CLINICAL CASE

A metachronous testicular tumor 19 years later

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KEYWORDS
Testicular tumor; Seminoma; Bilateral; Metachronous; Mexico.

Abstract Testicular germ cell tumors are the most common solid tumors in adolescent and young adult males between the ages of 15 and 35 years. Bilateral testicular tumors are rare and the incidence of a contralateral second testicular tumor in patients with a history of germ cell tumor is from 1% to 5%, as published in large series. Different risk factors have been identified, such as family history, cryptorchidism, gonadal dysgenesis, infertility, testicular atrophy, and scrotal trauma. It is known that a history of testicular germ cell tumor is the main factor in the development of contralateral testicular tumors. Approximately 50% of the metachronous lesions appear within a 5-year period. Up to 23% of the patients have been reported to present with metachronous tumor after a period of more than 10 years. We present herein the clinical case of a patient with metachronous testicular tumor 19 years after radical orchiectomy.

PALABRAS CLAVE
Tumor testicular; Seminoma bilateral; Metacrónico; México.

Tumor testicular metacrónico 19 años después

Resumen Los tumores testiculares germinales son los tumores sólidos más comunes en los adolescentes y adultos jóvenes entre los 15 y 35 años. Los tumores testiculares bilaterales son raros, la incidencia de un segundo tumor testicular contralateral en pacientes con antecedente de tumor germinal es del 1% al 5% publicada en las grandes series. Se han identificado diversos factores de riesgo como la historia familiar, criptorquidia, disgenesia gonadal, infertilidad, atrofia testicular, trauma escrotal. Se sabe que el antecedente de tumor testicular germinal es el principal factor para el desarrollo de tumores testiculares contralaterales. Aproximadamente el 50% de las lesiones metacrónicas aparecen en un periodo de 5 años, se ha reportado que hasta el 23% de los pacientes presenta tumor metacrónico más de 10 años después. Presentamos un caso clínico de un paciente con tumor testicular metacrónico, después de 19 años de la orquiectomía radical.
Introduction

Testicular germ cell tumors are the most common solid tumors in adolescent and young adult males (15 to 35 years of age), and represent 1% of all neoplasias. The mean age for diagnosis is 34 years, with a median of 39.5 years. The majority of testicular tumors (95%) arise from germ cells and are divided into 2 main groups: seminomas and nonseminomas. The latter are subdivided into 5 groups and they are generally combinations of these tumor groups. There has been an increase in incidence over the last 3 decades, probably due to the increase in survival. Different risk factors have been identified, such as family history, cryptorchidism, gonadal dysgenesis, infertility, testicular atrophy, and scrotal trauma. It is known that a history of testicular germ cell tumor is a principal factor in the development of contralateral testicular tumors.

Intraepithelial testicular neoplasia (ITN) and carcinoma in situ (CIS), also known as intratubular germ cell neoplasia (ITGCN), have been described as premalignant lesions associated with the development of unilateral or bilateral testicular tumors. The first case of bilateral testicular tumor was reported by Livingstone in 1805. The incidence of a second contralateral testicular tumor in patients with a history of germ cell tumor is from 1% to 5% according to data published in large case series (Bokemeyer et al., 1993; Dieckmann et al., 1993, 1999, 2002; Heidenreich et al., 1995, 1997, 2000; Gerl et al., 1997; Tekin et al., 2000; Gezici et al., 2001; Ondrus et al., 2001; Che et al., 2002; Ohyama et al., 2002). There is no consensus on the length of time that should pass for a tumor to be defined as metachronous. Different prospective and retrospective studies mention periods of one to 3 years after complete cancer remission. Approximately 50% of the metachronous lesions appear within a period of 5 years. Up to 23% of patients have been reported to present with metachronous tumor after a period of more than 10 years. Bilateral testicular cancer incidence varies according to the published reports; incidence was 1% in patients treated at the MD Anderson Cancer Center, 1.2% at the Memorial Sloan Kettering Cancer Center, and 1.9% at the Institut Gustave Roussy.

The aim of the present article was to report a clinical case of metachronous testicular tumor that developed 19 years after the primary testicular tumor, the longest lapse of time reported in Mexico, and to give an account of its medical and surgical management in relation to its neoplastic characteristics.

Case presentation

A 52-year-old man had an unremarkable past medical history, except for a smoking index of 17 and social drinking. His present disease began 19 years earlier when he noticed a progressive increase in consistency and volume of the left testis. There were no changes in color or local temperature. He had intermittent stabbing pain that was triggered by walking, without reaching incapacity, and it diminished with rest. The patient sought medical attention and was prescribed antibiotics. When he did not improve, he was referred to our institution and was admitted for a probable right testicular tumor.

