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Oncology

Testicular non-seminomatous mixed germ cell tumor with rhabdomyosarcoma and retroperitoneal metastatic mass: A case report

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ABSTRACT

A very rare tumor is the combined Mixed Germ cell tumors (GCT) such as testicular non-seminomatouswith somatic malignancy (rhabdomyosarcoma). Here we present a case of a 19-year-old boy with non-seminomatous GCT combined with somatic malignancy (rhabdomyosarcoma) and retroperitoneal mass. The case was managed with radical orchidectomy on the affected side (left side). The patient then admitted for chemotherapy, but unfortunately, he was getting worse and died.

Introduction

More than 95% of testicular tumors arise from germ cells. Testicular germ cell tumors can be subdivided into two major groups: seminoma and non-seminomatous germ cell tumors (NSGCTs). The vast majority of NSGCTs contain a mixture of two or more histologic patterns, known as mixed germ cell tumor.[1]

Here we present a case a 19-year-old boy with testicular non-seminomatousMixed germ cell tumor with rhabdomyosarcoma and retroperitoneal metastatic mass.

Case presentation

A 19-year-old boy with a known deficiency of glucose-6-phosphate dehydrogenase presented to the emergency department with left abdominal pain and discomfort for two weeks, associated with fever, anorexia, nausea and aggressive weight loss. Over the past year and a half, he had history of left painless scrotal swelling, which was not associated with urology symptoms. Except for slightly elevated blood pressure (150/95 mmHg), the patient was vitally stable.

An abdominal examination revealed a soft abdomen swelling. Ultrasonography of the abdomen showed a large heterogeneous mass lesion (15 × 11 cm) at the left hypochondrium with mixed cyst and solid component displacing the left kidney and extended to the mid-abdomen and reached the left umbilical region, showing peripheral vascularity on the color doppler, which could be retroperitoneal mass.

Contrast CT scan of the abdomen and pelvis showed huge scrotal complex solid/cystic mass lesion along with another giant left hypochondria retroperitoneal complex solid/cystic mass lesion which affecting the left ureter and causing moderate left sided hydronephrosis (Figur 1). The laboratory results reported elevated serum tumor marker, including alpha-fetoprotein (AFP) (373.2 ng/mL), a beta subunit of human chorionic gonadotrophin (β-hCG) (237.5 mIU/mL) and lactate dehydrogenase (LDH) (842 U/L) (see Fig. 1).

The patient underwent left radical orchidectomy, the mass (weighing around 2,400g and measuring 22 × 17 × 13 cm) (Fig. 2) was submitted for review of the histopathology. Histology showed mixed GCT with marked necrosis (80% of the tumor cells were necrotic) and consisting mainly of a somatic form of malignancy (85%). The primitive mesenchymal neoplasm was most consistent with embryonic rhabdomyosarcoma, teratoma (10%), and tumor in the yolk sac (5%). The left scrotal wall resected with the tumor was free of tumor (Fig. 3). The tumor has been observed invading hilar soft tissue without involving the spermatic cord. There was also evidence of an invasion of the lymphovascular. No lymph nodes were submitted with the tumor specimen. The pathology was pT2, pNx. After nine days from left radical orchidectomy, the laboratory findings were as follows; AFP (417 ng/mL), β-hCG (9.6 mIU/mL), and LDH (627 U/L).

The patient then admitted for chemotherapy, but unfortunately, he was getting worse and died.

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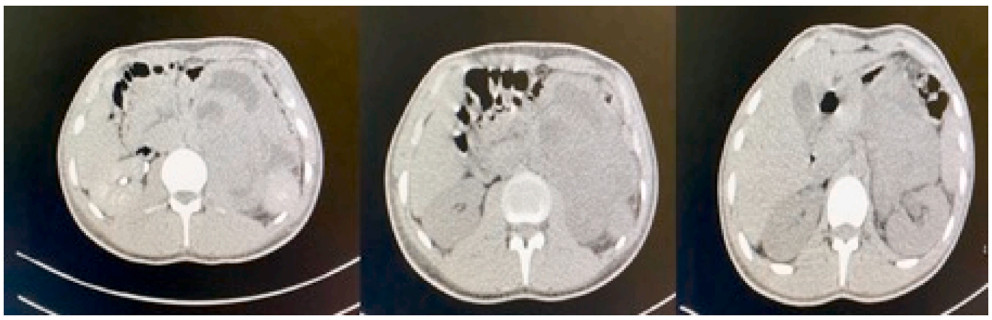

Fig. 1. CT scan showed huge complex soild retroperitoneal mass, Causing moderate left sided hydronephrosis.

