

Retroperitoneal lymph node dissection in testis cancer



Axel Heidenreich
Head, Division of Oncological
Urology
Department of Urology
University of Köln

Indications for RPLND

- primary RPLND in NSGCT stages I - IIB
- primary mature teratoma
- Residual tumor resection following inductive chemotherapy
- Redo-RPLND following RPLND/RTR
- Salvage – RPLND, „Desperation – RPLND“

Clinical stage I NSGCT

- 17% to 30% with occult retroperitoneal metastasens
- 8% pulmonary relapses
- *Prognostic Risk Factors*



Therapeutic Options in clinical stage I NSGCT

Low Risk
no vascular invasion

High Risk
vascular invasion

Standard => Surveillance

Standard => PEB x 2

Contraindication
for Surveillance

PEB x 2

Contraindication
PEB x 2

nsRPLND
Surveillance

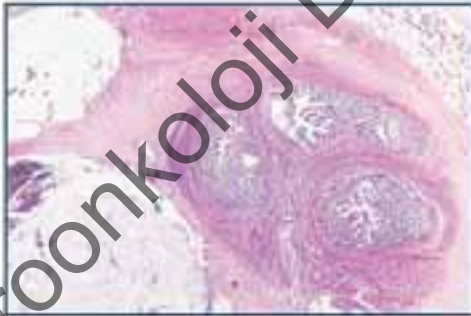
Contraindication
Surveillance/
Chemotherapy

nsRPLND

Contraindication
Surveillance/
Chemotherapy

nsRPLND
Surveillance

*Management of primary mature
teratoma*



Üroonkoloji Derneği

Management of mature teratoma

Mature Teratoma and Metastases

<i>Author</i>	<i>patients</i>	<i>total pN+</i>	<i>CS I, pN+</i>
Leibovitch, 95	41	39%	17%
Simmonds, 96	15	43%	20%
Heidenreich, 97	44	45%	19%
Rabbani, 03	29	79%	29%
Heidenreich, 04	69	41%	14%

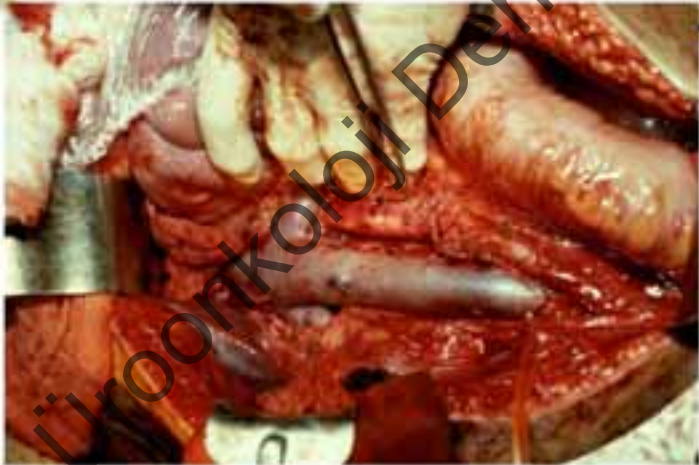
Management of mature teratoma

Clinical stage I and Recurrence

<i>Author</i>	<i>Patients</i>	<i>Recurrence</i>
<i>nsRPLND</i>		
Heidenreich, 97	44	none
Rabbani, 03	29	none
Heidenreich, 04	69	none
<i>Surveillance</i>		
Simmonds, 96	15	20%
Sturgeon, 92	18	11%
Stevens, 94	13	43%

...is out!

modified RPLND



Primäre RPLA....

.....nerve sparing is standard!



Üroonkoloji Derneği

primary nsRPLND – what to expect?
- the goal -

- ◆ complications approx. 9%
- ◆ antegrade ejaculation about 99%
- ◆ mean hospitalisation 2-4 days
- ◆ Recurrences approx. 8% (extraretroperitoneal)

Foster R, J Urol 2003; Sheinfeld J, J Urol 2003

primary nsRPLND – what to expect?

