Atypical Primary Epithelioid Hemangioendothelioma of the Heart

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We report an unusual case of primary cardiac epithelioid hemangioendothelioma (EHE) with atypical features, which was treated by orthoptic transplantation with a good outcome for 10 years despite recurrent pulmonary and nodal metastases. EHE is a rare vascular tumor that belongs to the group of malignant proliferations from the new World Health Organization classification of soft tissue tumors. EHE may harbor atypical features that confer a more aggressive course, albeit better than that of conventional angiosarcomas. Histological examination of the primary cardiac tumor revealed a proliferation of large epithelioid tumor cells presenting atypical features and a mitotic index of 3 mitoses per 10 high power fields. In contrast, pulmonary metastases exhibited typical features of EHE, and CD 34 and CD 31 immunostainings strongly stained cytoplasmic vascular lumen. In this report, we illustrate the potential aggressiveness of the atypical variant of EHE and suggest that transplantation might be considered as an alternative therapy in the treatment of EHE of the heart.

Key Words: Epithelioid hemangioendothelioma, Atypical, Heart, Cardiac, Transplantation.

CASE REPORT

A 53-year-old man was admitted for a cardiac mass invading the coronary sinus, the endocardium, and the epicardium. The surgical biopsy at histological examination showed large epithelioid tumor cells isolated in a myxohyaline stroma and presenting atypical features and a high mitotic index of 3 mitoses per 10 high power fields. In contrast, pulmonary metastases exhibited typical features of EHE, and CD 34 and CD 31 immunostainings strongly stained cytoplasmic vascular lumen. In this report, we illustrate the potential aggressiveness of the atypical variant of EHE and suggest that transplantation might be considered as an alternative therapy in the treatment of EHE of the heart.

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A 53-year-old man was admitted for a cardiac mass invading the coronary sinus, the endocardium, and the epicardium. The surgical biopsy at histological examination showed large epithelioid tumor cells isolated in a myxohyaline stroma and presenting with atypical features and a high mitotic index of 3 mitoses per 10 HPF (Figure 1). Although tumor cells were negative with all antibodies used (CD 34 and CD31 antibodies being unavailable to us at that time), a diagnosis of poorly differentiated sarcoma with epithelioid features of grade III (in accordance with the National Cancer Institute grading system) was proposed. As chemotherapy combining doxorubicin and ifosfamide was ineffective, the patient underwent a cardiac transplantation. Two years later, he developed a pulmonary nodule, which on open lung biopsy demonstrated classical histological features of EHE, with plump epithelioid cells typically extending in a polypoid pattern into bronchioloalveolar lumens at the periphery of a sclerotic core (Figure 2). Cytoplasms contained erythrocytes within small intracytoplasmic lumina (Figure 3A). All immunostainings were negative except with CD 34 and CD 31 antibodies, which strongly stained the cytoplasmic vascular lumen (Figure 3B). Despite the occurrence of 10 pulmonary and nodal metastases, the patient is still alive and well 10 years after his transplantation.

DISCUSSION

Primary cardiac tumors are very rare, with only a few cases of primary cardiac EHE reported.3 According to Mentzel et al.,2 EHE may exhibit nuclear atypia, solid angiosarcoma-like foci, and a mitotic index higher than 2 mitoses per 10 HPF, justifying their designation as “malignant EHE” even if their metastatic rate and mortality rates are lower than those of conventional angiosarcomas. Histologically, EHE differs from angiosarcomas by their lack of necrosis and angiocentricity, whereas mitoses and atypia are against an epithelioid hemangiomma, which rarely occurs in the heart. The expression of vascular endothelial markers such as von Willebrand factor, CD 31, and CD34, rules out metastatic adenocarcinoma or melanoma.

When considering all sites of EHE, local recurrence of EHE and metastases occur in less than 15% and 30% of cases, respectively, and mortality varies from 10 to 20%. These data are likely influenced by the inclusion of both classical and atypical cases. There is no standard therapy for
EHE, although remissions with chemotherapy have been reported. In this report, we illustrate the potential aggressiveness of an atypical variant of EHE and suggest that when chemotherapy is ineffective, transplantation hepatic EHE may represent an alternative therapy in cardiac EHE.

REFERENCES

FIGURE 1. Histological examination of the primary cardiac tumor revealed a proliferation of large epithelioid tumor cells presenting atypical features (arrow). Hematoxylin-eosin-saffron staining; original magnification ×400.

FIGURE 2. Pulmonary metastasis corresponding to a classical nodular lesion, with a hypocellular fibrotic center and a more cellular periphery, composed of tumor cells that typically spread into the bronchioloalveolar lumen in a polypoid fashion. Hematoxylin-eosin-saffron staining; original magnification ×200.

FIGURE 3. A, At higher magnification, epithelioid tumor cells harbor regular nuclei and large vacuolated cytoplasms containing rare red blood cells (arrow). Hematoxylin-eosin-saffron staining; original magnification ×400. B, CD 34 immunostaining enlightening primitive intracellular vascular channels (arrow). Immunoperoxidase staining; original magnification ×400.