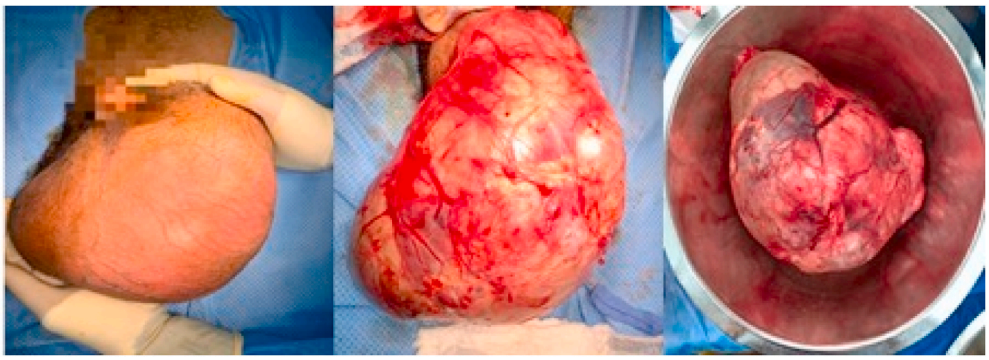

Fig. 2. Huge scrotal mass lesion weighing around 2400 g and measuring 22 × 17 × 13 cm.

Discussion

Testicular GCT with somatic transformation occurs quite seldom.[2] Our case showed a mixed GCT with marked necrosis and consisting mainly of a somatic form of malignancy.

Testicular cancers represents about 95% by germ cell tumors (GCTs). Which can be divided into nonseminomatous GCTs (NSGCTs) and seminomas.[3]

Most of the GCT mixed type consists of a teratoma, which mainly found in post-pubertal age group males.[4] Sarcoma is the most well-known form of somatic malignancy associated with mixed GCT, rhabdomyosarcoma being the most frequent of which.[4] There are many theories suggested about the cause of somatic malignancy in GCTs; the most common theory involves the malignant conversion of teratoma portion of the tumor or aberrant form of differentiation of the primitive type of germ cells.[4] The histopathological examination of the removed mass from our case reported that the primitive mesenchymal neoplasm was most consistent with embryonic rhabdomyosarcoma, teratoma (10%), and tumor in the yolk sac (5%).

Testicular cancer classically manifests as a painless swelling or enlargement of the testicle. However, 10% of patients manifest new-onset testicular pain. Additionally, nearly one-fourth of patients with metastatic disease complain of metastasis-related symptoms (e.g., low back pain caused by metastatic lymph nodes or a primary tumor located in the retroperitoneal space).[1] Regarding our case, he had a history of left painless scrotal swelling, and he was admitted with left abdominal pain with fever, anorexia, nausea, and aggressive weight loss and gradually became constant pain.

The serum markers α-fetoprotein, β-human chorionic gonadotropin, and lactate dehydrogenase can be useful for diagnosis, treatment, and surveillance.[1] Our case reported elevated levels of these markers which gave us a great probability for malignant tumors.

Scrotal ultrasound, as a first diagnosis step, shows lesions that are dimensionally higher than 5 mm and allows the discernment of cystic lesions from neoplastic ones.[1] CT images show an intratesticular mass that is often morphologically patchy, containing ill-defined necrotic spots.[1] CT also allows the pinpointing of potential secondary tumors. Radical orchiectomy represents the primary treatment for most patients presenting with a suspicious testicular mass. Orchiectomy is both diagnostic and therapeutic.[1] The same diagnosis steps were done for our case, as previously mentioned in the case presentation section. Finally, the histopathological examination reported a possible retroperitoneal mass of testicular tumor metastasis.

