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REACHING THE UNREACHED
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GURU HOSPITAL

NEW CANCER TREATMENT WITH NEW TECHNOLOGY

Pandikovil Ring Road, Madurai

TESTICULAR TUMOUR - MANAGEMENT

116
17

TESTICULAR TUMORS:

- Testicular cancer accounts for only *about 1% of all human neoplasms*.

- Testicular cancer although rare, is the most common malignancy in men in 15-35 years age group and accounts for approximately 23% of all cancers in this group.

INCIDENCE

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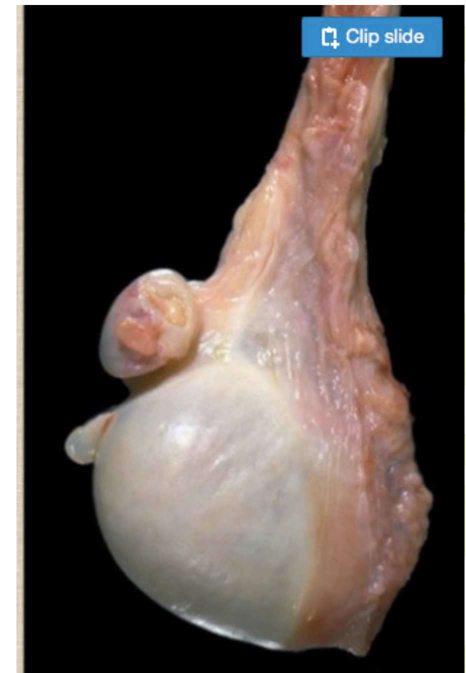
- Age – most common solid tumor of men between 15-35 years
- Race – White : Black = 4:1
- Side – Right > Left
- Socio-economic status – high : low = 2:1
- Geographical
    - Highest in Scandinavia, Germany
    - Intermediate – USA & UK
    - Low – Africa and Asia



WAY OF PRESENTATION

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CLINICAL FEATURES

- Hard painless lump
- Acute presentation
- As a metastatic disease
- Sense of heaviness
- Loss of testicular sensation

