

Academic Physician *Quarterly*

A DEPARTMENT OF MEDICINE BULLETIN



UF UNIVERSITY of
FLORIDA
College of Medicine
Jacksonville

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CHAIRMAN'S MESSAGE

Dear Colleagues;

The publication of the second issue of the Academic Physician Quarterly (APQ), the official newsletter of the Department of Medicine at the University of Florida-College of Medicine in Jacksonville, coincides with the graduation of our senior residents, subspecialty fellows and the arrival of a new crop of talented young physicians to join our training program. In addition to these anticipated annual changes, the Department will be joined by several new faculty members in various subspecialties. We will be introducing the new colleagues in the future issues of the APQ.



I am proud to report that faculty members of the Department continue to be recognized for their exceptional contributions to the teaching mission of the University of Florida. In particular I want to recognize Dr. Carlos Palacio and Dr. Manish Relan, both of the Division of General Internal Medicine, for receiving the 2006 Exemplary Teachers Award. In addition, Dr. Irene Alexandraki, also of the Division of General Internal Medicine, was a 2007 finalist of the College's Excellence in Student Education Award. The award is given annually to the faculty member identified as the most outstanding teacher by medical students.

In our effort of introducing the community of physicians in Northeast Florida to the services offered at UF & Shands Hospital, we will be highlighting the advanced technologies we currently offer for the management of patients with complex problems. In this issue, Dr. Louis Lambiase, the Chief of the Division of Gastroenterology, describes a powerful diagnostic tool, endoscopic ultrasound, that is utilized by the faculty members in the Division of Gastroenterology.

As we close the chapter on a successful academic year, I am looking forward to a new and productive season.

*Arshag D. Mooradian, M.D.
Professor of Medicine
Chairman, Department of Medicine*

FOCUS

Endoscopic ultrasound: A powerful diagnostic tool

Louis Lambiase, M.D.

Chief, Division of Gastroenterology



The treatment of lung cancer is highly dependant on the stage of the illness at the time of diagnosis. The presence of metastatic disease within mediastinal lymph nodes alters both prognosis and therapeutic approach.

Endoscopic ultrasound (EUS), a procedure in which a tiny endoscopic transducer is attached to a therapeutic endoscope, allows detailed visualization of central chest structures from within the esophagus. Placing the transducer in the esophagus allows for highly detailed images that are not subject to interference from other organs that might be “in the way” of traditional imaging modalities such as computed tomography (CT). EUS can detect lymph nodes that are so small that they are missed on CT scanning. In a recent study published in the journal *Lung Cancer*, EUS detected mediastinal spread of lung cancer in twenty-one percent of patients who had a normal CT scan.

In addition, EUS adds the ability to biopsy lymph nodes in the chest in a minimallyinvasivefashion. Traditionally, suspicious lymph nodes had to be biopsied through a much more invasive procedure called mediastinoscopy where a surgeon inserts a rigid “scope” into the center of the chest through a slit at the base of the patient’s neck. EUS allows for the passage of a needle, under ultrasound

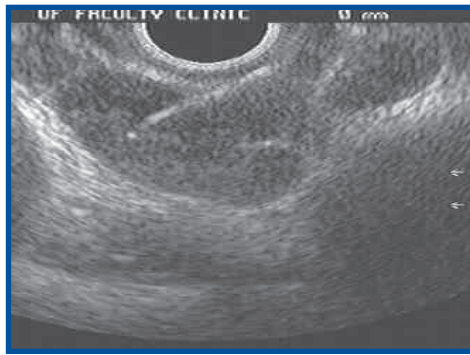


FIGURE: Lymph Node Fine Needle Aspiration Biopsy: This figure shows a mediastinal lymph node (center) being biopsied by a needle (diagonal white line) under endoscopic ultrasound guidance.

guidance, through the wall of the esophagus into the chest lymph nodes. The small needle causes minimal trauma and the patient usually experiences less pain and risk than mediastinoscopy. Furthermore, EUS may reach lymph nodes positioned between the aorta and the pulmonary arteries that mediastinoscopy traditionally cannot reach.

