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CASE REPORT

Thymic cancer mimicking a metastasis of testicular seminoma

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Abstract A 48-year-old man presented with a left testicular mass. Computed tomography showed an anterior mediastinal tumor, with positive uptake in positron emission tomography images. Radical orchiectomy was performed; the histology was seminoma. Thus, a diagnosis of testicular seminoma with thymic metastasis (stage III) was made and he underwent four courses of bleomycin, etoposide and cisplatin chemotherapy. The tumor shrank from 2.5 to 1.4 cm, but grew to 1.9 cm 1 month after the fourth course. He underwent two courses of paclitaxel, ifosfamide and cisplatin chemotherapy, followed by the resection of mediastinal tumor, the histopathological diagnosis of which was thymic cancer. Adjuvant radiation therapy was administered and no recurrences were evident at 1 year postoperatively. This is the first reported case of thymic cancer coexisting with stage I testicular seminoma.

Keywords Testicular seminoma · Thymic cancer · Mediastinal tumor

Introduction

The common metastatic sites of testicular seminoma are retroperitoneal lymph nodes and lung. The standard treatment for metastatic testicular seminoma is high orchiectomy followed by cisplatin-based chemotherapy. Here, we report a case of thymic cancer coexisting with stage I testicular seminoma that mimicked a thymic metastasis of testicular seminoma.

Case report

A 48-year-old man presented with left testicular swelling in February 2013 and was referred to our hospital in June 2013. Relevant laboratory findings were increased serum human chorionic gonadotropin (HCG) 5.12 mIU/mL [normal range (NR), <0.5 mIU/mL] and lactate dehydrogenase (LDH) 346 IU/L (NR, 124–226 IU/L), but normal α-fetoprotein (AFP) 10.8 ng/mL (NR, <15 ng/mL). Computed tomography (CT) showed an 8-cm left testicular tumor and a 2.5-cm anterior mediastinal tumor (Fig. 1). On positron emission tomography (PET) images the mediastinal tumor showed uptake of ^{18}F-deoxyglucose (FDG) (Fig. 2a). Left radical orchiectomy was performed; the histopathological diagnosis was pure seminoma, pT1. The serum HCG and LDH decreased to normal levels after orchiectomy (0.5 and 170 IU/mL, respectively). He was diagnosed with testicular seminoma with thymic metastasis (T1N0M1, stage IIIc). He received three courses of bleomycin, etoposide and cisplatin (BEP) chemotherapy, and one course of etoposide and cisplatin. The size of the mediastinal tumor decreased to 1.4 cm and it showed no uptake of FDG on PET (Fig. 2b). However, 1 month after the last chemotherapy, CT showed the tumor had enlarged to 1.9 cm. He was considered to have had a partial response to BEP chemotherapy and received paclitaxel, ifosfamide and cisplatin (TIP) chemotherapy as the second-line treatment. The size of the tumor decreased slightly to 1.5 cm after two courses of TIP chemotherapy (Fig. 3). The serum tumor marker levels had

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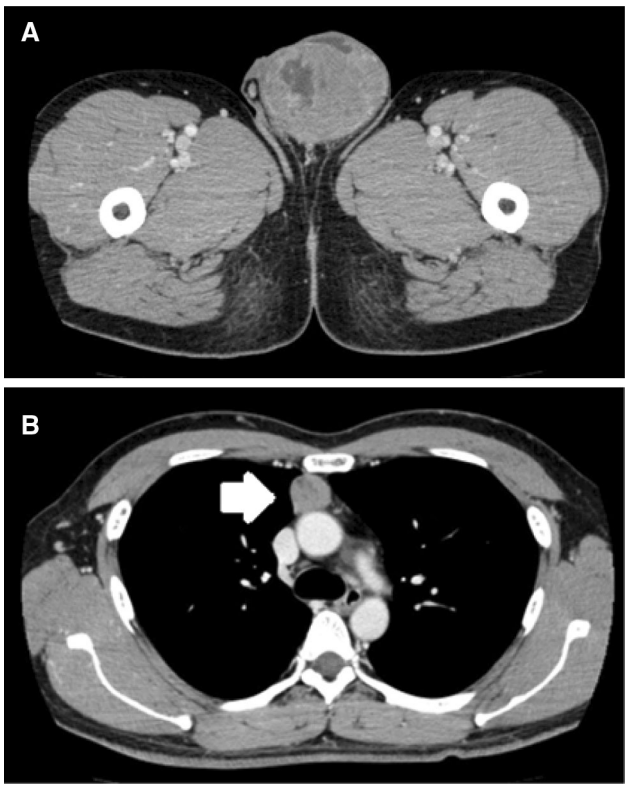