Physical examination of the genitals revealed a cylindrical, symmetrical, unincircumcised penis and a central permeable meatus. The right testis had increased consistency and volume, measuring approximately 8 x 10 x 8 cm, and the edges were even, with no crepitation or fluctuations and no nodulation. There was no change in local temperature, the spermatic cord was palpable, free, and mobile. The left testis measured 3 x 2 x 2 cm, had a soft consistency, even edges, and a normal spermatic cord and epididymis. Tumor marker values (30/06/1994) were alpha-fetoprotein (AFP) 1.73 ng/ml, beta subunit of human chorionic gonadotropin (beta-hCG) 4.25 mIU/ml, and lactate dehydrogenase (LDH) 398 IU/L. Contrast-enhanced abdominal computed axial tomography (CAT) scan showed 3 left para-aortic lymph nodes measuring 1 cm. Right radical orchiectomy was performed July 4, 1994, and the histopathologic study reported a solid, homogeneous testicular tumor measuring 7 x 5 x 3.5 cm, delimited by the albuginea with a solid and homogeneous aspect and areas of necrosis. It was described as a classic seminoma.

Postoperative tumor marker values were AFP 1.39 ng/ml, beta-hCG 0 mIU/mL, and LDH 250 IU/L. Classification was a right testicular tumor, pT1N1M0S1, clinical stage IIA, and the patient was given radiotherapy at a dose of 35 Gy in one fraction, which ended on 21/10/94. Annual surveillance through CAT scans was carried out until 2008, with no metastatic tumor activity.

In October 2012 the patient presented with an increase in consistency of the left testis and progressive scrotal growth. There were no changes in temperature, no pain upon palpation, and no associated fever. Directed physical examination revealed a rock-hard 4 x 3 x 3 cm testicular tumor that was not painful upon palpation, and with no crepitation or fluctuations. Tumor marker values were AFP 1.76 ng/ml, beta-hCG 1.48 mIU/mL, and LDH 102 U/L.

A testicular ultrasound (fig. 1) showed a heterogeneous image occupying 70% of the testicular parenchyma, consistent with neoplasia. Plain and enhanced CAT scans were carried out on 22/01/13 (fig. 2) that showed no retroperitoneal tumor activity.

Left radical orchiectomy was performed on 24/05/13 that revealed a testicular tumor measuring approximately 5 x 3 cm. The testicular cord was not indurated and the histopathologic study reported classic seminoma (figs. 3 and 4) with tumor-free surgical margins, no infiltration of the tunica albuginea or vascular invasion. Postoperative tumor marker values were AFP 1.95 ng/ml, beta-hCG 1.14 mIU/mL, and LDH 101 U/L. The lesion was classified as a left metachronous testicular tumor, pT1N0M0S0 with clinical stage IA. Prostate-specific antigen was 0.27 ng/ml and testosterone 0.08 ng/mL. Topical hormone replacement therapy was begun and active surveillance was the chosen management.

Discussion

An association has been found of higher risk for contralateral tumors in patients with testicular germ cell tumors that have complete disease remission, due to the carcinogenicity of the radiotherapy or chemotherapy administered, that is probably the result of a higher, but poorly characterized,
sustainability to the carcinogenic stimulus. Likewise, we see an increase in the incidence of metachronous testicular tumors due to the greater survival of patients with early-stage diagnosis that receive effective primary treatment.

Seminoma is the most frequently found contralateral testicular tumor and is related to the age of the patient at the time of presentation of the primary testicular tumor. Seminoma is more frequent in patients above 30 years of age, as was the case of our patient.

In 2005 Fossa et al. reported the results of the SEER study on contralateral synchronous and metachronous testicular tumors that included 29,515 men with testicular cancer within the time frame of 1973 to 2001. Of those patients, 175 (5.9%) presented with synchronous testicular tumor, whereas 287 (9.7%) patients developed a contralateral metachronous tumor in a mean 63 months (5 years and 3 months). This is equivalent to an accumulated risk at 15 years of 1.9% for developing testicular tumors. Patients under 30 years of age, when diagnosed with seminomatous tumor, had a greater risk at 15 years of 3.1% vs. 1.2% in men above the age of 30 years. At the Memorial Sloan Kettering Cancer Center, a 1.5% incidence of bilateral testicular cancer was reported in a 50-year review. In patients with testicular tumor, there was a 25-fold higher relative risk for patients with contralateral tumor to develop another tumor. Microlithiasis found through ultrasound in the contralateral testis increased the risk 30-fold for presenting with a testicular germ cell tumor.

Figure 1  Doppler testicular ultrasound showing a heterogeneous image that takes up 70% of the testicular parenchyma, consistent with neoplasia.

Figure 2  Abdominopelvic tomography scan showing no evidence of retroperitoneal tumor activity.
The longest time interval reported in the literature in relation to metachronous tumors was 32 years, from the case series by Schreiber et al. in 1987.6

Conclusions

Metachronous testicular tumors are rare. The treatment of choice for both the primary and metachronous tumors is radical surgery plus the adjuvant treatment corresponding to the clinical stage of the tumor. We must not forget that hormone replacement is crucial in the indicated cases.

Conflict of interest

The authors declare that there is no conflict of interest.

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References