

# Management of testicular seminoma.

## Our experience



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**P. Sperlongano, D. Pisaniello, U. Di Mauro,  
D. Pone, E. Casoli**

II Università degli Studi di Napoli  
Istituto di Patologia Speciale Chirurgica e Propedeutica  
Clinica  
II Clinica Chirurgica Generale e Terapia Chirurgica  
Direttore: Prof. L. Amantea

### Introduction

Testicular cancer is one of the most frequent malignancies in young men. It affects people among 20 and 50 years, with the highest incidence between the third and fourth decades. Germ cell tumours represent 95% of such cancers; they include seminomatous and nonseminomatous variants.

The authors examine 12 seminomas observed among a series of 19 germ cell tumours.

### Patients and methods

In the last 10 years, at the Second Surgical Department of Surgery of the Second University of Naples, 19 patients with testicular germ cell cancer have been observed. 12 patients presented seminoma, 7 non-seminomatous tumours. (see Table A). Mean age of patients with seminoma object of our review was 32 years (range 14-40). Pre-operative clinical staging included, besides anamnesis and objective examen, dosage of serum tumoral markers ( $\alpha$ -FP,  $\beta$ -HCG, LDH), serum hormonal levels (FSH, LH,  $\beta$ -E<sub>2</sub>, testosterone) and fertility evaluation (spermiogram), chest X-ray, testicular and liver US, total-body bone scintiscan, chest, abdominal and pelvic angio-CT. In 3 patients we performed bilateral podalic lymphography and urography in two. 3 patients showed an increase of serum tumor markers (see Table B).

### Abstract

**Background:** *The authors report their experience in the management of seminomas.*

**Materials:** *They examine 12 cases of seminoma among a series of 19 patients with testicular germ cell tumours observed at the Second Surgical Department of the Second University of Naples.*

**Results:** *Their results showed a better prognosis for patients in early stage of the disease who underwent surgery and adjuvant prophylactic radiotherapy; good survival rates for patients in advanced stages of the disease were achieved by the combined use of surgery, adjuvant radiotherapy and chemotherapy.*

**Discussion:** *The authors discuss risk factors, clinical and diagnostic features of seminomas, relating their prognosis with the combined use of both surgery and adjuvant therapies. They consider total orchiectomy, followed by prophylactic radiotherapy, the treatment of choice, especially in stages IA and IIA. They don't perform the routine retroperitoneal lymphadenectomy, differently from american authors, who always achieve it to stage the disease.*

**Conclusions:** *The authors stress the improvement in the prognosis of seminoma, which has actually reached the 98% of five-year survival rate, for stages I and II.*

**Key words:** Seminoma, testicular cancer, orchiectomy.

All the patients underwent orchidofuniculectomy. 9 of the 12 patients reviewed belonged to IA stage of the disease, another to IC stage and two to the stage IIC. We assayed the serum tumour markers levels one, seven and fifteen days after surgery. The follow-up, dating every 3 months during the first 2 years and every 6 months subsequently, included: chest X-ray, chest, abdominal and pelvic angio-CT, serum tumour markers, liver US and routine biochemistry. Every 6 months we performed the total-body bone scintigraphy.

Tab. A – TESTICULAR CANCERS IN OUR SERIES

Cancer	Patients	%
Seminoma	12	63
Non-seminoma – choriocarcinoma	1	5,3
– embrional carcinoma	1	5,3
Combined cancers	5	26,3
	19	100%

Tab. B – SERUM TUMOUR MARKERS AND STAGE OF DISEASE

Stage	Patients	LDH	b-HCG	a-FP
I A	1	-	+	-
I A	1	-	-	+
I A	9	-	-	-
II C	1	+	-	-

Only two of the 6 patients in stage IA refused the post-operative prophylactic radiotherapy (2500 rads in three weeks on the para-aortic and para-iliac lymphnodes). The two patients in stage IIC, recently observed, underwent RT first and, subsequently, CT by BEP (cisplatinum, ethoposide, bleomicin). One of these, lastly, underwent retroperitoneal lymphatic dissection.

**Results**

The 7 patients in stage IA who received RT are all alive and at the follow-up from one to 7 years, 6 patients are disease-free and one patient, 9 months after surgery, showed CT-scanned lumbo-aortic nodal involvement (Fig.

1) and received further RT (5000 rads), with no subsequent evidence of relapse. 36 months after the diagnosis the patient is free of disease. The 2 patients who rejected post-operative prophylactic RT are, respectively, after 18 and 42 months, disease-free. Among the three patients in advanced stages, the one in stage IC is disease-free 24 months after RT. Of the two patients in stage IIC, who underwent adjuvant RT and CT, one showed no evidence of relapse 6 months after the diagnosis; the other presented partial recovery after the adjuvant therapy. Thus, we performed the retroperitoneal lymphadenectomy. At the three-months follow-up the patient is disease-free.

