Primary thymic seminoma in a 32-year-old female

introduction

Although primary mediastinal seminoma accounts for 25% of cases of primary mediastinal germ-cell tumors, primary thymic seminoma is uncommon among young males.
We described a new case of primary thymic seminoma in a young woman and the present case was unique in its presentation as a primary seminoma arising from a female thymus.

**Case Report**

A 32-year-old female was admitted to our hospital because of anterior mediastinal abnormal shadow on chest radiography. She was asymptomatic and without weight loss, fever, fatigue, ptosis, and other symptoms. On physical examination, she was found to be in good general condition. Chest radiography showed a well-defined, round, homogeneous mass in the anterior mediastinum. The mass was surgically resected, and histological examination confirmed the diagnosis of primary thymic seminoma.

**Figure 1.** (A) Microscopically, the tumor is composed of sheets of tumor cells separated by thin fibrous septa with fine granular cytoplasm, well-defined cell border, prominent nucleoli, and lymphocytes infiltration. Original magnification ×400. (B) Strong immunostaining for CD117, showing a membranous pattern in a seminoma. Original magnification ×400. (C) CD5 staining. Original magnification ×400. (D) Strong immunostaining for epithelial growth factor receptor staining. Original magnification ×400. (E) Placental alkaline phosphatase staining. Original magnification ×400. (F) α-Fetoprotein staining. Original magnification ×400. (G) β-Human chorionic gonadotropin staining. Original magnification ×400. (H) Leukocyte common antigen staining. Original magnification ×400. Bar 100 μm.
extremity weakness, and swallowing complaints. Initial investigations revealed 5840/µl white blood cells, 12.9 g/dl hemoglobin level, and 333 000/µl platelets. Blood chemistry, liver profile, and coagulations studies were within normal limits. Computed tomography scan indicated a right anterior mediastinal mass with 75 × 86 × 115 mm³ in size and compressing aorta whereas no metastases were found in lungs, liver, ovary, thoracic lymph node, and abdominal lymph node. Hematology showed normal α-fetoprotein (AFP) level (2.64 ng/ml, normal 0–20 ng/ml) and β-human chorionic gonadotropin (β-HCG) level (<0.1 mIU/ml, normal 0–4 mIU/ml). On the basis of these findings, thymoma, malignant lymphoma, and germ-cell tumor were considered and the patient was referred for surgical removal of the mass. During surgery, a large tumor, measuring 12 × 9 × 7 cm³, was found in lower part of thymus and extended thymectomy was carried out. Pathological findings revealed extensive infiltration of tumor tissue by giant malignant cells with prominent nucleoli surrounded by pale cytoplasm and lymphocytes infiltration in the background; it seemed abhorrent with current histology of thymic epithelial tumor or teratoma (Figure 1). The tumor cells were positive for epithelial membrane antigen [epithelial growth factor receptor (EGFR)] and CD117, whereas markers for cytokeratin, B cell (CD5), T cell (CD45RO), leukocyte (leukocyte common antigen), Hodgkin disease (CD15), AFP, β-HCG, and S-100 protein were negative. On the basis of histological and immunohistochemical findings, the final diagnosis was primary thymic seminoma according to literature [3, 4]. The patient was treated with four cycles of cisplatinum, etoposide, and bleomycin chemotherapy every 3 weeks. The patient has no evidence of disease recurrence 1 year post surgery.

discussion

In the literature, primary mediastinal seminoma was described firstly by Woolner et al. [5]. By searching of Medline, we have found isolated cases of primary mediastinal seminoma [1, 3, 6, 7]. To the best of our knowledge, the present case is the first report of such a tumor in female thymus. Diagnosis of the present case was established according to no epithelial component and positive EGFR and CD117 with negative cytokeratin and CD5, which was usually positive in thymoma. Although research in this field has indicated that primordial germ cells descended along the midline during development and became the origination of mediastinal germ-cell tumors, the appearance of a seminoma in a female seems unreasonable according to present theories.

In brief, the patient described in this article is the first case of primary female thymic seminoma. Though rare, the possibility of seminomatous thymic tumor should be considered in the patient with an anterior mediastinal mass.

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references


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