Pathologic Quiz Case

A 26-Year-Old Woman With Profuse Vaginal Bleeding

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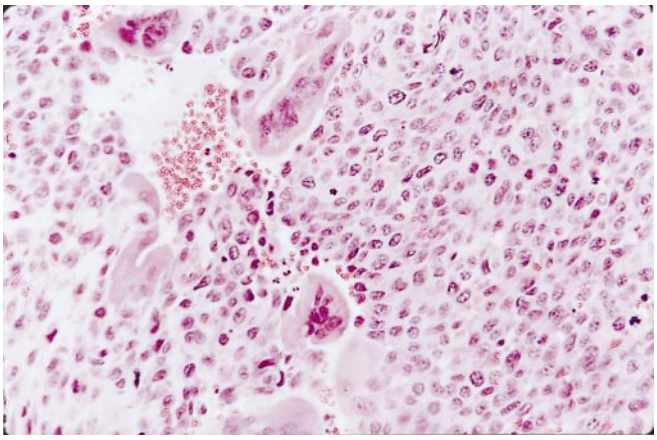
A 26-year-old multiparous African-American woman presented with profuse vaginal bleeding and a vaginal mass. The patient had experienced one preterm twin gestation 8 years prior to presentation and one full-term gestation 4 years prior to presentation. She had also experienced one spontaneous abortion and one elective abortion 3 years prior. In the year prior to admission, she had undergone a hysterectomy and chemotherapy at another institution, but the details were not immediately available at presentation.

Upon presentation to the Emergency Department, her hemoglobin level was 7.3 g/dL, and she was experiencing active vaginal bleeding. Vaginal packing was performed, and the patient underwent a transfusion. The next day, she underwent an exploratory laparotomy for an adnexal mass that was noted at the initial examination, along with a left salpingoophorectomy, lysis of adhesions, and excision of the vaginal mass, with partial vaginectomy and vaginal reconstruction.

The adnexal mass was nonneoplastic and was composed of a tubo-ovarian mass secondary to adhesions. The brown-tan vaginal mass measured 4.5 × 3.5 × 2 cm and was rubbery with foci of hemorrhage and necrosis on the cut section.

Histologically, the vaginal tumor was composed of sheets of a monomorphous cell population showing significant nuclear pleomorphism (Figure). The tumor contained more than 25 mitoses per 10 high-power fields. Occasional multinucleated giant cells were present. The tumor stained for inhibin, keratin AE1/AE3, human chorionic gonadotropin, and human placental lactogen and was negative for epithelial membrane antigen, Melan A, smooth muscle actin, and placental alkaline phosphatase.

What is your diagnosis?



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Pathologic Diagnosis: Metastatic Placental Site Trophoblastic Tumor

Placental site trophoblastic tumor (PSTT) is a rare form of gestational trophoblastic disease composed of intermediate trophoblasts. PSTT was first described by Marchand in 1895 and later by Schmauch in 1907 and called ''atypical chorionepithelioma.''[1] It was first proposed as an entity in 1981.[2] Fewer than 150 cases have been reported. Patients present with abnormal uterine bleeding, uterine enlargement, and a positive pregnancy test and are often misdiagnosed as having an intrauterine pregnancy, a missed abortion, or an ectopic pregnancy. It occurs an average of 3 years after a preceding gestational event, predominantly a normal or ectopic pregnancy or abortion, and, in 5% to 8% of the cases, after a hydatiform mole.[3,4] The primary tumor is most commonly seen in the uterus, although other rare primary sites, such as fallopian tubes, ovaries, cervix, and vagina, have also been described.

Grossly, primary uterine PSTT may be seen as nodules to large, bulky masses, as circumscribed or ill-defined polypoid masses projecting into the uterine cavity, or as a deeply invasive tumor extending to the uterine serosa with frequent perforation.

Histologically, PSTT consists of a monophasic proliferation of intermediate trophoblasts composed of predominantly mononuclear cells and occasional multinucleated cells. A characteristic feature distinguishing these lesions from other trophoblastic lesions is the tumor cells, which deeply permeate the myometrium singly or in cords and sheets, separating muscle bundles.[5] Prominent vasocentric proliferation of trophoblasts and deposition of abundant extracellular eosinophilic fibrinoid material around the vessels is another characteristic feature of these tumors. The tumors stain for cytokeratins and human placental lactogen,[6] with weak and focal positivity for the antibody to human chorionic gonadotropin,[7,8] and variable positivity with inhibin and placental alkaline phosphatase. Ki-67 is helpful in differentiating PSTT from an exaggerated placental site, which can be a problem on curettage specimens.[5] The differential diagnosis includes choriocarcinoma, which has a characteristic biphasic pattern of cytotrophoblasts and syncytiotrophoblasts, and strong and diffuse immunoreactivity with the antibody to human chorionic gonadotropin.

Before the lesion was fully characterized, it was thought to be benign; however, more recent data have shown that in about 15% to 30% of the cases, the lesions have metastasized.[4,8] The most common metastatic site is the lung. Metastases have also been reported in other locations: the liver, vagina, gastrointestinal tract, pelvis, urinary bladder, ovary, omentum, diaphragm, spleen, pancreas, lymph nodes, and bone marrow. Only a few cases of vaginal metastases have been reported. These lesions may bleed profusely on biopsy.

The behavior of PSTT is difficult to predict, and there are no reliable indicators of malignancy, although attempts to prognosticate have suggested that malignancy correlates with a high mitotic rate (mitotic index, >5 per 10 high-power fields) and extensive hemorrhage or necrosis,[8,9] the presence of clear cytoplasm, deep invasion and infiltration, older age at presentation (older than 39 years), and a prolonged interval from the previous pregnancy (>2 years).[2,9]

The recommended treatment for PSTT confined to the uterus is hysterectomy. Although chemotherapy and radiation have been used for metastatic disease, the response has been poor,[9] and unlike other forms of gestational trophoblastic neoplasia, PSTT tends to be chemoresistant.

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