**Discussion and Conclusions**

Seminomas are, between the thirty and forty years, the most frequent testicular cancer. Several risk factors have been suggested: cryptorchidism, exogenous oestrogens exposition, oestrogens excess during pregnancy, low weight at birth, genetics, testicular traumas, testicular atrophy, sterility, previous inguino-scrotal surgery.

Among germ cell tumours, seminoma, with its variants, is the most frequent histopathological finding, accounting for 30-40% of all testicular cancers.

Usually, seminoma presents as an asymptomatic scrotal mass, a painful sense of weight and in 25-30% of cases deep pain spreading along the funicle. Dydimus tumours of less than 2 cms of diameter are not clinically appreciable and sometimes they are diagnosed by accident, while performing diagnostic (testicular US) because of other clinical suspicious. Indeed, the clinical evidence of such cancers is partial or total volume increase of the dydimus, with preservation of its shape.

The lump surface, smooth at first becomes swelling and

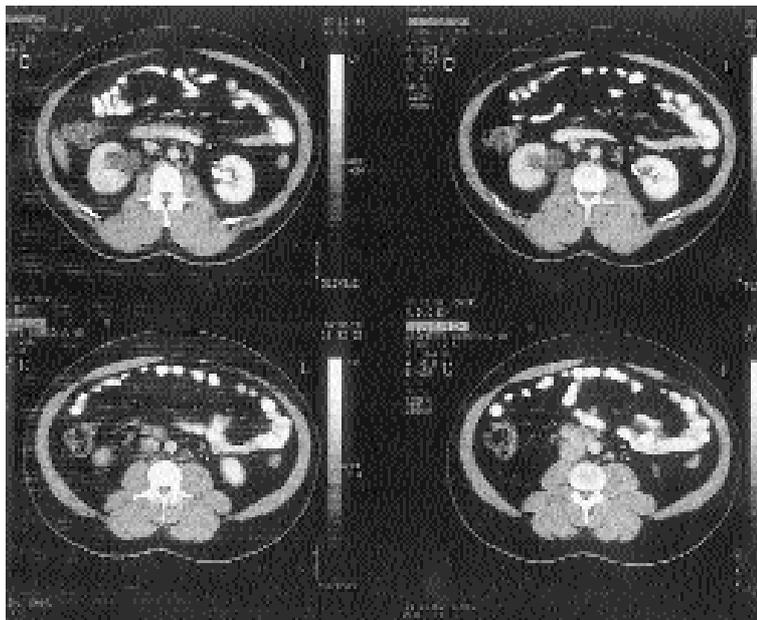


Fig. 1: Abdominal CT: lumbo-aortic nodal involvement.

tougher subsequently. Only in an early stage it is possible to pinch the testicular wrappers and to palpate epididymis and deferent. A characteristic decrease or absence of the specific sensibility can be present and a small blood collection between the testicular wrappers too. In advanced stages hyperpirexia can also occur while sometimes signs of distant metastasis are the early symptoms of the occult cancer.

Testicular cancer is mainly diagnosed by US, which can clearly detect the intra or extra-testicular localization of the palpable tumours (Fig. 2). The importance of such recognition is fundamental, for most of the dydimus masses are malignant, while extra-testicular masses are often of benign origin. The US-guided biopsy is not advisable for dydimus lumps (almost all lumps sited in the dydimus are malignant!) to avoid possible post-biopic cancer cell spreading. Fine-needle biopsy could only be suggested in monorchid patients and bilateral lumps.

The correct staging includes the abdominal, liver and retroperitoneal US, but the chest, abdominal and pelvic angio-CT and NMR are the need to detect possible nodal and /or distant metastasis.

Seminomas distinctly give raise to nodal metastasis which follow the lymphatic vessels along the cava vein on the right and along the aorta on the left. In advanced stages metastatic cells, through the retrocrural lymph nodes can reach the post mediastinum or, along the thoracic duct and vein, the upper clavicular and upper mediastinal lymphnodes.

The podalic lymphography used to be the radiodiagnostic of choice for the staging, when CT and NMR were not suitable yet. In presence of voluminous retroperitoneal nodal masses adjacent to the urinary tract, urography can be useful too.

The surgical approach is the total orchiectomy. Indeed, RT is considered the elective adjuvant treatment for seminomas, especially in stages IA and IIA (4, 7). Such treatment should avoid, for most of AA., the prophylactic lymphadenectomy. American AA. perform the routine



Fig. 2: Testicular cancer: ultrasonographic aspect.

retroperitoneal lymphadenectomy and, subsequently, CT and/or RT. Some AA. stress the utility of the routine retroperitoneal lymphadenectomy to correctly stage the cancer, which would be under-staged by the pre-operative screening. We claim that prophylactic radiotherapy, thanks to the high radiosensibility of such cancer let the staging retroperitoneal lymphadenectomy useless to perform (7). Furthermore, CT is universally suggested in seminomas starting from the IIB stage and it can precede or follow the lymphadenectomy (3).