At the University of Florida/Shands Hospital–Jacksonville, EUS is performed in the Gastrointestinal Endoscopy Unit by a team of specially trained physicians and nurses. A multi-disciplinary approach, with endoscopists and cytopathologists working together at the patient’s bedside, is taken in order to provide optimal care. In our hands EUS for lung cancer is a low risk, high yield procedure – often yielding crucial information for the treating physician. The procedure is performed several afternoons a week. Interested referring physicians or patients may contact the Gastroenterology service at (904) 244-3273.

RX UPDATE

N. Stanley Nahman, Jr., M.D.

Professor of Medicine

Chief, Division of Nephrology and Hypertension

Vasopressin receptor antagonists: a new therapy for hyponatremia

The syndrome in appropriate anti-diuretic hormone (SIADH) is the most common cause of euvolemic hyponatremia and is mediated by non-physiologic vasopressin release under a wide variety of clinical conditions. Hypervolemic hyponatremia is associated with a decreased effective circulating blood volume and may result from congestive heart failure, nephrotic syndrome or cirrhosis.

Conivaptan and tolvaptan are inhibitors of the V2 vasopressin receptor of the distal nephron, and increase the excretion of free water by the kidney. Conivaptan (intravenous) and tolvaptan (oral) have been shown to correct the hyponatremia of SIADH. Conivaptan is approved by the FDA for short term treatment of SIADH in hospitalized patients. Tolvaptan was recently shown to be effective in both euvolemic and hypervolemic hyponatremia and continues to undergo clinical testing. Both drugs may be associated with increased thirst and polyuria, but otherwise have favorable side effect profiles. Vasopressin receptor blockers may be of use in the therapy of inpatients with euvolemic or hypervolemic hyponatremia

GME CORNER

N. Stanley Nahman, Jr., M.D.

Program Director, Internal Medicine Residency Program



"In the old days", residents had overnight in-house call obligations on every rotation. In today's learning environment, in-house call has for the most part been replaced by a night float system, in which residents work only the night shift for prescribed periods of time.

An important challenge for all night float experiences is maintaining the educational integrity of the rotation as well as keeping the residents connected with their daytime colleagues and the rest of the training program.

The UF Jacksonville residency program addresses these issues through a carefully crafted night float rounding system that interfaces with daily morning report. Our night float shift concludes with morning report from 7 - 8 am on Monday morning, and attending-led night float rounds Tuesday through Friday from 7:15 to 8 am.

Each night float team and attending leader work together for a two week block. Rounds commonly focus on one new patient admitted by the night float team the previous night. The attending picks the patient for discussion, and the resident who performed the evaluation presents the patient to the attending. The entire group then moves to the bedside, where the attending may examine the patient and review relevant clinical findings. At the conclusion of the bedside evaluation, the case is summarized and the salient teaching points emphasized by the faculty facilitator.

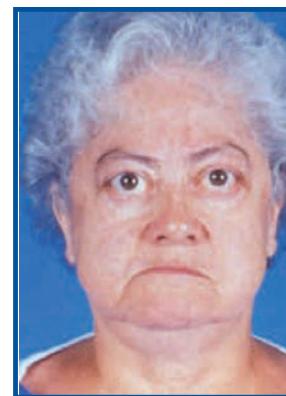
A CLINICAL CASE

Arshag D. Mooradian, M.D.

"Asymptomatic Hyperthyroidism": Is it a distinctive clinical and laboratory entity?

