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THE RESULTS OF THE TREATMENT OF STAGE I AND II NONSEMINOMATOUS GERMINAL TESTICULAR TUMORS*

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Testicular tumors are one of the most common causes of death from malignancy in the 15 - 34 year age group [1]. At the time of diagnosis, approximately 44% of patients with nonseminomatous germinal testicular tumors (NSGTT) have localized disease (stage I), 29% regional disease (stage II) and 33% have distant metastases [2].

Previously stage I and II NSGTT had been treated with surgery and/or irradiation. It is impossible to compare the results of these two different treatments, because there are still no data avaible for any randomized treatment schedule comparing the two. Everyone agrees that surgery allows a careful pathological staging of retroperitoneal disease and combines very well with intensive chemotherapy. In this article we present our experience in the treatment of this type of tumor.

Material and Methods

From October 1979 to October 1983, 28 patients with nonseminomatous germinal tumors in stages I and II were evaluated histopathologically and treated at the Hacettepe University Department of Urology, Ankara, Turkey.

The ages of the patients ranged from 19 to 45 years (mean 27) in stage I and from 22 to 46 years (mean 31) in stage II. Eighteen of these 28 patients had had their orchidectomy elsewhere and were referred to our hospital.

Pre-treatment and follow-up evaluation consisted of complete physical examination, complete blood count, urinalysis, chest X-ray, serum calcium, uric acid, total bilirubin, alkaline phosphatase, serum transaminases (SGOT, SGPT), blood urea nitrogen (BUN), serum electrolytes, excretory urogram and abdominal ultrasound. In addition, most patients had a bipedal lymphangiogram and whole-lung tomograms as part of their initial evaluation.

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Serum tumor markers, alphafetoprotein (AFP), and beta-subunit human chorionic gonadotropin (βHCG), were followed in all patients.

The patients who had chemotherapy as an adjuvant treatment also had pulmonary function tests, audiologic tests and creatinine clearance. Each patient was followed up and evaluated monthly in the first year, bimonthly in the second year and thereafter every three months.

All patients were reclassified into surgical stages according to the findings on operation and pathologic examination of the resected nodes. In the system employed, patients were divided into groups depending on the invasion of the capsule of the lymph nodes.

Surgical stage I: All resected nodes were grossly and microscopically negative for tumor (17 patients).

Surgical stage IIa (limited disease): Retroperitoneal lymph nodes were involved, but there was no invasion beyond the capsule of any lymph node (no patients).

Surgical stage IIb (advanced stage II disease): Invasion of the lymph node capsule by the tumor (11 patients).

TABLE I

Histological and Clinical Staging of the Tumors

Stage	Embryonal carcinoma (%)	Teratoma	Choriocarcinoma	Mixed (%)	Total (%)
I	5 (50)	1	—	11 (65)	17 (61)
IIa	—	—	—	—	—
IIb	5 (50)	—	—	6 (35)	11 (39)
Total	10 (100)	1	—	17 (100)	28 (100)

TABLE II

Chemotherapy Regimen

Cis platinum	: 20 mg/m^2	IV	1st to 5th days	Repeat cycle every
Vinblastine	: 0.15 mg/kg	IV	1st and 2nd days	3 weeks for 4 cycles
Bleomycin	: 30 mg IV 2nd day of the first cycle then every week for 12 weeks			

Bilateral retroperitoneal lymph node dissection (RPND) as described by Staubitz *et al*[3] and Mallis and Patton[4] was performed in stage I and stage II disease. Chemotherapy was also given as an adjuvant treatment in stage II.

The histopathological and clinical staging of these 28 patients is outlined in Table I.

Cis platinum, vinblastine and bleomycin were used as the chemotherapy regime for 4 cycles (Table II).

Results

Mean follow-up of patients with stage I disease is 27 months and for stage IIb disease 31 months.

Results of treatment are outlined in Table III. All of the 17 patients (100%) with stage I disease remained disease-free. Ten of the eleven patients with stage IIb disease were disease-free and one patient (9.1%) had progression to stage III after chemotherapy. This particular patient with the progression had a mixed type of tumor; there was embryonal carcinoma and teratoma. He developed lung secondaries 3 months after 4 cycles of chemotherapy.

Among the eleven surgical stage IIb patients the range of metastatic lymph nodes was between 1 and 18 and contralateral lymph node metastases were found only in 3 (27.2%).

TABLE III

Results of Treatment

Stage	No. of patients	Disease-free survival (%)	Mean duration of follow-up (months)	Progression to Stage III (%)
I	17	17 (100)	27	—
II	11	10 (90.9)	31	1* (9.1)
Total	28	27 (96.4)	—	1 (3.6)

* The patient is still alive.

The complication rate of RPND was 18% (5/28) and is outlined in Table IV. All 11 patients who received chemotherapy as an adjuvant treatment to RPND, had alopecia, nausea and vomiting during the chemotherapy. Major complications are outlined in Table V.

TABLE IV

Postoperative Complications of RPND

Complications	Number of patients
Urinoma	1
Colon necrosis	1
Thrombosis of the left renal artery	1
Hydrocele	2
Total	**5**

TABLE V

Major Complications of Chemotherapy

Complications	Number of patients
Severe leucopenia (<1000/mm^3)	3
Anemia (Fall in Hb≥3 mg)	2
Fever	2
Sepsis	1
Pulmonary embolism	1

Some patients had more than 1 complication.

Discussion

Since Most and Cuneo and later Jamieson and Dobson defined primary lymphatic drainage of the testis in the retroperitoneal lymph nodes around the aorta and vena cava, attention has been drawn to the excision of these nodes[5,6].

The relapse rate in stage I disease of RPND is about 9% in most series[7,8]. The majority of recurrences are in the lungs[5,7,8]. The recurrence in surgical stage I disease might be due either to local contamination at orchidectomy or to unilateral lymphadenectomy. The relapse rate in patients who had unilateral lymphadenectomy was higher than in those who underwent bilateral lymphadenectomy[9].

The recent treatment modality in stage I disease is surveillance alone. Relapse rates have ranged from 16% to 22%[10]. Johnson *et al*[10] report that out of a series of

31 patients with a follow-up of 2 to 18 months, 16% had a relapse. Peckham *et al*[11] reported a 42.8% relapse rate in stage I embryonal carcinoma patients who were under surveillance after orchidectomy.

One must keep in mind that, without involvement of the regional lymph nodes, embryonal carcinoma has a propensity to spread to other sites[5].

Also, interpretation of lymphangiograms and CT scans in predicting the presence or absence of nodal disease will always be a problem. RPND should remain a part of the treatment for NSGTT until carefully controlled clinical trials prove that patients can be managed just as effectively and efficiently by other means.

The risk of relapse in stage II disease after RPND is about 40%. Therefore the use of adjuvant chemotherapy based on the specific risk of recurrence is justified[2,12]. Also, the results of adjuvant chemotherapy are better than those of no treatment after RPND[2,6,13]. We believe that adjunctive chemotherapy must be given to patients who at surgery are found to have microscopic disease such as invasion of the lymph node capsule. The chemotherapy must be given in a short course using a full dose of the most effective drugs.

Summary

Twenty-eight patients with stage I and II nonseminomatous germinal testicular tumor were treated between 1979 and 1983. Seventeen of them were in stage I and eleven in stage II. Bilateral retroperitoneal lymphadenectomy was performed for both stages. Chemotherapy (cis platinum + viblastine + bleomycin) was also given for four cycles as an adjuvant treatment in stage II. Average follow-up was 29 months. The complete remission rate in stage I disease was 100% and in stage II disease 91%.

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