- the reality -

Time of surgery

- 214 (90 – 395) minutes
- dependance from surgical experience

Lymph node status

- | | | |
|--------------|------|----------------|
| ➤ number | 18.5 | (9 – 57) |
| ➤ metastases | 2.9 | (1 – 14) |
| ➤ diameter | 2.6 | (0.3 – 6.0) cm |

primary nsRPLND – what to expect?

- the reality -

<i>intraoperative complications</i>	<i>4.7%</i>
<i>minor complications</i>	<i>13.5%</i>
<i>major complications</i>	<i>3.4%</i>
<i>=> early complications</i>	<i>17.0%</i>
<i>late complications</i>	<i>4.7%</i>

primary nsRPLND – what to expect?

- the reality -

<i>Complications</i>	<i>Minor</i>	<i>Major</i>
<i>superficial wound infection</i>	<i>10 (4.3%)</i>	
paralytic ileus	2 (2.1%)	
lymphocele	1 (1.7%)	
bleeding	2 (0.9%)	
pneumonia	1 (0.5%)	
urinary tract infection	1 (0.5%)	
<i>Chylascites</i>		<i>5 (2.1%)</i>
Pulmonary emboli		2 (0.9%)
obstructive ileus		1 (0.5%)

primary nsRPLND – what to expect?

- the reality -

Recurrences

➤ number 14/233 (6.1%)

Localisation

➤ lung 9/233 (3.9%)

➤ mediastinum 2/233 (0.8%)

➤ bones 1/233 (0.4%)

➤ retrocaval 1/233 (0.4%)

Heidenreich A, J Urol 2003.

Clinical stage II/III

- ◆ cure rate is 98%
- there is **no** consensus

Primary nsRPLA w/o adjuvant chemotherapy
Primary nsRPLA with adjuvant chemotherapy
Primary chemotherapy ± RTR in 30%

nsRPLND only in clinical stage IIA/B

Author	n	relapse IIA	Mortality
Pizzocaro, '84	46	1/46 (2.1%)	0/46 (0%)
Williams, '87	197	6/97 (6%)	3/97 (3.1%)
Donohue, '90	104	0%	1/55 (1.8%)

CS IIA/B, marker +

3 x PEB

Residual tumor

Resection

CS IIA, marker -

nsRPLND

F-up, 6 weeks

PS I

PS IIA/B

PD

NC

Regression

Follow-up

F-up

PEB x2

nsRPLND surveillance

nsRPLND 3 x PEB

Follow-up

Risc factors for Relapse < 3 positive lymph nodes, < 2cm, no extranodular extension

European Germ Cell Cancer Consensus Group, Ann Oncol 2004; 15: 1377

Residual tumor resection



Background

- 20 – 80% of patients present with residual post-chemotherapy mass

Rationale for surgery

- 20% viable cancer
- 30-40% mature teratoma

} **RTR is curative!!**

however, 50-60% undergo RTR for necrosis only

Introduction

Purpose of presentation

1. update recommendation for RTR in seminoma/
nonseminoma
2. prognostic factors predicting histology
3. surgical strategies for RTR
4. Redo- Salvage – RPLND
5. Pitfalls of primary and Redo - RTR

RTR – seminoma „old indication“

RTR in residual masses > 3cm only

	< 3cm	> 3cm
Flechon et al., 2003	0/12	2/15
MSKCC, 1987-1997	0/28	6/27
Ravi et al., 1999	0/4	3/15
TOTAL	0/44	11/57

→ do 19% viable cells justify RTR in 100% of patients??

