The United States Medical Licensing Examination® (USMLE®) Step 2 is a major measure of any medical student’s clinical knowledge, so AMA Wire® is providing frequent expert insights to help you prepare for it. Take a few minutes here to work through another of the most-missed USMLE Step 2 test prep questions and view an expert video explanation of the answer from Kaplan Medical.

Once you’ve got this question under your belt, be sure to test your knowledge with other posts in this series.

Ready. Set. Go.

This month’s question that stumped most students

A 54-year-old woman comes to the physician for a routine health maintenance examination. She has had no weight loss, fever, cough, decreased appetite, chest pain, lower extremity swelling or blood in the stool or urine. She has a history of osteoarthritis in her right knee treated with ibuprofen. Her temperature is 36.5º C (97.7º F), blood pressure is 128/72 mm Hg and pulse is 75/min. Neck examination shows a solitary nodule in the thyroid gland that is readily palpable. The remainder of the examination shows no abnormalities. Laboratory studies show TSH 0.4 µU/mL and free thyroxine (FT4) 10 ng/L. Ultrasound of the thyroid shows a 1.5-cm hyperechoic nodule in the right lower lobe.

Which of the following is the most appropriate next step in management?

A. Fine-needle aspiration (FNA)
B. No further management is necessary
C. Radioactive iodine uptake (RAIU)
D. Surgical resection
E. Thyroid replacement therapy
F. Treatment of subclinical hyperthyroidism

The correct answer is C.

Kaplan Medical explains the answer

The patient has a solitary thyroid nodule. Measuring TSH level is the next step in management. If serum TSH concentration is low, indicating hyperthyroidism, the nodule is most likely hot, and thyroid scintigraphy (RAIU scan) is the next step in diagnosis. Scintigraphy determines whether the nodule is "hot" or "cold" (i.e., whether it takes up iodine or not, respectively). A hot nodule is unlikely to be malignant, and if it is not causing hyperthyroidism it can be left alone. A cold nodule is more concerning for malignancy and surgical resection is recommended. It is important to note, however, that most cold nodules are benign. If serum TSH concentration is high or normal, there is a four- to six-percent possibility that the nodule is neoplastic, and then FNA is the next step. FNA results guide further management.

Why you shouldn’t choose the other answers

Read these explanations to understand the important rationale for each answer.

Choice A: FNA is indicated in patients with ultrasound findings that suggest malignancy, such as hypoechoic nodules or RAIU scan which shows nonfunctioning or indeterminate nodules.
Choice D: Surgical resection is premature without assessing the functionality or pathology of the nodule. Surgery is indicated for nodules that have features of malignancy or are malignant.

Choice E: Thyroid replacement therapy is appropriate with hypothyroidism.

Choice F: A subclinical hyperthyroidism diagnosis is based on the combination of low serum TSH (<0.5 μU/mL) and normal serum T4 and T3 in an asymptomatic patient. Replacement therapy is not indicated in these cases.