AS A METASTASIS

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PARA AORTIC NODES
REGIONAL

Abdominal mass

Back pain

METASTATIC NODES
NONREGIONAL NODES

- Supraclavicular node enlargement

METASTASIS

- Dry cough, dysnoea
- Bony pain
- CNS involvement

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All patients with a

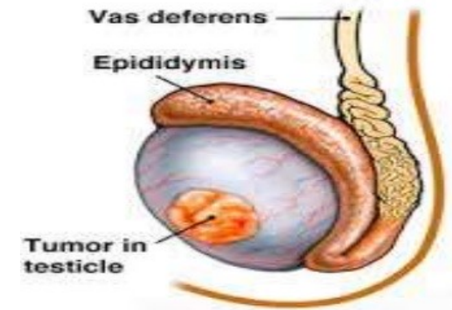
solid

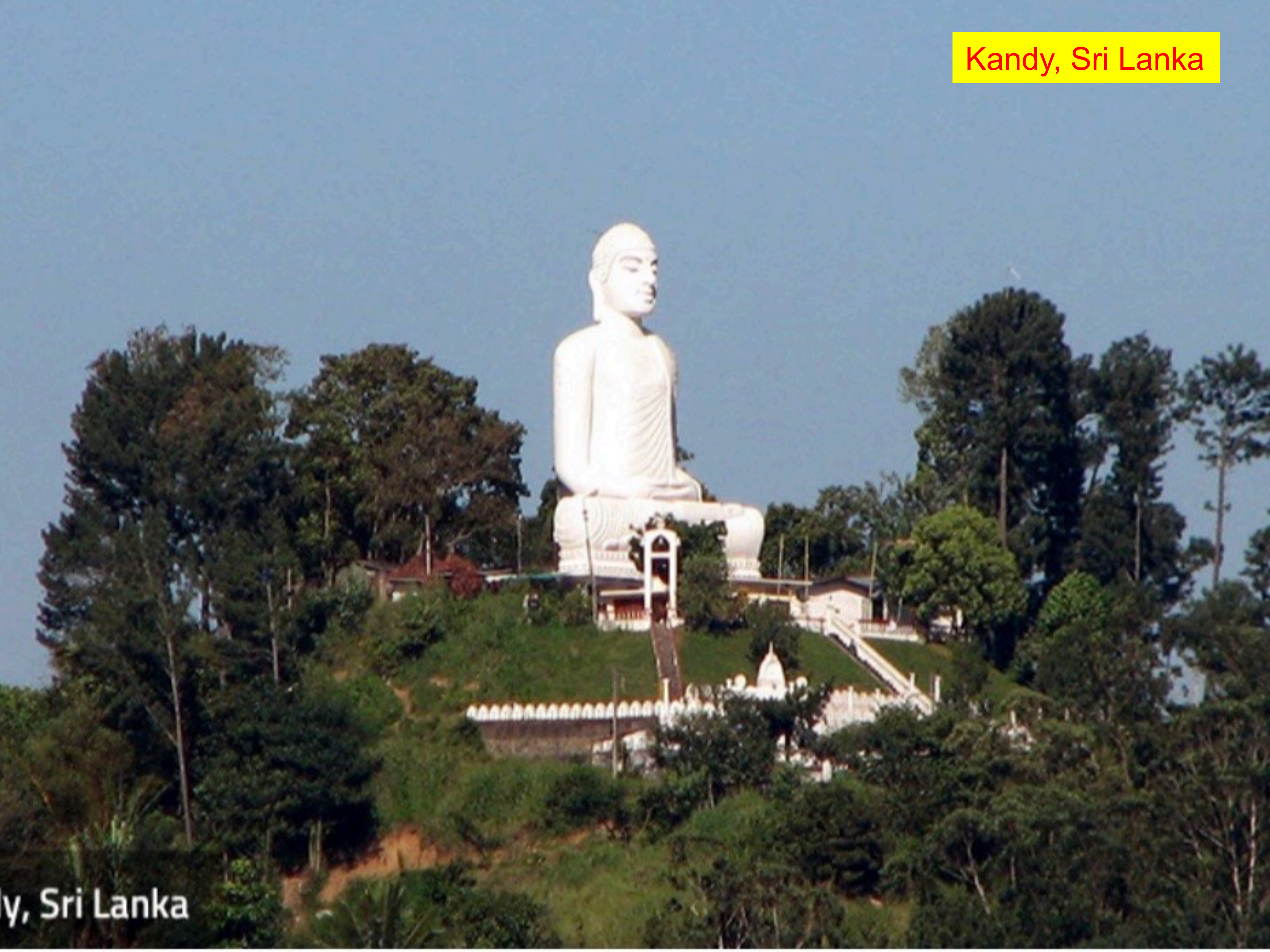
Firm

Intratesticular Mass

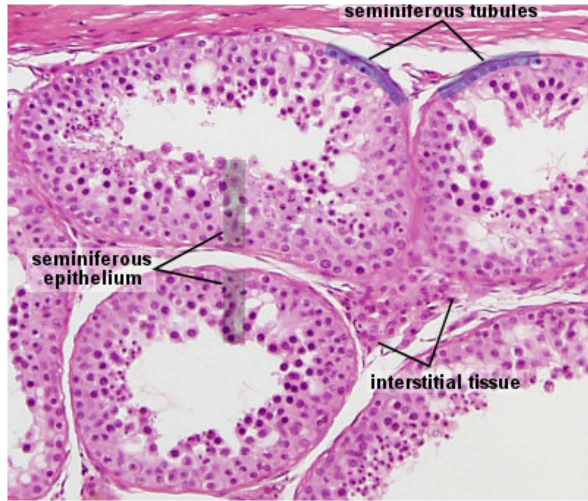
cannot be Transilluminated

should be regarded as Malignant unless otherwise proved




Kandy, Sri Lanka

CELL OF ORGIN



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TESTIS

SOMNIFEROUS TUBULES
(200 TO 350 TUBULES)