Introduction

Hyperthyroidism is generally the result of increased serum free thyroid hormone levels and is associated with a set of clinical signs and symptoms. In rare cases of congenital thyroid hormone resistance syndromes, symptoms of hyperthyroidism are absent despite the elevated thyroid hormone levels. Older patients who develop hyperthyroidism have a paucity of classical signs and symptoms of hyperadrenergic state. Nevertheless they may have increased incidence of weight loss, cardiac arrhythmias and occasionally have apathetic mood. We describe a case of an acquired asymptomatic hyperthyroidism in an older woman who had elevated serum free thyroid hormone levels, suppressed serum TSH level and yet lacked any clinical signs or symptoms of hyperthyroidism



Case presentation

A 78 year old woman was seen in March 2007 for management of hypertension. She had been feeling well over the last year and had not sought any medical attention since August 2006. In the last few days she developed upper respiratory tract signs with some hoarseness of the voice and mild sore throat. She had been diagnosed with hyperthyroidism and started on propylthiouracil in June of 2004 that was subsequently switched to methimazole. She had taken antithyroid medicines intermittently until November 2005 when the endocrinology consultant discontinued methimazole. On March 2006 she was seen in the clinic off antithyroid medicines and did not have any specific complaints.

Her past medical history is significant for coronary bypass surgery in 2001, transient ischemic cardiomyopathy and osteoarthritis.

The current medications included carvedilol 6.25mg twice a day, and a daily treatment of the following; aspirin 325mg, felodipine 10mg, furosemide 40mg, potassium chloride 20 meq, lisinopril 40mg and pravastatin 20 mg.

Review of systems revealed stable body weight for the last one year, no palpitations, no shortness of breath, no tremors, no heat intolerance, no change in bowel habits nor changes in cognition or mood.

Physical examination revealed a blood pressure of 129/59 mm Hg, heart rate of 71 beats per minute, body mass index of 28.4

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Kg/m². The thyroid gland was enlarged (2 times normal) and thickened, and there was a systolic ejection murmur 3/6 at left sternal border. Otherwise the examination was remarkable for the absence of any signs of hyperthyroidism or Graves' disease. The thyroid function tests on March 2007 showed free thyroxin (T₄) of 3.3 ng/dl (normal 0.8-1.7), free triiodothyronin (T₃) of 8.0 pg/ml (normal 2.57-4.43) and thyrotropin (TSH) of 0.005 mU/L (0.27-4.2). Laboratory work-up seven months prior to this visit showed free T₄ of 3.5 ng/dl, free T₃ of 11 pg/ml and TSH of 0.005 mU/L. The thyroid stimulating immunoglobulin (TSI) was 336% (NL < 130%) and 6 hour radioactive iodine uptake was 41% with 22 hour uptake of 79% (normal 10-35%). Thyroid scan showed diffusely enlarged gland.

Differential diagnosis

As the name implies, people with asymptomatic hyperthyroidism have all the laboratory features of hyperthyroidism but do not have any obvious symptoms or signs of hyperthyroidism. Although this syndrome is a distinct entity it has features that overlap with other well known disorders of thyroid physiology, namely subclinical hyperthyroidism, apathetic hyperthyroidism and thyroid hormone resistance syndromes.

In subclinical hyperthyroidism, the serum free T₄ and free T₃ remain within the reference range. Asymptomatic hyperthyroidism is also distinct from apathetic hyperthyroidism since the former does not exhibit neuropsychiatric features of hyperthyroidism, including apathetic mood.

Asymptomatic hyperthyroidism may be a variant of tissue selective thyroid hormone resistance syndromes. People with thyroid hormone resistance do not have suppressed serum TSH levels and the condition is congenital, while asymptomatic hyperthyroidism, like subclinical hyperthyroidism and apathetic hyperthyroidism, are acquired conditions

Pathophysiology

Asymptomatic hyperthyroidism can be viewed as a variant of apathetic hyperthyroidism. In both entities there is acquired insensitivity to thyroid hormones. Since apathetic hyperthyroidism is predominantly a disease found in older people, it is tempting to speculate that the previously described age-related insensitivity to thyroid hormones may partly account for the clinical manifestations of apathetic hyperthyroidism and the related entity of asymptomatic hyperthyroidism of the aged.

