Pol J Pathol 2006, 57, 1, 55–57 PL ISSN 1233-9687

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Paratesticular Localization of Burned Out Non-Seminomatous Germ Cell Tumor – NSGCT: A Case Report

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Testicular cancer is broadly divided into seminoma and non-seminoma types for treatment planning because seminomas are more sensitive to radiation therapy. Non-seminomatous germ-cell testis tumors represent a majority of all testicular neoplasms and include yolk sac tumor, embryonal carcinoma, choriocarcinoma, teratoma and undifferentiated tumors. Malignant neoplasms account for approximately 25% of neoplasms of the paratesticular tissues and most of them are sarcomas. We report a case of completely undifferentiated germ cell tumor of spermatic cord and discuss its diagnosis.

Introduction

Germ cell tumors constitute 95% of the all testis neoplasms but extratesticular GCT are exceedingly rare [2, 3]. Paratesticular localization in spermatic cord has not been reported in literature however, other extragonadal sites including retroperitoneum and mediastinum are well known [6]. NSGCT is usually invasive malignant tumor, with potentially fatal complication. Radiation therapy is usually ineffective, so the main way of treatment is surgery. To the best of our knowledge, this case of spermatic cord GCT is the first one reported in the literature. Our patient with small focus of GCT may have a variable course and requires regular follow-up.

A Case Description

A 56-year old man presented 2-month history of painless enlargement of the right spermatic cord. He had no significant other medical history. Physical examinations revealed a normal right testis of 2.8×5.5 cm and a fine not tender mass of the low part of the right spermatic cord. Genital ultrasound showed a 1 cm-large, solid mass in this spermatic cord with no intratesticular component. Ultrasound examination of the left testis was normal. X-ray examination of the chest, abdomen and pelvis was normal. Computed tomography of the chest and abdomen did not demonstrate metastatic lesions. Physical and laboratory evaluation was unremarkable. Serum tumor markers: AFP (alfa-fetoprotein) and hCG (human chorionic gonadotropin) were 4.51 ng/ml and 0.00 mIU/ml, respectively.

The tumor measured only 1 cm in size and consisted of a relatively soft well demarcated mass with hard foci. A histopathological examination revealed small foci of neoplastic cells with calcifications. The tumor cells were arranged in sheets separated by connective tissue septa, without papillary and glandular formations. The tumor cells were undifferentiated but rather uniform, only scarce pleomorphic cells were visible. Most of the tumors cells were arranged as perivascular cuffs with a small vessel in the centre. Scattered fatty cells and calcifications within larger solid areas were occasionally seen. Mitotic figures were scarce and necrosis was absent.

Immunohistochemically, tumor cells were moderately positive for epithelial membrane antigen, strongly positive for CEA and negative for vimentin. Index of Ki-67/MIB-1 was variable but predominantly high, 10–60% in various areas. The levels of tumor markers were in contrasts to that reported for GCTs, which are typically high in 80% of cases. Unfortunately, we were not able to carry out either flow cytometry or cytogenetic studies due to technical difficulties and unavailability of fresh tissue.

The patient did not undergo orchiectomy because of no radiological, clinical and biochemical evidence of testis tumor at the time of diagnosis and thereafter.

At 6 months postoperatively the patient was disease-free.

