METACHRONOUS TESTICULAR SEMINOMA-16 YEARS LATER: EARLY DETECTION AND MANAGEMENT /CASE REPORT/

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ABSTRACT:
A 28-year-old male presented at a regional hospital with a pulling sensation and feeling of unusual heaviness in the right scrotum. Pain and discomfort appeared two weeks ago.

The patient had no previous medical history.

Physical examination, US and CT confirmed 26 mm mass, localized centrally in the right testis without metastatic process and patient was treated with right inguinal orchiectomy, followed by 25 Gy radiotherapy. After 16 years and 3 months the same symptomatology started in the left side and US discovered two masses: 15 and 21 mm in left testis. Investigation included tumor marker assessment, scrotal US, CT and biopsy. Diagnosis metachronous testicular seminoma, stage T1N1M0.

Biopsy, radical orchiectomy, androgen substitution and follow-up were performed.

Key words: seminoma, bilateral, metachronous, germ-cell tumor.

THE CASE:
A 28-year-old male presented at a regional hospital with a sensation and feeling of unusual heaviness in the right scrotum. Pain and discomfort appeared two weeks ago. The patient had no previous medical history. US imaging showed a right side mass, measuring 28x20 mm and normal left testis. A CT scan revealed no evidence of infiltration of spermatic cord or the inguinal and paraaortic lymph nodes. Blood serum tumor markers of human chorionicgonadotropin (HCG), α-fetoprotein (AFP), and lactate dehydrogenase (LDH) were in referent levels. After consultation with anesthesiologist, right inguinal height orchectomy was made. Histology demonstrated a seminoma, without infiltrating tunica albuginea-stage pT1N0M0 tumor according UICC (Union International Against Cancer).

One month after operation, the patient was presented to the hospital multidisciplinary oncology group and started radiotherapy in dose of 25Gy to the periaortic lymph nodes. Patient was accepted as disease free and according the protocol was followed up every 4 months the first two years with chest X-ray, CT, physical examination and tumor marker assessment.

In May 2009, 16 years and 3 months after the first orchectomy, the patient complained in a medical office of enlarged left testis, firm in consistency and with a sensation for heaviness. Scrotal ultrasonography revealed two hypoechoic left-testicular masses measuring 19x12 mm and 13x7 mm (Fig. 1).

Patient was referred to a specialized urologic clinic, where repeated physical and imaging study revealed no evidence of metastases, and serum concentrations of testosterone, α-HCG, LDH, and AFP were all within normal ranges. No suspicions for spread on CT of chest and abdomen.

In elective plan left inguinal exploration and frozen section biopsy with confirmation of germ cell tumor-pure seminoma was made (Fig. 2).

The tumors measured 12 mm and 10 cm in greatest dimension, respectively, and were confined to the testis. One lymph node was detected 2 cm in the spermatic cord but negative for neoplastic invasion. Second pT1N0M0 was found. Daily topical testosterone replacement therapy was administered, beginning on the first postoperative day-in the form of a hydroalcoholic gel containing 1% testosterone (10 mg/g). In his first month follow-up the patient reported good physical status, maintenance of his libido and improvement of his fatigue and hot waves. His serum testosterone level had increased to 11.9 nmol/l and serum LH level had fallen to 12 IU/l.

DISCUSSION
Diagnosis
The incidence of testis cancer has been steadily increasing over the last 40 years (1). It appears to be most
common in northern European populations with age
standardized incidence rates between 4 and 10 per 100 000.
The peak incidence is between the ages of 15 to 35 years.
Five year survival rates have increased significantly over
the last 30 years from about 63% to more than 90%
(2). Second testicular cancer arising in the contralateral testis
is relatively common: the incidence of metachronous
testicular tumors has been reported to be in the range of 2–5% among men followed up for 4–15 years after testicular
cancer. The mean time to diagnosis of the second testicular
tumor is 6 years (3, 4). Approximately 17% of bilateral tumors
occur synchronously, and the remaining 83% are
metachronous. About 40-45% of all tumors are pure
seminomas. The rest of the tumours are a mixture of the non
seminomas.

