Primary Epithelioid Trophoblastic Tumor of the Lung
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A 40-year-old woman presented to our institution with abnormal uterine bleeding, elevated β-human chorionic gonadotropin levels, and a mass in the left lower lobe of her lung. She underwent a thoracoscopic lobectomy after further staging and workup revealed no other abnormalities. Pathologic examination of the lung mass revealed an epithelioid trophoblastic tumor. In patients with elevated β-human chorionic gonadotropin levels, a lung mass, and a negative gynecologic examination, primary epithelioid trophoblastic tumor of the lung should be considered.

(Epithelioid trophoblastic tumor (ETT) is a very rare tumor, which usually presents in the uterus or cervix and is associated with abnormal menses and elevated β-human chorionic gonadotropin (β-HCG) levels [1]. We describe a case of a primary ETT of the lung.

A 40-year-old woman presented to an outside institution with abnormal vaginal bleeding and abdominal discomfort. Pelvic ultrasound revealed no abnormality. She had a β-HCG level drawn, which was irregularly elevated to 1,100 mIU/mL. She underwent endometrial ablation and tubal ligation to control the uterine bleeding. Her uterine bleeding resolved, but β-HCG levels remained persistently elevated. Computed tomography of her chest, abdomen, and pelvis revealed a 6-cm mass in the left lower lobe of her lung, but was otherwise normal (Fig 1). She was referred to our institution for further management.

Percutaneous biopsy of this mass was read as poorly differentiated non-small cell lung cancer. Positron emission tomography–computed tomography showed hypermetabolism in the lesion, with a standard uptake value of 4. There were no other areas of abnormal uptake present.

The patient underwent a thoracoscopic left lower lobe lobectomy with mediastinal lymph node dissection. The surgery was uneventful, and the patient had a routine postoperative course. The patient was discharged to home on postoperative day 3. Gross pathologic examination revealed a 7.2-cm well-circumscribed, firm and expansile mass that abutted the pleura. Microscopic examination showed mononucleate trophoblastic cells arranged in discrete nests with thin blood vessels between them (Fig 2). Prominent nucleoli were present in some enlarged tumor cells. Up to 14 mitoses per 10 high-power fields were present in some areas. To further characterize this lesion, immunohistochemical stains were performed with appropriate controls. Tumor cells were positive for cytokeratin AE1/AE3, cytokeratin 18, inhibin-α, β-HCG, and focally positive for p63. Tumor cells were negative for human placental lactogen. This constellation of morphologic features and immunostaining profile were diagnostic of ETT. One level VI lymph node was positive for metastatic carcinoma consistent with ETT. All other lymph nodes were negative for disease. Given the rarity of the disease, an independent pathologist reviewed representative sections and agreed with the diagnosis of ETT.

Fig 1. Computed tomographic scan showing left lower lobe primary epithelioid trophoblastic tumor.

Fig 2. Histologic view showing characteristic mononucleate trophoblastic cells. (Hematoxylin and eosin stain; 4× magnification.)
The patient was referred for oncologic evaluation and treated with cisplatin/etoposide chemotherapy for four cycles. Her β-HCG levels gradually decreased after surgery to normal levels by 3 months after surgery. She was in good condition 12 months after surgery with no evidence of recurrent disease on computed tomographic imaging.

Comment
Epithelioid trophoblastic tumor is a very rare tumor, which is grouped into a spectrum of gestational trophoblastic disease, along with hydatidiform moles, invasive mole, and choriocarcinoma [2]. Epithelioid trophoblastic tumor was first described in 1989 and, to date, fewer than 60 cases have been described in the literature. Epithelioid trophoblastic tumor is similar to choriocarcinoma but typically displays a monomorphic pattern of atypical trophoblastic cells, as was seen in our case, versus the dimorphic pattern that is seen in choriocarcinoma [3]. Epithelioid trophoblastic tumor usually has elevated β-HCG levels, but the amount of elevation is typically lower than the typical choriocarcinoma, in which β-HCG levels are commonly well above 2,500 mIU/mL.

Epithelioid trophoblastic tumor most commonly appears in women of reproductive age, with a mean age at presentation of 38 years. Epithelioid trophoblastic tumor generally originates in the uterus, and abnormal vaginal bleeding is the characteristic presentation. Metastatic spread to areas such as the lung and spine has been described previously [4]. Our case is unusual in that our patient had no uterine mass present, either on pelvic ultrasound or positron emission tomography.

Epithelioid trophoblastic tumor has varying response rates to chemotherapy. Agents such as cisplatin, methotrexate, etoposide, and 5-fluorouracil have been used in case reports with different degrees of success. Because the diagnosis of primary pulmonary ETT is exceedingly rare, neoadjuvant chemotherapy is not feasible. Although we chose to treat our patient with chemotherapy after surgery, there is no consensus management strategy present in the literature.

The typical pelvic-based ETT has metastatic disease present approximately 25% of the time. Ten-year survival is approximately 90% [5]. Surgical resection appears to be the best treatment for these lesions. Metastatic disease present at the time of surgery and high mitotic index may be negative prognostic indicators. In patients with elevated β-HCG levels, a lung mass, and a negative gynecologic examination, primary ETT of the lung should be part of the differential diagnosis.

References