Synchronous Bilateral Seminomas and Teratoma

Harry J. Bonnell
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The simultaneous occurrence of seminomas is extremely rare. Only 23 cases have previously been reported. One case has been reported of extrascrotal mature teratoma following primary pure seminoma of the testis. We describe a 47-year-old patient who presented with synchronous bilateral seminomas and a left-sided, mature teratoma of the testis.

Seminoma has its peak incidence between 35 and 50 years of age and is highly associated with cryptorchidism and mumps orchitis (1), whereas teratomas are most common in the first to third decades of life. Bilateral seminoma is rare; only 23 cases have been reported of synchronous bilaterality (2-15). The subsequent development of extrascrotal metastatic mature teratoma following primary germ cell tumor has been described in at least 12 cases (16), but in only one was pure seminoma the primary tumor. The authors postulated that the mechanism for the teratoma was related to therapy for the primary germ cell tumor. Our case report describes a 47-year-old patient who presented with bilateral seminomas and a left-sided mature teratoma of the testis, both of which appeared at the same time.

Case Report

A 47-year-old white male plumber presented to another hospital complaining of severe pain of the right testis for 12 hours; he later disclosed that he had been experiencing pain and swelling in the right testicle for two years. His past medical history was negative for trauma, mumps orchitis, urinary tract infections, cryptorchidism, or previous hernia repair. His physical examination was entirely normal except for a slightly tender, rock-hard 6 cm mass in the lower pole of the right testicle. Orchiectomy was performed, and pathologic examination revealed an 8 x 6 x 5 cm testis with a well defined 2 x 1.2 cm yellow mass, which was not weighed. Microscopically, the mass was identified as a seminoma, consisting of uniformly large cells with irregular, fine branching, supporting stroma (Fig. 1).

The patient was transferred to our hospital on the third postoperative day. On admission, a physical examination revealed a hard palpable mass in the mid- to upper pole of the left testicle. Bone scan, brain scan, and lung tomoscans were all normal. There was no serum elevation of alpha fetoprotein or human chorionic gonadotropin. A liver spleen scan showed a suspicious area in the right lobe of the liver.

The patient underwent left orchiectomy, and pathologic examination revealed a 4 x 2.7 x 2 cm testis, which weighed 50 gms. It contained a yellow tan nodule (1.2 cm diameter) in the upper pole and a distinct gray

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Fig. 1

Large cells with irregular, fine branching, supporting stroma (hematoxylin and eosin, 100X). 

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nodule (2 cm diameter) in the mid-portion of the testis. Microscopically, the yellow mass was a seminoma (Fig. 2) similar to that found on the right side (Fig. 3). The gray nodule was interpreted as a leiomyoma with bony metaplasia and calcification.

A bipedal lymphangiogram showed that no dye was present in the nodes of the right lumbar chain, a finding consistent with tumor replacement.

An intravenous pyelogram showed medical displacement of the right ureter.

The patient was started on radiation therapy to the abdomen, pelvis, mediastinum, and left supraclavicular areas. However, therapy was stopped after two weeks because he had a white blood cell count of only 4,000.

During this time, additional sections were taken from the embedded blocks of tissue from the gray nodule, and ciliated glandular structures were observed microscopically (Fig. 4). When these slides were reviewed by the Armed Forces Institute of Pathology, it was thought that the tumor masses in the left testis were a seminoma and a separate, mature teratoma. As a result, a radical lymphadenectomy was performed on the patient.

At operation, the right ureter was found to be retrocaval, and no lymphatic tissue lateral to the vena cava on the right side was found that would account for the abnormal lymphangiogram. A duplicated venous collecting system connecting to the vena cava was thought to be a persistent cardinal venous system inferior to the renal veins.

Postoperatively, the patient did well at first; he was out of bed and walking for short distances. Pathological review of the lymphadenectomy specimen was entirely normal except for some necrotic tissue found in the area between the aorta and vena cava at their bifurcations. However, on the third postoperative day, the patient had a cardiac arrest and could not be resuscitated.

