Rare Metastatic Testicular Cancer in a Veteran

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\textbf{Key Words}
Nonseminomatous germ cell tumor • Endometrioid variant yolk sac tumor

\textbf{Abstract}
Testicular yolk sac tumor (YST) is a nonseminomatous germ cell tumor that predominantly affects prepubescent boys. Pure endometrioid variant YST is rare, with only 1 report in the literature. We present the first reported case of endometrioid variant YST with mature teratoma in the retroperitoneal specimen.

\textbf{Case Report}
A 32-year-old man presented with a 2-day history of acute onset of left testicular pain. He had no lower urinary tract symptoms, hematuria, or other prior urologic history. He was subjectively healthy and was on no prescription medications. Examination revealed a tender mass at the superior pole of the left testicle with associated skin erythema. Urinalysis was negative for hematuria or pyuria. Scrotal ultrasonography revealed a 3.4 × 2.4 cm mass with heterogeneous internal echotexture, punctate calcifications and several cystic areas. Tumor markers revealed an alpha-fetoprotein (AFP) of 21.6 ng/ml (normal: < 9 ng/ml), lactic dehydrogenase of 210 IU/l (normal: 100–190 IU/l), and beta-human chorionic gonadotropin < 0.6 mIU/ml (normal: < 5 mIU/ml). Staging computed tomography (CT) revealed a heterogenous partially calcified para-aortic mass, measuring 4.0 × 4.9 cm (fig. 1).

Pathology after a left radical inguinal orchiectomy revealed endometrioid variant of YST with extensive necrosis, hemorrhage, and granulomatous reaction (fig. 2). The first testicular yolk sac tumor (YST), a histologic subtype of NSGCT, was identified in 1910 in a 15-month-old boy [3]. However, it was not classified as such until the 1940’s when Telium’s detailed observations led to further categorization [4]. Pure YST rarely occurs in adults, occurring more commonly as a component of mixed GCT [1]. Furthermore, it can demonstrate various histologic patterns in adult males, including microcystic, endodermal and sarcomatoid among others. We present the first reported case of pure endometrioid variant YST with mature teratoma in the retroperitoneal specimen.
Fig. 1. Well demarcated heterogenous soft tissue mass with scattered calcification, without evidence of local extra-lesional infiltration or fat disruption.

Discussion

Whereas the majority of YST present as an asymptomatic mass affecting boys under age 16 months [6], it is rare after the age of 5 years, occurring at a rate of 6%. When seen in adults, it is almost always part of a mixed NSGCT [1]. As in our case, AFP is elevated in 40–60% of advanced NSGCT [5]. In adult pure YST, retroperitoneal lymph node metastasis occurs in 33% of patients [7].

Endometrioid variant ovarian YST was first described by Clement et al. [8] in 1987. It is typically well circumscribed with multiple cystic and hemorrhagic areas with tubulopapillary glands lined by columnar cells with prominent subnuclear vacuolization, atypical nuclei and abundant mitoses. This pattern must be distinguished from endometrioid adenocarcinoma, as the majority of the latter are malignant [9]. Similarly, the endometrioid variant of testicular YST can be mistaken for glandular elements of a mature teratoma, which is always considered malignant [10]. As of 2015, there was one reported case of pure endometrioid variant testicular YST [9]. Two other cases have been described: one as part of a mixed GCT and the second case with retroperitoneal metastasis involving teratoma and embryonal carcinoma [10].

To our knowledge, our patient is the first in the literature to have an endometrioid variant of YST with residual mature teratoma in the RPLND specimen. Based on National Comprehensive Cancer Network guidelines, testicular cancer patients should be treated based on their stage and risk category. Patients with stage IIB NSGCT should be managed with either primary RPLND or 3 cycles of bleomycin, etoposide and cisplatin followed by post-chemotherapy RPLND. Follow-up includes quarterly tumor markers, chest imaging and CT semi-annually for the first 2 years and annually thereafter. Overall survival rates for stage IIB NSGCT are 75–80% [1]. Given the paucity of endometrioid variant YST, information is lacking regarding individualized treatment and prognosis.
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