It seems useful to achieve CT first, especially in those tumours with voluminous pre-caval, pre-aortic and aorto-caval nodes, reducing their volume and reaching the field sterility to avoid intra-operative spreading of the cancer (1, 2, 3, 6).

The histopathological finding of vascular and lymphatic invasion, together with the advanced stage of the cancer are negative prognostic factors (5).

Thus, prognosis of seminomas has completely been changing from these last ten years, reaching 98% of five-year survival rates, for stages I and II.

## Summary

The authors in this report examine 12 seminomas among a series of 19 testicular cancers observed at the Second Surgical Clinic of the Second University of Naples.

They discuss risk factors, clinical and diagnostic features of such cancers, relating their prognosis with the combined use of both surgery and adjuvant therapies.

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**Commento**

**Commentary**

Prof. G. VIOLA

Istituto di Chirurgia Sperimentale  
II Università degli Studi di Napoli

*Il seminoma, nonostante la bassa incidenza (1-2%), è causa dell'11-13% di tutte le morti per cancro nei maschi tra 15 e 35 anni.*

*Gli Autori, sulla base dell'esperienza di Scuola, analizzano correttamente le possibilità della disseminazione linfatica dalla pelvi al mediastino e della problematica stadiazione pre-operatoria dell'N, per la quale la linfografia conserva tuttora un ruolo solo nei rari casi in cui la CT e la RMN non si rivelano idonee ad una completa definizione.*

*Un cambiamento sensibile della prognosi ha fatto seguito alla messa a punto di protocolli integrati, correlati allo stadio anatomico-clinico. Gli Autori sottolineano bene il molto lavoro fatto per stadiazione i pazienti in gruppi ad "alto" e a "basso" rischio al fine di effettuare trattamenti mirati, aumentando la sopravvivenza e diminuendo la morbidità.*

*La orchietomia radicale è per loro il trattamento chirurgico di elezione, integrata dalla irradiazione retroperitoneale a dosi piuttosto basse (2500-3000 cGy). Anche piccole (< 10 cm) masse retroperitoneali, se presenti, vedono con questo schema terapeutico un tasso medio di sopravvivenza a cinque anni dell'87%. L'irradiazione profilattica del mediastino non è più praticata. Nei seminomi più voluminosi, e comunque in tutti quelli associati a tassi elevati di a- FP (stadio IIB- III) la integrazione con la chemioterapia può elevare al 90% i casi con risposta anatomico-clinica favorevole: gli schemi chemioterapici proposti sono ancora oggetto di confronto (PVB; VAB-6; VB-16). Eventuali masse residue retroperitoneali hanno spesso natura fibrosa: circa il 40% di quelle di diametro superiore a 3 cm nasconde un seminoma residuo: in questi casi, come noi facciamo correntemente, è d'obbligo una rimozione chirurgica in second look. In tal modo la sopravvivenza a 5 anni può superare il 90%.*

*Seminoma causes 11-13% of all of the deaths for cancer in men 15-35 years old, in spite of its low incidence (1-2%). The authors analyze the possibility of lymphatic spread, from pelvis to mediastinum, on the basis of their own experience, and the questionable pre-operative staging of N. In this aim lymphography still has an effectiveness only when CT and NMR are proved unable for a complete definition.*

*A sensible changement of prognosis has resulted from the integrated protocols, correlated to the anatomico-clinical stage. Authors correctly stress their well done work to stage the patients in "low" and "high" risk, with the aim of performing targeted therapies, to improve survival and reduce morbidity.*

*Radical orchietomy is, in their experience, the standard surgical procedure, integrated by low dose (2500-3000 cGy) retroperitoneal RT. Small (<10 cm) retroperitoneal masses, if present, show, with this curative pattern, a 87% mean survival rate at 5 years. Prophylactic irradiation of the mediastinum has been abandoned. In massive seminomas, particularly if associated to high a-FP rates (stages IIB-III) the integration with chemotherapy, is able to raise the cases with positive anatomico-clinical response to 90%. Proposed patterns of chemotherapy (PVB; VAB-6; VP-16) are still object of comparison. Retroperitoneal remaining masses, frequently have a fibrous structure; 40% of the broader than 3 cm, contain a residual seminoma. In these patients, as we correctly do, a second look for the surgical clearance is compulsory. This way, the 5-years survival can be over 90%.*

*Autore corrispondente:*

Dott. Pasquale SPERLONGANO  
Via Miccoli - VII Traversa, 5  
80038 POMIGLIANO D'ARCO (NA)