At autopsy, pulmonary emboli were found in both the right and left pulmonary arteries, but their origin could not be determined. Although no evidence of residual testicular tumor or metastasis was found, papillary carcinoma of the thyroid gland, metastatic to the right cervical lymph nodes, was found. Other abnormalities found...
at autopsy included a tri-lobed left lung, three separate left renal arteries originating from the aorta, and two separate right renal arteries originating from the aorta. The right ureter followed a retrocaval route and then passed inferiorly from the bifurcation of the aorta down to the bladder.

Discussion
Simultaneously occurring bilateral seminomas are extremely rare. Table I lists the age, therapy, and outcome as reported in 11 cases in the literature. The 12 cases reported by MacKay and Seller, Thackray, and Abeshouse, et al do not give identifying data and may possibly represent partial duplication of the cases listed. My search of the literature indicates that the additional presence of a mature teratoma upon initial presentation in our case is unique.

This case is of further interest because the patient had no history of cryptorchidism or other factors which increase the risk of testicular cancers, although he had other congenital abnormalities. The absence of seminoma metastases at autopsy and the presence of necrotic tissue only at lymphadenectomy suggest that the only malignant genito-urinary tumors present were the seminomas. The testicular teratoma was indeed a mature benign lesion unassociated with any therapy for the seminoma. Unfortunately, because the patient died from a postoperative complication and had not given any information at admission about surviving next of kin, no follow-up was possible. A diligent search for relatives after his death was unsuccessful.

TABLE I

<table>
<thead>
<tr>
<th>Case (Reference)</th>
<th>Age</th>
<th>Postoperative Treatment</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(2)</td>
<td>45</td>
<td>2000 rads to P, PA, M</td>
<td>A&amp;W, 6 mos</td>
</tr>
<tr>
<td>2(3)</td>
<td>24</td>
<td>Radiation</td>
<td>A&amp;W, 20 mos</td>
</tr>
<tr>
<td>3-9(4)</td>
<td>NM</td>
<td>NM</td>
<td>NM</td>
</tr>
<tr>
<td>10(5)</td>
<td>59</td>
<td>2500 rads to P, PA, M</td>
<td>A&amp;W, 4 yrs</td>
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<tr>
<td>11(6)</td>
<td>28</td>
<td>NM</td>
<td>NM</td>
</tr>
<tr>
<td>12(7)</td>
<td>40</td>
<td>2000 rads to P, PA, M</td>
<td>A&amp;W, 32 mos</td>
</tr>
<tr>
<td>13(8)</td>
<td>26</td>
<td>Radiation</td>
<td>Died, 21 mos</td>
</tr>
<tr>
<td>14(9)</td>
<td>45</td>
<td>Radiation</td>
<td>NM</td>
</tr>
<tr>
<td>15-17(10)</td>
<td>NM</td>
<td>NM</td>
<td>NM</td>
</tr>
<tr>
<td>18(11)</td>
<td>24</td>
<td>2000 rads to P, PA, M</td>
<td>A&amp;W, 1½ yrs</td>
</tr>
<tr>
<td>19(12)</td>
<td>73</td>
<td>1200 rads to P, 1100 rads to PA, 700 rads to M</td>
<td>A&amp;W, 11 yrs</td>
</tr>
<tr>
<td>20(13)</td>
<td>40</td>
<td>2300 rads to P, PA, M</td>
<td>A&amp;W, 10 yrs</td>
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<tr>
<td>21-22(14)</td>
<td>NM</td>
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<td>NM</td>
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<tr>
<td>23(15)</td>
<td>39</td>
<td>2000 rads to P, PA, M</td>
<td>Methotrexate, Leucovorin</td>
</tr>
</tbody>
</table>

NM: not mentioned
P: primary site
A&W: alive and well
PA: para-aortic nodes
M: mediastinum

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References