Testicular Choriocarcinoma Presenting as Hyperthyroidism

To the Editor:

A 46-year-old man with a remote history of benign skin cancer with no previous signs of hyperthyroidism presented to the clinic with abdominal pain that had lasted 1 week. Laboratory work showed hematocrit of 43% and hemoglobin of 14.7 g/dL, and computed tomography scan of the abdomen showed fat necrosis posterior to the stomach. The patient was recommended follow-up in 2 months. He then presented to the emergency department 1 month later with abdominal pain, melena, and shortness of breath lasting 1 month. In the emergency department, blood pressure was 110/66 mm Hg, and heart rate was 102 beats/min. Initial laboratory results showed hematocrit of 13.9% and hemoglobin of 4.5 g/dL. The international normalized ratio was 1.2. Computed tomography scan of the chest showed multiple lung masses, mediastinal and hilar adenopathy, and extensive hepatic metastases (Figure). Upper gastrointestinal endoscopy showed erosive esophagitis, and biopsy was nondiagnostic. Colonoscopy showed diverticulosis, and capsule endoscopy showed an ulcerated mass in the mid-distal small bowel. Computed tomography–guided lung biopsy was performed. The patient’s symptoms improved with respect to gastrointestinal bleeding, and he was discharged with outpatient follow-up with pending pathology results. On discharge, blood pressure was 135/66 mm Hg and heart rate was 117 beats/min. Later biopsy results were nondiagnostic.

The patient presented again 2 weeks later with similar abdominal pain, palpitations, weight loss, and heat intolerance. On examination, heart rate was 136 beats/min and regular. There were no signs of goiter or nodules. Testicular examination was normal. Computed tomography scan of the abdomen and pelvis revealed significant progression of metastatic disease involving the small bowel. Because of his symptoms, thyroid function tests were performed followed by beta–human chorionic gonadotropin secondary to hyperthyroidism (thyroid-stimulating hormone 0.12 uIU/mL, free thyroxine 2.3 ng/dL, beta–human chorionic gonadotropin >750,000 IU/L, lactate dehydrogenase 1431 IU/L, negative alpha-fetoprotein). Thyroid-stimulating hormone was expected to be lower, but this might reflect cross-reactivity between thyroid-stimulating hormone and human chorionic gonadotropin. Testicular ultrasound showed a 1.6-cm testicular mass concerning for malignancy. Thyroid scan or ultrasound was not done because the clinical presentation correlated well with paraneoplastic syndrome. Orchiectomy was planned to confirm the diagnosis, but given the thyrotoxicosis and risk for thyroid storm, this was deferred. On the basis of the clinical presentation, the diagnosis of metastatic germ cell tumor was made. Hyperthyroidism was treated with propranolol and methimazole. Chemotherapy was started. The patient’s symptoms and heart rate improved, and thyroid-stimulating hormone normalized in a few weeks. The small bowel was resected later secondary to melena, which confirmed choriocarcinoma. He responded transiently to chemotherapy but later was refractory to all treatment modalities and died after 11 months from the start of treatment.

Paraneoplastic hyperthyroidism is not common but a known phenomenon in germ cell tumors. Presentation is typically with an enlarged testicle, easily palpable by the patient or on evaluation. Unlike our case, there was no testicular swelling appreciated on examination, but...

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with high clinical suspicion ultrasound was performed, which revealed the testicular mass. Diagnosis usually is made with inguinal orchiectomy, but in men with obvious metastasis, diagnosis can be made with increased serum human chorionic gonadotropin and widespread metastasis.

High levels of beta–human chorionic gonadotropin and nonpulmonary visceral metastasis are poor prognostic indicators.\(^1,2\) Germ cell tumors produce human chorionic gonadotropin composed of alpha and beta subunits. Alpha subunit is nearly identical to thyroid-stimulating hormone, and beta subunit is similar to luteinizing hormone. The increased human chorionic gonadotropin in germ cell tumors stimulates the thyroid-stimulating hormone receptor in the thyroid gland, causing hyperthyroidism.\(^3,4\)

Thyroid functions should be measured in all patients with beta–human chorionic gonadotropin >50,000 IU/L. Frankly elevated levels should be treated, and subclinical hyperthyroidism should be monitored closely.\(^5\)

References