THYROID CANCER CASE REPORTS II

#### *SPECT/CT Localization of Incidental Diverticular Bleed After Radioiodine ( $I^{131}$ ) Therapy for Metastatic Thyroid Cancer*

Sejal B. Doshi, MD<sup>1</sup>, Arash Kardan, MD<sup>2</sup>.

<sup>1</sup>Warren Alpert Medical School of Brown University, Providence, RI, USA, <sup>2</sup>Kettering Medical Center, Kettering, OH, USA.

#### MON-443

**Background:** Radioiodine therapy for patients with metastatic papillary and follicular thyroid cancer status post total thyroidectomy improves overall survival and is standard of care. Physiologic and pathologic biodistribution of  $I^{131}$  is dependent on tissue sodium iodine symporter expression with nonspecific radioiodine distribution seen secondary to physiologic routes of excretion.

**Clinical Case:** Whole body scintigraphy (WBS) was performed seven days after  $I^{131}$  therapy in a 37-year-old male treated for metastatic papillary thyroid cancer with extension to a thyroglossal duct cyst at the time of surgery. His post-procedural course was uncomplicated with the exception of self-limited hemochezia six days after ablation. WBS images demonstrated a focus more superiorly in the neck concordant with metastatic thyroglossal duct cyst involvement. Activity was also present in the small and large bowel distribution reflecting normal routes of radioiodine excretion. WBS images depicted a discrete focus of radioiodine activity in the right lower quadrant, which SPECT/CT further localizes as activity in the sigmoid colon. Non-contrast CT images demonstrate an associated linear pattern of hyperdense hyperattenuation in the colonic lumen consistent with fresh blood. It is well established that the physiologic and pathologic biodistribution

of  $I^{131}$  is dependent on tissue sodium-iodine symporter expression with additional distribution secondary to normal routes of excretion. Nonspecific radioiodine localization has been described at sites of inflammation secondary to vasodilation and increased vascular permeability resulting in leakage and accumulation in tissues. Sodium-iodine expression is found in many tissues, including salivary glands, lactating mammary glands, gastric mucosa, thymus, and small bowel; however, they are not expressed in the colon, nasopharyngeal mucosa, or orbital fibroblasts.  $I^{131}$  localization has been previously described within numerous body diverticula, such as Zenker's and Meckel's diverticula; however, radioiodine activity in association with an acute colonic diverticular bleed has not been reported.

**Conclusion:** We propose that the isolated focus of radioiodine activity in the sigmoid colon associated with transient self-limited bleed could be either related to pre-existing diverticulitis leading to  $I^{131}$  accumulation secondary to hyperemia, increased vascular capillary permeability, and subsequent aggravation of colonic mucosa resulting in a transient bleed or due to incidental nonspecific pooling of radioiodine in a colonic diverticulum resulting in secondary mucosal irritation with subsequent minor bleeding. To our knowledge this is the first reported case of SPECT/CT localization of radioiodine to an isolated colonic diverticular bleed in a patient status post  $I^{131}$  therapy for metastatic papillary thyroid cancer.

## Adipose Tissue, Appetite, and Obesity OBESITY TREATMENT: GUT HORMONES, DRUG THERAPY, BARIATRIC SURGERY AND DIET

### *Conscious and Pre-Conscious Attentional Bias to Food in Patients Submitted to Bariatric Surgery*

Rogério Friedman, MD, PhD<sup>1</sup>, Mariana L D C Heredia, MSc<sup>1</sup>, Gibson Weydmann, MSc<sup>2</sup>.

<sup>1</sup>Hospital de Clinicas de Porto Alegre, UFRGS, Porto Alegre, Brazil, <sup>2</sup>Experimental Psychology (LPNec), UFRGS, Porto Alegre, Brazil.

#### MON-604

Obesity is the result of a positive energy balance. Cognitive biases have been shown to co-occur with obesity, highlighting the hypothesis that certain cognitive functions increase the risk for obesity. Attentional bias (AB) to food stimuli is one of the cognitive components that seem to contribute to the onset and course of obesity. The treatment of obesity still represents a major health challenge. The most effective treatment for severe obesity is bariatric surgery (BS). Patients with higher degrees of adiposity – the so-called “superobese” (SO), whose body mass index (BMI) is  $\geq 50 \text{ kg/m}^2$  - seem to lose more weight after BS than the non-SO patients. On the other hand, SO patients are more likely to regain weight. Differences in behavior and cognition before and after BS may explain weight regain differences. The aim of this study was to assess food AB in a sample (n = 59) submitted to Roux-en-Y gastric bypass (RYGB) and to compare food AB between the subjects who were SO before surgery, and those who were non-SO. 59 patients underwent anthropometric assessment, clinical interview, psychometric questionnaires, and AB behavioral assessment. Participants were mostly white (n = 46, 78%),