RTR – seminoma *complications*

additional intraoperative procedures in 38% (26% in nonseminomas ($p = 0.02$))

paracaval location!	
nephrectomy	25%
inferior vena caval resection	10%
arterial grafts	5%
bowel resection	5%

RTR – seminoma

PET for histological diagnosis

- N = 33 with postchemotherapy mass \geq 1cm
- Median follow-up is 23 (2–46) months

Study design

- negative PET \rightarrow surveillance
- positive PET \rightarrow surgery

Sensitivity	89%
Specificity	100%
Positive PV	100%
Negative PV	97%



current clinical practice

RTR - seminoma



Üroonkoloji Derneği

RTR – seminoma *current indication*



Indication

- residual masses usually **do not** require RTR
- RTR only in growing masses following chemotherapy w/o markers
- positive PET scan or rising markers following salvage chemotherapy

RTR – nonseminoma
„old indication“

<i>Diameter</i>	<i>Nekrosis/Fibrosis</i>	<i>Teratoma</i>	<i>vital</i>
≤ 5mm	17 (29%)	2 (9%)	2 (33%)
6-10mm	21 (36%)	9 (39%)	3 (50%)
11-15mm	16 (28%)	6 (26%)	—
16-20mm	4 (7%)	6 (26%)	1 (17%)
TOTAL	58 (66%)	23 (26%)	6 (8%)

RTR – nonseminoma „old indication“

	<i>Necrosis</i>	<i>mat. Teratoma</i>	<i>vital cancer</i>	<i>n</i>
< 2cm	68 (85%)	8 (10%)	4 (05%)	80
2-5cm	18 (44%)	14 (34%)	9 (22%)	41
> 5cm	24 (51%)	14 (30%)	9 (19%)	47

Heidenreich A et al., EAU 2004, Abstract 632, 653

RTR - nonseminoma



Indication

Any residual mass on CT 3-4 weeks following chemotherapy

Normalization or plateau of markers

RTR 4-6 weeks after chemotherapy

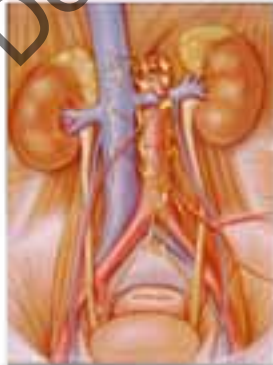
RTR – nonseminoma - preoperative strategy -



Additional procedures (n = 158)

> V. cava Resection	4
> V. cava Prothesis	3
> Thrombectomy	2
> aortic graft	2
> Nephrectomy	6
> Ureteral reimplantation	4
> bowel resection	6
> atyp. liver resection	8
> Thoracotomy	8
TOTAL	43

nsRPLA, also for RTR?



