Embryonal carcinoma metastasis from pure testicular teratoma mimicking a complex renal cyst

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ARTICLE INFO

Keywords:
Germ cell tumor
Embryonal cell carcinoma
Testicular cancer
Teratoma
Kidney metastasis

ABSTRACT

Teratoma is frequently found in mixed germ cell testicular tumors in up to 80% of cases, but as a pure component it is reported in only 2–6% of cases. Metastatic disease may be seen in 29–76% of these cases in the adult population. We present the case of a 32 year old male patient diagnosed with a pure testicular teratoma in clinical stage I and a right renal cyst Bosniak IIF, as part of treatment he received chemotherapy, during which, radiological changes were observed at the level of renal cyst suggesting metastatic tumor.

Introduction

Germ cell tumors represent 90–95% of testicular neoplasms, due to their histology they are divided into seminomatous and non-seminomatous tumors. Histologies included in non-seminomatous tumors are teratoma, yolk sac tumors, embryonal carcinoma, and choriocarcinoma, as single components or in combination. Teratoma is a neoplasm of germ cell origin composed of the three germ cell layers, endoderm, mesoderm and ectoderm, as a component of mixed germ cell tumors it is present in up to 55 and 80% of cases, but as a pure component it is only reported in 2–6% of cases. Despite the fact that teratoma is considered a tumor with low malignant potential in the prepubertal population, in the adult population its metastatic potential is recognized and as a pure component it can present as metastatic disease in 29–76% of cases. Even in clinical stage I, metastases are reported in 17–19%. The histology present in the metastases can differ from the primary testicular tumor, as it has been shown primary retroperitoneal lymph node dissection in patients with pure testicular teratoma reported a different histology such as embryonal carcinoma and seminoma. 1

Case report

The case of a 32 year old male patient with a right testicular tumor is presented, for which a radical orchiectomy is performed. Histology reveals teratoma as a single component. In the contrasted tomography of the chest, abdomen and pelvis there are not observed any images suggestive of metastatic tumor activity at retroperitoneum or any other site, however, a 5 cm cystic image is observed in the right kidney which is classified as a Bosniak IIF renal cyst. The cyst is kept under surveillance. The case is classified as a clinical stage I, in the absence of radiologically evident metastatic disease and negative tumor markers, primary retroperitoneal lymph node dissection is indicated. It is performed with no complications and the histopathological study reports lymph node metastases, 70% embryonal carcinoma and 30% yolk sac tumor. Due to active germ cell in retroperitoneal lymph nodes, chemotherapy treatment with BEP (Bleomycin, Etoposide and Cisplatin) is indicated as the case is reclassified as pathological stage I. A tomography is performed after lymph node dissection and chemotherapy observing a significantly decrease in the renal cyst’s diameter and during radiological surveillance, it is documented a new increase in the cyst’s size (Fig. 1). Due to the radiographic behavior of the cyst, it was decided to perform resection of the cyst, a right radical nephrectomy was carried out with evidence of a renal tumor of 8.5 cm in diameter with a histopathological report of metastasis of embryonal carcinoma with lymphovascular and perineural invasion (Fig. 2). Currently the patient is kept under surveillance, undergoing a disease-free period.
Discussion

The treatment of pure teratoma in clinical stage I is controversial, some recommend surveillance, due to the low percentage of recurrence, and others recommend primary lymphadenectomy, since the teratoma is a chemo and radio resistant histology with potential complications of poor prognosis such as malignant somatic transformation and growing teratoma syndrome. In the case presented, the importance of primary lymphadenectomy in clinical stage I is observed as a therapeutic and diagnostic method, observing a discrepancy between the histology of the testicular primary and the retroperitoneal metastases, despite being a pure testicular histology, this component does not it was found in lymph node metastases.

From the histopathological report of the lymphadenectomy, the case was reclassified as a pathological stage II, corresponding to the most frequent site of metastasis in testicular tumors. Metastases from testicular germ cell tumors have an established pattern of spread via the lymphatic pathway to the retroperitoneum. Visceral metastases, with the exception of the lung, are less frequent, they appear in advanced disease or in cases of histology with predominantly hematogenous dissemination such as choriocarcinoma, and establish an adverse prognosis. Another point of interest in the case is the presence of metastases to the kidney, since specifically renal metastases from testicular primary are rare in the absence of other metastatic sites. Recognizing that they can exist in isolation as in our case, or as a direct local extension of retroperitoneal metastases. Johnson7 shows in a series of autopsies 78 patients with testicular cancer where he reports an incidence of renal metastases of 26.9% (21 cases), however, it is not specified if they were by direct extension or hematogenous dissemination, if they were isolated or in association with other metastases. In a series of 15 patients with pure choriocarcinoma, Alvarado et al. reported only one case with metastasis to the kidney simultaneously with liver and lung, it was not specified whether the metastasis was by direct extension. There are case reports showing a lesion with a renal tumor aspect associated with a testicular tumor, both cases with seminoma histology. The association between two synchronous primary testicular and renal tumors are even less frequent with scarce case reports.

Conclusions

The review of the previous case shows us that primary retroperitoneal lymphadenectomy is an adequate therapeutic option in testicular tumors in clinical stage I, likewise, that it is not possible to predict the concordance between the testicular primary and metastases even with pure testicular histology. It is important to mention that the histopathological study of the testis did not show any other data suggesting the presence of a burned tumor. It also allows us to conclude that a renal mass in a patient with a testicular germ cell tumor, regardless of histology, should not be ruled out as a metastatic lesion until proven otherwise.

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sector.

Declaration of competing interest

The authors declare that they have no conflict of interest.
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