Case Report

Unilateral Malignant Leydig Cell Tumor of Testis in a Patient With Contralateral Cryptorchidism

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INTRODUCTION

Leydig cell tumors (LCTs) are the most common stromal tumors, accounting for 3% of all testicular neoplasms.[(1)] Approximately, 3% of the LCTs are bilateral.[(1)] They may be hormonally active, leading to either feminizing or virilizing syndromes. About 10% of them are malignant.[(1)] The diagnosis of a malignant LCT is not always easy, because no definite histological criteria exist for malignancy. About 20% of the patients present already with metastases, while 40% of them will develop secondary foci within 2 years.[(1,2)] Cryptorchidism is a well-established epidimiological risk factor of testicular germ cell cancer; however, data regarding a possible association with sex cord-stromal testicular tumors are scarce.[(2)] Hereby, we present a rare case of unilateral malignant LCT in a patient with a history of contralateral cryptorchidism.

CASE REPORT

A 72-year -old man presented with a 2-month history of painless left testicular enlargement. In the past, he had undergone orchidopexy of the contralateral testis for cryptorchidism. Physical examination revealed an irregular hard swollen left testis and a small right one. He had no gynecomastia. Tumor markers (α-fetoprotein, human chorionic gonadotropin, and lactate dehydrogenase) were negative for malignancy. Ultrasonography revealed an 11 × 6-cm nonhomogeneous testicular mass with multiple hypoechoic nodules. Metastases were not evident in the staging investigations.

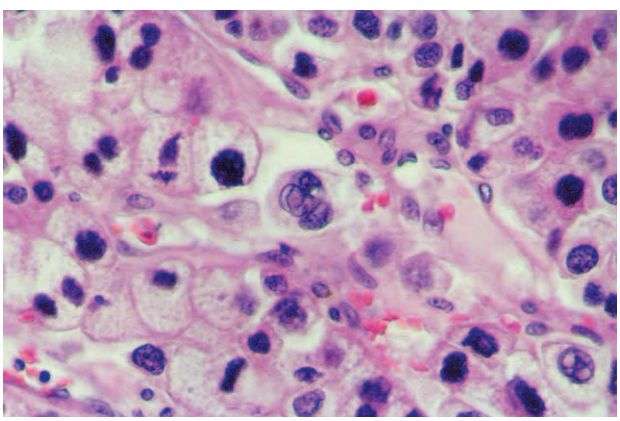

Figure 1. Malignant leydig cell tumor: pronounced nuclear and cellular polymorphism and abnormal mitosis (× 400).

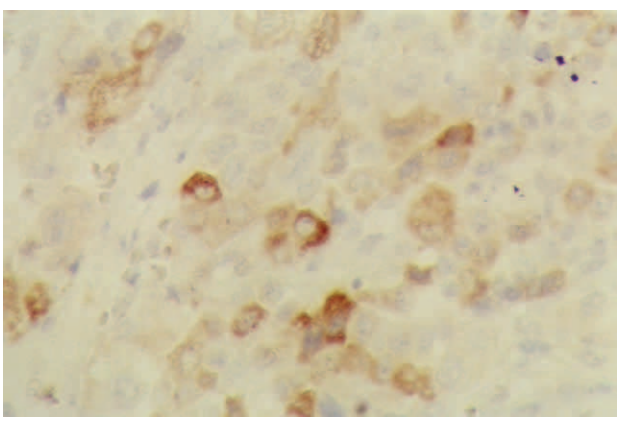

Figure 2. Tumor cells stained for inhibin A (× 400).

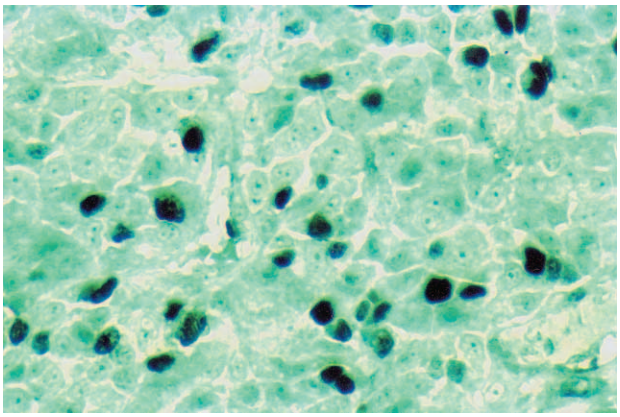

Figure 3. Immunohistochemical nuclear expression of Ki-67 (× 400).

A left radical orchidectomy was performed. Histopathology of the specimen revealed malignant LCT (Figure 1). Immunohistochemistry was positive for inhibin A (Figure 2) and Ki-67 (Figure 3), and it was negative for pancytokeratin, cytokeratins AE1/AE3, cytokeratins 8/18, epithelial membrane antigen, carcinoembryonic antigen, alpha-fetoprotein, human chorionic gonadotropin, vimentin, CD30, and actin. Postoperative hormone profile revealed hypergonadotropic hypogonadism. The patient was placed on testosterone substitution and retroperitoneal lymph node dissection was suggested, but he declined further surgery.

DISCUSSION

Around 41.7% of the LCTs in adults are diagnosed incidentally on ultrasonography, 29.2% present with a palpable testicular mass, 16.6% with scrotal pain, and 12.5% with gynecomastia.[3] Gynecomastia is an unusual manifestation of a malignant LCT and deserves special attention as it may progress to a palpable testicular mass over a 10-year period. Leydig cell tumors in an undescended testis may exhibit only manifestations of endocrinological disorders (gynecomastia, impotence, and loss of libido).

Ultrasonographic findings vary, and hypoechoic nodules with a nonhomogeneous echoic pattern is the most prevalent feature.[3] Contrast-enhanced magnetic resonance imaging seems to be superior to ultrasonography.[4] Histopathological criteria are useful in predicting malignant potential.[5] In our patient, microscopic features included marked nuclear atypia and increased mitotic activity without vascular invasion or infiltrating margins. Furthermore, additional value may be gained by DNA aneuploidy and increased expression of Ki-67/MIB-1 and p53,[5] as in our case in which Ki-67 was expressed in 10% of the malignant cells.

A thorough review of the literature revealed 480 reported LCTs in adults.[2] However, only 20 cases were associated with cryptorchidism, indicating a minimal incidence in these patients. Fifteen and 3 unilateral LCTs have been reported in terms of homolateral cryptorchidism (3 intra-abdominal testes) and bilateral cryptorchidism (1 intra-abdominal testis), respectively. A case with bilateral LCTs was reported in a patient with unilateral cryptorchidism.[6] Finally, a case of unilateral LCT with contralateral undescended testis was reported; however, the malignant potential of the tumor was unclear.[7] Our case presents the second report of such a rarity.

Molecular studies have shown specific mutations to have a causative role.[8-10] There is no evidence that undescended testes are prone to develop LCTs. Although testicular dysgenesis syndrome has been associated with testicular germ cell tumors,[11] it is unclear whether the same link can be proposed for LCTs. Further studies are needed to clarify this field.

CONFLICT OF INTEREST

None declared.

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