Uroonkoloji Derneği

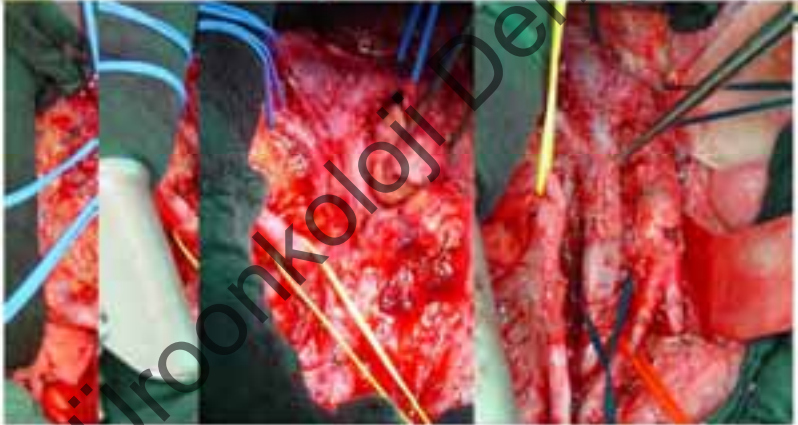
RTR – nonseminoma
- *nsRTR* -



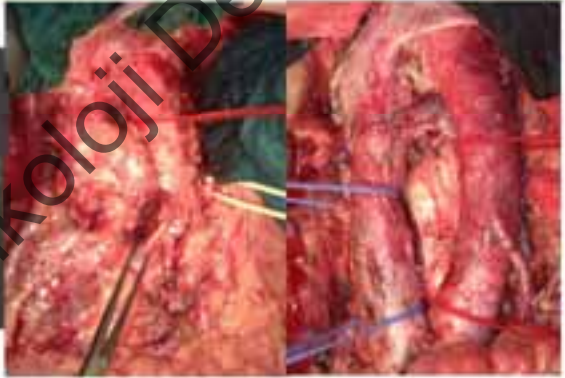
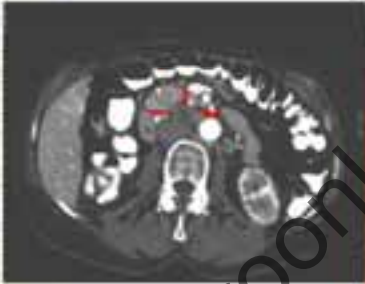
RTR – nonseminoma *- large residual lesion -*

- do not primarily approach the lesion
 - isolate large vessels first
 - identify and isolate ureters
- CR is major goal of surgery: resect all adjacent structures if necessary

RTR – nonseminoma
- large residual lesion -



RTR – nonseminoma
- large residual lesion -



Üroonkoloji Derneği

RTR – nonseminoma
- retrocrural masses -

- high thoracoabdominal incision
- lateral incision of the diaphragm
 - isolation of vessels
- complete resection of masses

RTR – nonseminoma
- large residual lesion -

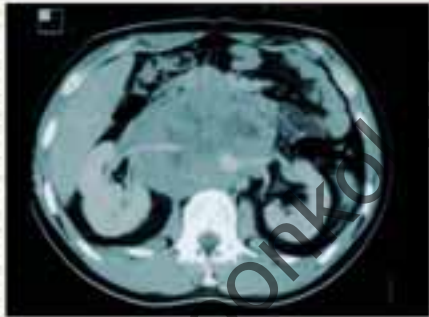


RTR – nonseminoma
- large residual lesion -



Üroonkoloji Derneği

RTR – nonseminoma
- vena caval involvement -



Problem:

Vena cava inferior => MRT

RTR – nonseminoma - vena caval involvement -

Bredael et al., 1982	16/144	11.1%
Ahlering et al., 1989	12/98	12.2%
Donohue et al., 1991	22/530	04.1%
Heidenreich et al., 1998	12/199	06.1%

Surgical Approach

Cavotomy and thrombectomy

Caval resection w/o prosthesis

Caval resection with prosthesis

vital cancer 63%

Teratoma 31%

RTR – nonseminoma
- *vena caval involvement* -



Uroonkoloji Derneği

RTR – nonseminoma
- vena caval involvement -



Üroonkoloji Derneği

Redo - RPLA



Üroonkoloji Derneği

Redo – RPLAis it justified?

Author	n	vital/Teratoma	NED
Cespedes et al., 1999	6	4 (66%)	75%
Sexton et al., 2003	21	16 (75%)	67%
McKiernan et al., 2003	56	37 (69%)	67%
Heidenreich et al., 2005	17	9 (56%)	85%

Long-term survival in high proportion of patients
Cure rates poorer as compared to first RPLND
RTR and Redo RPLND are for tertiary care centers

RTR with positive markers

Indication

- only following failed ICD
- complete resection of all residues mandatory
- no reliable prognosticators
- highly challenging and specialized surgery

RTR with positive markers

	Marker +	Nekrosis/ Fibrosis	mature Teratoma	Undiff. cancer
NED	12 (39%)	1	6	5
AWD	9 (29%)	1	3	5
DOD	10 (32%)	4	1	5

Weinknecht S et al., Urol A 37: 621 - 624, 1998

Primärtherapie – IGCCCG

Seminom

Nichtseminom

Therapy

primary chemotherapy PEB x 3
Primary Chemotherapy PEB x 4
Re – Staging after 3-4 cycles
Residual tumor

no RTR
Wait-and-See
PET

RTR in all cases with
Residual cancer
Wait-and-See for the
remainder