Fig. 1 **a** CT scan image showing an 8-cm left testicular tumor, **b** CT scan image showing a 2.5-cm anterior mediastinal tumor (*arrow*)

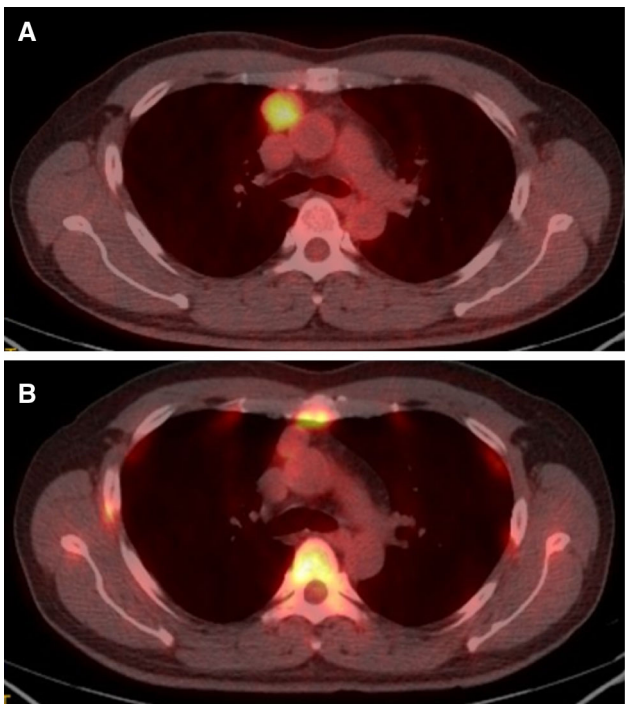

Fig. 2 **a** Pre-chemotherapy positron emission tomography image showing uptake of ^{18}F-deoxyglucose (FDG) by the mediastinal tumor. **b** After four courses of chemotherapy, the tumor shrank to 1.4 cm and is not taking up FDG

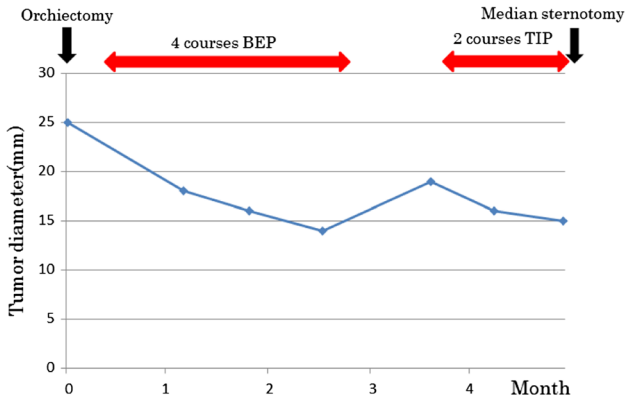

Fig. 3 Changes in mediastinal tumor diameter

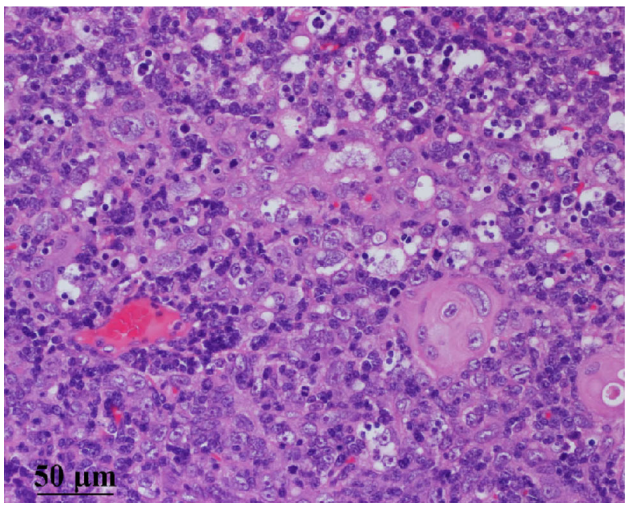

Fig. 4 Hematoxylin and eosin-stained photomicrograph showing histopathological features of thymic squamous cell carcinoma. Original magnification ×300