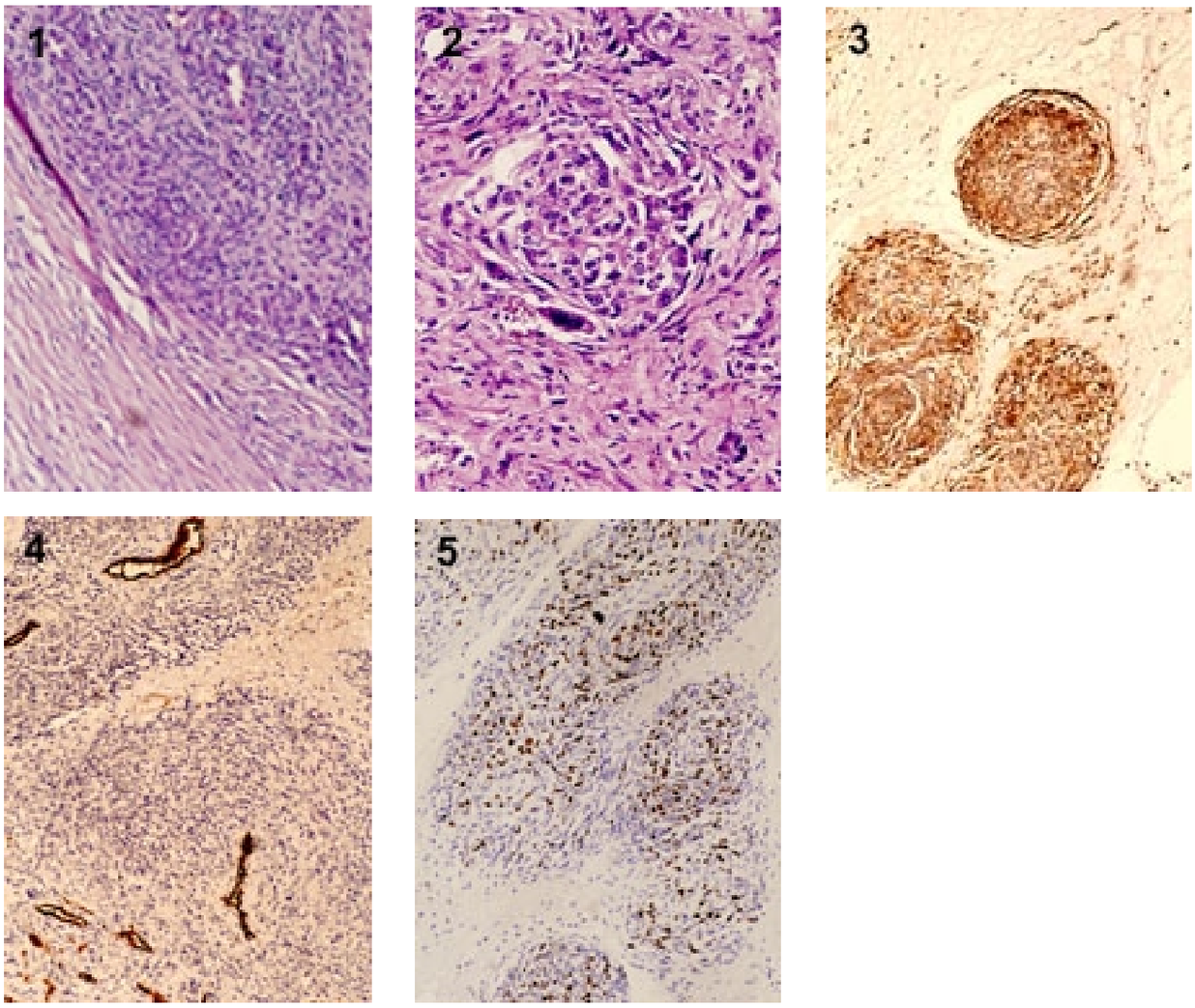

Fig. 1. Large fibrous septa visible in tumoral areas as a low-signal intensity bands. HE. Magn. 100×.
Fig. 2. Nest of uniform, whirled elongated neoplastic cells with scattered pleomorphic cells with large hyperchromatic nuclei and mitotic activity. HE. Magn. 200×.
Fig. 3. Positive immunohistochemical staining for EMA. Magn. 100×.
Fig. 4. Selectively positive reaction in endothelial cells. CD34. Magn. 100×.
Fig. 5. High index of Ki-67/MIB-1 in tumor cells. Magn. 100×.

TABLE 1
Pathologic classification of testicular GCTs established by the World Health Organization (wg 1, 8)

Pathologic Classification and Prevalence of Testicular GCTs

Classification	Prevalence
Tumors of one histological type	
Seminoma Embryonal carcinoma Yolk sac tumor Choriocarcinoma Teratoma Mature Immature With malignant transformation	35%–71% of testicular GCTs 20% of testicular GCTs Rare in adults, 60% of testicular tumors in children Pure type is extremely rare 4%–9% of all testicular tumors
Tumors of more than one histological type	40% of testicular GCTs

Discussion

Testicular cancer is a general term for several distinct but related neoplasms. Germ cell tumors account for 90% of all testicular neoplasms [3, 4]. The classification of germ cell tumors into seminomas and non-seminomatous ones has great therapeutic implication [6]. Germ cell cancer represents the most common malignancy in patients between 15 and 35 years of age [2, 3]. Germ cell tumors (GCTs) affect not only the gonads but also extragonadal tissue, 3% to 5% of the cases being of extragonadal origin [2, 6].

Although seminomas and non-seminomatous GCT were reported in literature previously, paratesticular, still gonadal location of NSGCT was described as an infrequent histopathological finding [1, 6]. This localization allows us to classify the case as a paratesticular gonadal germ cell tumor and introduces a debate of its origin [4, 5, 7, 8]. The first theory engaged that germ cell migration from the urogenital ridge to the scrotum is incomplete, and the rests transformed to malignancy. The second opinion claims that germ cell malignant transformation begins from totipotential cells, the precursor of the germ cells.

Markers as -fetoprotein (AFP), human chorionic gonadotropin (hCG), and lactate dehydrogenase (LDH) closely follow the course of germ cell tumors and are widely used for diagnosis, prognosis, and follow-up purposes but in the current case the tumor markers were not elevated. Traditional histopathological features also have failed to predict the pathological stage of non-seminomatous germ cell tumors, although assessment of tumor cell proliferation by Ki-67/MIB-1 staining is used to classify our patient at a high risk for metastasis.

The presence of an extratesticular, paratesticular or testicular germ cell tumor should be considered as a metastasis of a burned out cancer and biopsy is mandatory but necessity of surgical treatment (e.g. orchiectomy) should be considered individually [7].

We have reported here a case of paratesticular germ cell tumor with early-stage disease. It was difficult to establish the diagnosis in the current case because tumor markers were not elevated. We also discussed the embryologic origin of tumor. Published case studies show that NSGCT may present with early-stage disease [6, 8]. The knowledge on pathologic appearances of GCT and their corresponding clinical features should allow diagnosing these tumors correctly. Awareness of this entity is important to avoid misinterpretation of a lesion as a non malignant one.

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