One of the most significant obstacles to rhabdomyosarcoma treatment of mixed GCT is that GCT and rhabdomyosarcomatous tumor cells are not sensitive to the same chemotherapeutic drugs. GCT responds well to cisplatin-based chemotherapeutic agents, whereas rhabdomyosarcoma is resistant to it.[4] Regarding our case, he was admitted for chemotherapy, but unfortunately, he was getting worse and died.

Conclusion

GCT of testes with rhabdomyosarcoma is quite rare. In our case, it comprised a major part of the testicular tumor (85%). Although there is a clear-cut guideline for it's the management. Correct tumor diagnosis is very important, as a pure form of GCT responds well to chemotherapy, while GCT with somatic malignancy isn't and requires extensive surgery.

Ethical approval

Ethical Consent was taken from father of the patient.

Any personal information that could lead to the identification of the patient has been removed.

The confidentiality of the anonymously collected data was maintained all the time.

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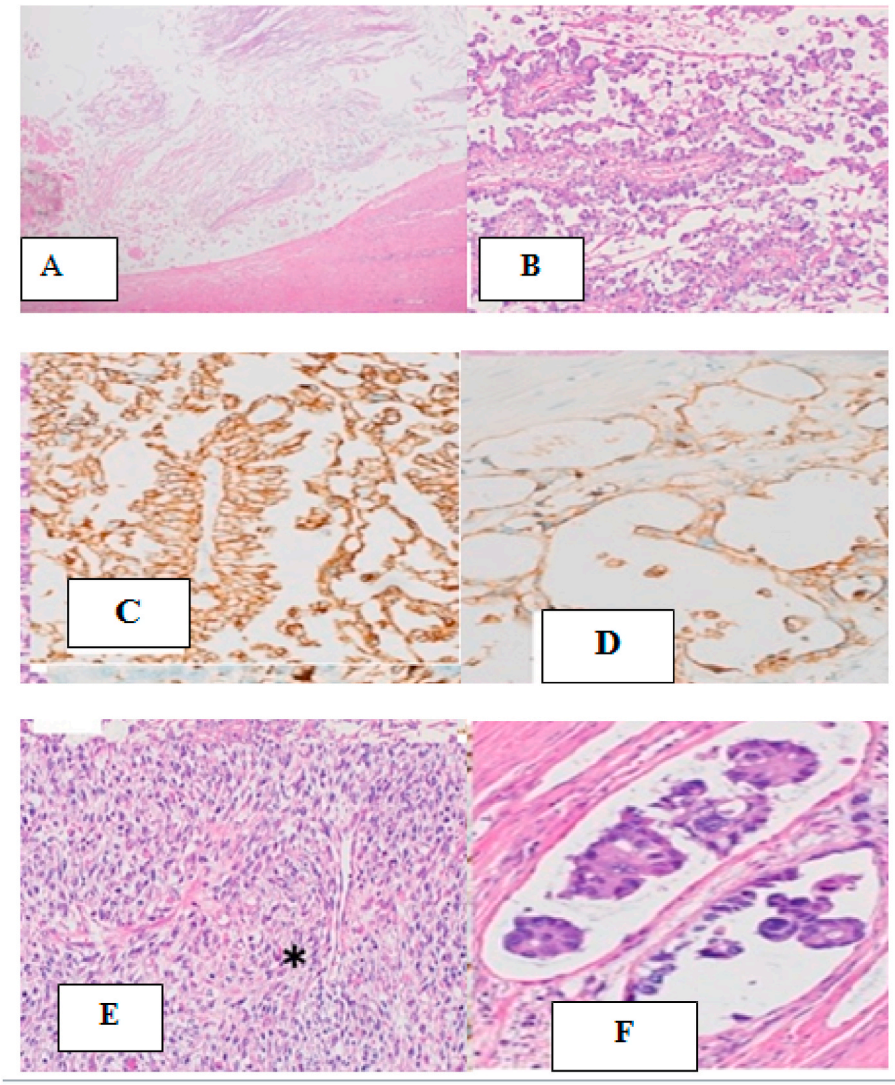

Fig. 3. A: Teratome characterized by cystic cavities filled by keratine (a) with cartilage inbetween.

Declaration of competing interest

None.

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