Age-related changes in thyroid hormone action are reflected in changes in specific gene products that are known to be modulated by thyroid hormones. An age-related blunted responsiveness of biomarkers of thyroid hormone action has been demonstrated in various tissues including the cerebral cortex. In addition, the thyroid hormone responsiveness of adrenergic neurotransmission in synaptosomal membranes and in myocardial tissues is also reduced in aged rats.

Multiple biological changes may account for the altered thyroid hormone action with age. These include impaired transport of thyroid hormones across plasma membrane, impaired tissue metabolism of thyroid hormone, and alterations in post-receptor processes modulating gene expression.

Age-related thyroid hormone resistance (THR) differs from congenital THR in many ways. One of the biochemical hallmarks of congenital THR is normal or mildly elevated serum TSH levels. The suppressed serum TSH levels in older adults with THR can be explained by the tissue selectivity in age-related changes of thyroid hormone responsiveness such that the hypothalamic-pituitary unit either retains or acquires enhanced thyroid hormone responsiveness in the face of reduced responsiveness of peripheral target tissues. Indeed, data from experimental aging models suggest that the thyroid hormone receptors in the pituitary may be increased with age along with an increase in the conversion of T₄ to T₃ through the increased activity of 5' deiodinase type II enzyme.

	Asymptomatic Hyperthyroidism	Subclinical Hyperthyroidism	Apathetic Hyperthyroidism	Generalized Resistance to TH	Pituitary Resistance to TH
Symptoms	None	None/Minimal Weight loss	Apathy	None or Hypothyroid	Hyperthyroid
Goiter	Variable	Variable	Variable	Yes	Yes
Free T ₄	Increased	Normal	Increased	Increased	Increased
Free T ₃	Increased	Normal	Increased	Increased	Increased
TSH	Very Decreased	Decreased	Decreased	Normal/ increased	Increased/ Normal
Onset	Acquired	Acquired	Acquired	Congenital	Congenital
Frequency	Unknown	Common	Rare	Very rare	Very rare

Table 1: Comparative profile of patients with asymptomatic, apathetic, and subclinical hyperthyroidism or thyroid hormone (TH) resistance syndromes.

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Although an increase in serum thyroid hormone concentrations is expected in a syndrome characterized by resistance to hormonal action, unchanged serum thyroid hormone levels in the euthyroid elderly person may be secondary to confounding physiological changes with age, including increased suppressability of TSH, decreased conversion of T_4 to T_3 , and decreased thyroidal sensitivity to TSH.

Therapeutic Implications

If the syndrome is truly asymptomatic, then the question arises whether therapeutic interventions are necessary. Since clinical features are an insensitive barometer of tissue effects of excess thyroid hormones, in view of lack of clinically useful tissue biomarkers of thyroid hormone action, and since the natural history of this entity is not known, it is advisable to normalize the thyroid hormone levels in these patients even though they are asymptomatic. Given the lack of clinical trials in these patients the recommendation to treat with anti-thyroid medications is based on the studies in patients with apathetic hyperthyroidism and subclinical hyperthyroidism.

Conclusions

Asymptomatic hyperthyroidism is an under diagnosed entity. It may be a variant of apathetic hyperthyroidism with complete absence of symptoms and signs including apathetic mood. Unlike thyroid hormone resistance syndromes, it is an acquired condition that is probably more common in the elderly and may well be an extreme manifestation of age-related thyroid hormone insensitivity. Widespread screening of older people for thyroid disease is likely to uncover more people with this syndrome.

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News & Notes

MEET YOUR COLLEAGUES

Editor's note: Periodically the "Academic Physician Quarterly" will introduce our readership to new faculty members who have exceptional clinical skills. In this issue we highlight two outstanding academic surgeons who joined UF-Shands Hospital in the last year.