Seminomas are associated with significant excesses
of total second tumors in each follow-up interval after 5 or
more years, and risk increases with time since initial
diagnosis. Risks are significantly elevated among patients
treated initially with radiotherapy alone, but not
chemotherapy. The incidence of second tumor correlates
positively with the presence of atrophic testis and
negatively with age. Approximately 2% of men with a history
of cryptorchidism will have germ cell neoplasia (5).

Differential diagnosis

Metachronous testis tumor is defined as such, when
the interval between occurrence of first and second is longer
than six months and genital ultrasound, CT and physical
examinations are negative for neoplasm in contralateral. The
mean age of patients with metachronous tumors is 28 years
at the diagnosis of the first tumor and 35 years at the
diagnosis of the second tumor (6, 7).

Studies have reported that 67% of metachronous
tumors are diagnosed within 5 years of the first tumor (8).
Three markers of testicular tumors are measured: á feto
protein, á human chorionic gonadotrophin and lactate
dehydrogenase. They were found to be normal at the time
of diagnosis of the first and second tumors in this case,
which was suggestive of a seminoma rather than a
nonseminomatous germ-cell tumor. Serum AFP does not
show an increase in seminomas, and increased HCG is found
in only 6–10% of pure seminomas. Increased LDH values
are noted in 8% of patients with stage I seminoma, compared
with approximately 80% of advanced seminomas. Patients
with a history of testicular tumors treated with orchietomy
and chemotherapy tend to have reduced levels of
testosterone and increased levels of FSH and LH. These
patients should undergo screening for hypogonadism by
measurement of serum testosterone, LH and FSH levels at
6-12 month intervals. Timely identification of the need for
testosterone replacement facilitates the initiation of
treatment to maintain or restore sexual function, libido, and
wellbeing, and to prevent depression, osteoporosis, and
probably also heart disease.

Treatment and management

Radical orchidectomy is the method of choice for
testicular cancer. It removes the primary tumors and
provides the histological diagnosis. The testis and the
spermatic cord are excised through an inguinal incision.

Postoperatively, the most common follow-up program
after administration of retroperitoneal radiotherapy for a
stage T1N0M0S0 seminoma involves carrying out a physical
examination, X-ray, and assessment of tumor markers every
4 months for the first 2 years, every 6 months for years 3–
5, and yearly thereafter. Ultrasound can detect lesions in the
testis itself. Hypoechoic lesions of the testis frequently
indicate the presence of malignancy (9). Some of these
tumors may not be palpable. Rarely testicular tumors can
grow so fast in the testis that it outstrips its own blood
supply. In this situation the primary tumor dies and forms a
scar. This scar is called an Azzopardi scar. It is possible to
identify these lesions by ultrasound.

A á-FP, á-HCG and LDH are measured serially post
orchidectomy. If they were raised pre operatively and the
levels fall quickly post operatively then it is likely that all
the cancer has been removed by the orchidectomy.

After bilateral orchietomy, the implantation of
testicular prostheses and androgen substitution therapy can
help in the sexual, psychological and social rehabilitation
of the patient.

Topical testosterone gels have good tolerability and
a lower incidence of skin irritation than testosterone-
containing patches and are met with high levels of patient
acceptance.

SUMMARY

The second, metachronous testicular tumor is
discovered either during regular follow-up by the physician
or by imaging examination during the first 2-3 years and
most rarely after patient’s complaints of discomfort and
unusual heaviness. Statistically, second testicular primary
cancer appears between 5 and 6 years, but recent reports
suggest extension of this interval to 15 to 20 years after the
first operation (in our case 16 years 3 months). The early
detection of the new tumor in a contralateral testis leads to
radical treatment and long-term survival.
REFERENCES:

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