Case Report

Shrinking Hepatic Hemangiomas in a Patient Treated for Metastatic Germ Cell Tumor

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Clinical Practice Points

- Metastatic germ cell tumors are treated with combination cisplatin chemotherapy, and decisions regarding the optimal number of cycles to deliver are determined by pathologic findings, site of origin, volume of disease, and degree of marker elevation using the International Germ Cell Cancer Collaborative Group Prognostic Risk Classification (IGCCCG).
- Patients with nonseminoma GCT with liver metastasis are considered poor risk according to the IGCCCG classification and treated with 4 cycles of platinum-based combination chemotherapy
- In the present case report, we describe a patient with a good-risk primary retroperitoneal GCT and liver lesions consistent with hemangiomas.
- Our patient received 3 cycles of bleomycin, etoposide, and cisplatin and had a chemoresponsive hepatic hemangioma that mimicked a liver metastasis.
- The primary tumor and liver lesions both shrank with systemic therapy, potentially from the effect of bleomycin.
- Chemoresponsive hepatic hemangiomas can mimic the response of liver metastases to therapy, making the ability to distinguish between the 2 difficult.

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Introduction

Germ cell tumors (GCTs) are among the most common solid tumors in adolescent and young adult males.[1] Metastatic GCTs are treated with combination cisplatin chemotherapy, and decisions regarding the optimal number of cycles to deliver are determined from the pathologic findings (seminoma vs. nonseminoma), site of origin (mediastinal vs. other), volume of disease, and degree of marker elevation using the International Germ Cell Cancer Collaborative Group Prognostic Risk Classification (IGCCCG).[2] Patients with good risk have traditionally received 3 cycles of bleomycin, etoposide, and cisplatin (BEP) and can be expected to have a 5-year survival of 91%. In contrast, the presence of nonpulmonary visceral metastasis places patients at higher risk of poorer outcomes, with a 5-year survival rate of 48% according to the original IGCCCG data.[2] More recently, the 5-year survival rates for those with intermediate- and poor-risk disease have improved considerably owing to the improved use of multimodal treatment.[3] Therefore, staging of patients before chemotherapy becomes critical in evaluating the overall prognosis and optimal number of cycles to be delivered.

Hemangiomas are hypervascular liver tumors that are often detected incidentally during abdominal imaging.[4] They are present in 0.4% to 20% of the general population and are more commonly found in adults.[4] Distinguishing between hepatic hemangiomas and liver metastases can be challenging, even with modern imaging techniques such as contrast-enhanced magnetic resonance imaging (MRI), with $\leq$ 8% of cases considered equivocal.[5] We report the case of a patient with a primary retroperitoneal GCT treated with chemotherapy who had a chemoresponsive hepatic hemangioma that mimicked a liver metastasis. Our patient provided verbal consent for the report of his case.

Case Report

A 33-year-old man presented with a 6-month history of right lower abdominal quadrant pain and diarrhea. He had no significant personal or family medical history. Examination revealed a small right testis

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with no overt palpable masses. The laboratory investigations revealed an α-fetoprotein level of 121.0 ng/mL, a β-human chorionic gonadotropin level of 14 IU/mL, and a normal lactate dehydrogenase level. An abdominal computed tomography (CT) scan revealed an 11.3 × 9.6 × 4.9-cm hypoattenuating retroperitoneal mass, causing moderate hydronephrosis and inferior vena cava compression. The mass contained necrotic hypoattenuating components and had an associated punctate calcification (Figure 1). The imaging findings were also notable for 2 well-circumscribed hypoattenuating liver lesions with peripheral nodular enhancement. These lesions measured 5.3 and 1.3 cm and were favored to represent hemangiomas (Figure 1). An abdominal ultrasound scan was also conducted of these 2 hepatic echogenic lesions with features consistent with hemangioma. Ultrasound examination of the scrotum did not reveal any primary testicular tumor, and a CT scan of the thorax did not show any metastatic disease above the diaphragm.

Biopsy of the mass confirmed seminoma, with immunohistochemistry stains positive for OCT 3/4, SALL-4, and CD117. Because of the elevated tumor marker levels, the patient was considered to have nonseminoma with IGCCCG good-risk disease and underwent 3 cycles of BEP chemotherapy. On completion of chemotherapy, the imaging studies after treatment demonstrated a dramatic shrinkage of the retroperitoneal mass (from 11.3 × 9.6 cm to 3.3 × 0.8 cm), resolution of the hydronephrosis, and normalization of the tumor marker levels (α-fetoprotein, 2.0 ng/mL; β-human chorionic gonadotropin, < 1 IU/mL). In addition, the hepatic lesions had decreased in size (from 5.3 cm to 2.2 cm and from 1.3 cm to 0.5 cm). With these unexpected findings, given the chemosensitivity of the liver lesions, a multidisciplinary review of the imaging studies was conducted. Because of the size reduction of these hepatic lesions, the patient was considered to have nonpulmonary hepatic disease and was given a fourth cycle of chemotherapy. Bleomycin was omitted owing to concerns regarding an increased risk of lung toxicity.

After completing therapy, the retroperitoneal mass had shrunk to ≤ 1 cm, and the residual liver lesions remained unchanged. The patient was followed up with close monitoring and underwent repeat staging evaluations every 3 months. After 6 months of surveillance, the liver lesions had not changed, and MRI was conducted for better delineation (Figure 2). MRI demonstrated a 1.9 × 0.7 cm, T2-weighted isointense hepatic lesion with peripheral nodular enhancement and central fill-in on delayed-phase imaging. It had an atypical appearance owing to a lack of a T2-weighted signal and had significantly decreased in size from that on the previous imaging scan. In addition, a 0.2-cm nonenhancing subcapsular lesion was seen. Both lesions were noted to have the typical enhancement pattern of a hemangioma. At 14 months after treatment, no change had been seen in these hepatic lesions, and the patient remained disease free.

Discussion

The present case illustrates the challenges that can occur in the clinical decision-making process for patients with intra-abdominal metastatic disease and synchronous liver abnormalities. The minor

Figure 1 **Prechemotherapy Computed Tomography Scans at Different Timing After Contrast Injection Showing the Hepatic Hemangioma (Arrow) (A) Typical Finding of a Peripheral Nodular Enhancement on the First Phase and (B) Growth of Enhancing Nodules on the Second Phase, Typical for Hepatic Hemangioma. (C) A Well-defined Echogenic Lesion Typical of Hemangioma Was Seen on Ultrasonography. (D) The Retroperitoneal Tumor (Arrowheads) Is Seen Partially Encasing the Aorta and Inferior Vena Cava and Lifting the Pancreas Anteriorly, With a Second Smaller Hemangioma Adjacent to the Gallbladder**