Sadir J. Alrawi, MD, FRCS,
Assistant Professor, Surgery
Section Chief, Surgical Oncology

University of Florida College of Medicine-Jacksonville

Dr. Alrawi earned his medical degree from the University of Baghdad and completed his surgical education in England, Scotland and the United States. He completed his fellowship training in head and neck surgery and surgical oncology with both clinical and basic science research at Roswell Park Cancer Institute, a National Cancer Institute designated center.

DR. ALRAWI'S SPECIALTIES

- Upper gastrointestinal oncological surgery with emphasis on esophageal, gastric, pancreas, liver and biliary tumors
- Sarcoma and melanoma tumors, including extremity and truncal tumors, with extensive experience in both sentinel and radical lymph node dissection
- Intraperitoneal advanced cancer management with debulking surgery and intraperitoneal chemoperfusion
- Lower gastrointestinal oncological surgery (colonic malignancy) with pelvic exenteration for advanced tumors
- Head and neck malignancies, including thyroid, parathyroid, parotid with various tumors of digestive tract, both primary and metastatic
- Breast tumors



Ziad T. Awad, MD
Assistant Professor, Surgery
Director, Minimally Invasive Surgery
University of Florida College of Medicine-Jacksonville

Dr. Awad earned his medical degree from the University of Baghdad and completed surgical residencies at Creighton University in Omaha, Neb., and the University of Missouri in Columbia. Dr. Awad completed his fellowship training in minimally invasive surgery at New York Presbyterian - University Hospitals of Columbia and Cornell.

DR. AWAD'S SPECIALTIES

- Minimally invasive (laparoscopic) gastrointestinal surgery with emphasis on:
- Esophageal cancer, gastroesophageal reflux disease, achalasia
- Colon cancer, diverticular disease
- Rectal prolapse repair
- Gastric cancer, peptic ulcer disease, motility disorder
- Cholecystitis, common bile duct stones, biliary stricture
- Solid organs: liver, spleen, adrenal, pancreas
- Inflammatory bowel disease
- Complications from gallbladder surgery
- Small bowel resection for benign and malignant lesions
- Hernia repair

UF&SHANDS BRAND

Shands Jacksonville's TraumaOne program is flying high with a new air ambulance. The EC-145 will allow pilots to fly faster and complete more missions due to the advanced technology onboard. In fact, the EC-145 is said to be the most technologically advanced air ambulance on the market.

The EC-145 is equipped with infrared color radar that allows pilots to respond quickly to threatening weather situations. The air ambulance also has an auto pilot feature like that of major airlines, which will be used during every mission to help keep the aircraft stable, particularly in rougher weather. This helicopter flies faster (150 mph) than the previous helicopter and is able to carry a heavier payload (7,716 lbs). Ultimately that means it can carry more fuel and patient weight. The EC-145 is also roomier, providing a larger work space for TraumaOne crews to care for patients.

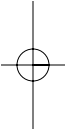
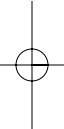
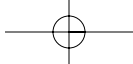
Shands TraumaOne flight program started in 1985. Every month, pilots fly between 75 and 100 missions and in 2006, crews transported nearly 1,200 patients from the scenes of medical emergencies including traumas, heart attacks and strokes. In fact, UF Neurologist, Scott Silliman MD, Associate Professor and Director of the Comprehensive Stroke Program at the Shands Jacksonville Neuroscience Institute, pioneered

the regions first helicopter transport system for stroke utilizing TraumaOne.

Shands Jacksonville is one of a few flight programs in the country to fly the EC-145 and one of only two hospitals in the Florida. The helicopter is manufactured by Eurocopter. The Army recently began using these helicopters.

TraumaOne has two helicopters in service – one located at Shands Jacksonville and the other in Lake City. The program serves 30 counties in Florida and Georgia and is responsible for saving the lives of thousands of people in its near 22-year history.





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