been normal during the chemotherapy. The patient was diagnosed to have post-chemotherapy residual testicular tumor and underwent median sternotomy and resection of the mediastinal tumor, without performing total thymectomy. The histopathological diagnosis was squamous thymic carcinoma, pT2; the surgical margin was negative (Fig. 4). Although the tumor cells were partially degenerated due to chemotherapy, viable cells still existed. As the thymus was not resected completely, adjuvant thoracic radiation therapy with 66 Gy was administered and no recurrence was identified 1 year after this operation.

Discussion

Malignant germ cell tumors can arise in extra-gonadal regions such as the mediastinum, retroperitoneum and pineal gland; the anterior mediastinum is the commonest location

of primary mediastinal seminoma [1]. However, the mediastinum is also a common site of metastasis from testicular germ cell tumors, including seminomas. Williams et al. [2] studied 21 cases with testicular seminoma metastasizing to the mediastinal lymph nodes and reported that all mediastinal lymph node metastases were located to the middle or posterior mediastinum. Mead et al. [3] reported that 11 of their 242 patients with seminoma relapsed in their mediastinal lymph nodes after receiving para-aortic and ipsilateral iliac lymph node (dogleg field) radiotherapy. However, a solitary metastasis in the anterior mediastinum from testicular seminoma has not been previously described. At the time of first presentation of the present case, we therefore should have suspected that the anterior mediastinal mass did not represent metastasis from seminoma; we would then not have administered six courses of chemotherapy. There are reports of testicular germ cell tumors coexisting with other neoplasms, but an association with thymic cancer has never been reported [4].

Although they are rare (1.5 cases/million), thymomas or thymic cancers are the most common primary tumors in the anterior mediastinum [5]. Thymic carcinomas are aggressive tumors that often metastasize to regional lymph nodes and distant organs; thus, they have a worse prognosis than thymomas (5-year survival rates, 30–50 %) [6]. These tumors can be distinguished from thymomas by their malignant histologic features and their different immunohistochemical and genetic features. Systemic chemotherapy with cisplatin-based regimens is reported to be effective and considered optimal treatment for metastatic or unresectable refractory/recurrent thymic cancers [7]. This explains why BEP and TIP, both cisplatin-based chemotherapy regimens, induced partial effect in this case.

This is the first reported case of thymic cancer coexisting with stage I testicular seminoma. Since the mediastinal tumor in the present case clinically mimicked a metastasis from testicular seminoma, he received aggressive chemotherapy regimens. If the mediastinal tumor had been biopsied or surgically resected before the decisions were made about chemotherapy, the over-treatment could have been avoided. When the site of apparent metastasis is atypical for testicular seminoma, pathological examination should be considered before deciding on treatment options.

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Shin DJ, Kim JS, Kim do Y et al (2013) Late relapse of testicular seminoma in the posterior mediastinum. Clin Imaging 37:406–408
2. Williams MP, Husband JE, Heron CW (1987) Intrathoracic manifestations of metastatic testicular seminoma: a comparison of chest radiographic and CT findings. AJR 149:473–475
3. Mead GM, Fossa SD, Oliver RT et al (2011) Randomized trials in 2466 patients with stage I seminoma: patterns of relapse and follow-up. J Nati Cancer Inst 103:241–249
4. Fizazi K, Tjulandin S, Salvioni R et al (2001) Viable malignant cells after primary chemotherapy for disseminated nonseminomatous germ cell tumors: prognostic factors and role of postsurgery chemotherapy—results from an international study group. J Clin Oncol 19:2647–2657
5. Engels EA, Pfeiffer RM et al (2003) Malignant thymoma in the United States: demographic patterns in incidence and associations with subsequent malignancies. Int J Cancer 105:546–551
6. Eng TY, Fuller CD, Jagirdar J et al (2004) Thymic carcinoma: state of the art review. Int J Radiat Oncol Biol Phys 59:654–664
7. Berardi R, De Lisa M, Pagliaretta S et al (2014) Thymic neoplasms: an update on the use of chemotherapy and new targeted therapies. A literature review. Cancer Treat Rev 40:495–506