SUPPORTING
LEYDIG CELLS
SERTOLI CELLS

SPERMATOGONIA
SPERM CELLS

STROMA

INTERSTITIAL CELLS

CLASSIFICATION-CELL OF ORIGIN

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Germinal Neoplasms : (90 - 95 %)

- Seminoma 30-40%
- Embryonal Carcinoma - 20 – 25%
- Teratoma - 25 – 35%
- Choriocarcinoma – 1%
- Yolk Sac Tumour

Nongerminal Neoplasms : (5 to 10%)

- stromal tumor
  - (a) Leydig cell tumor
  - (b) Sertoli Cells
  - (C) Interstitial Cells
- Gonadoblastoma
- Miscellaneous Neoplasms

Germ cell tumour	Others
90%	10%

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BIOLOGICAL BEHAVIOUR & RESPONSE TO TREATMENT

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GERM CELL TUMOUR

- SEMINOMA

- EMBRYONAL CARCINOMA
- TERATOMA
- CHORIOCARCINOMA
- YOLK SAC TUMOUR

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ONCOLOGICAL CLASSIFICATIO N

SGCT

NSGCT

Malaysia
NO SMOKING !
DILARANG MEROKOK !
禁止吸烟
GEETHA'S

APPROACH

INITIAL EVALUATION -SCROTAL USG

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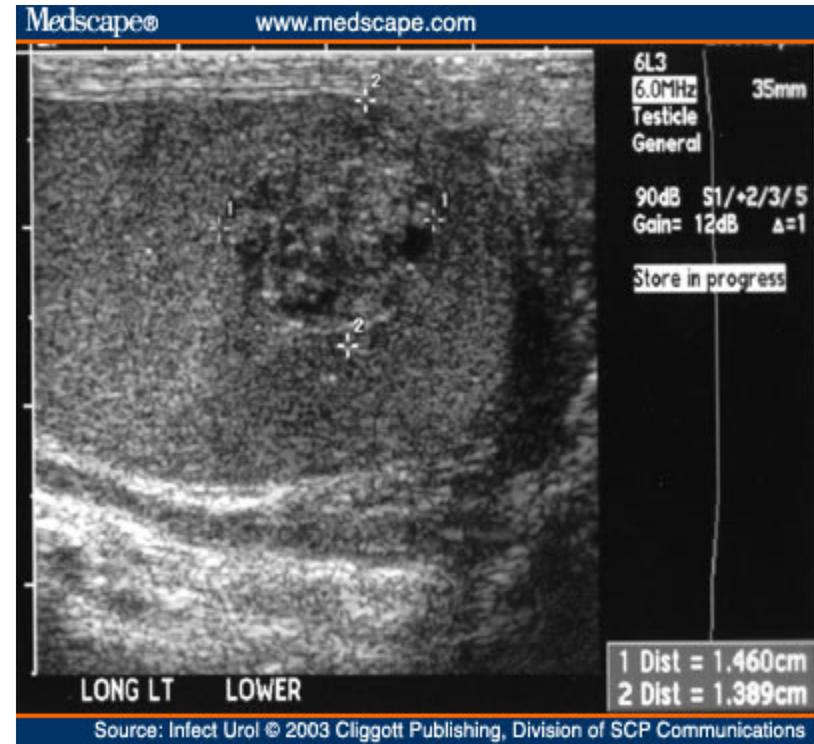
- Presents as a SOL
- hypo echoic area



ROLE OF BIOPSY

Ultra Scan

benign SOL inTESTIS is rare

- should be regarded as Malignant unless otherwise proved
- Metastatic work up to be started without BIOPSY

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ROLE OF BIOPSY

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Tran scrotal biopsy is absolutely contradicted

LYMPHATIC ANATOMY OF TESTES &SCROTUM

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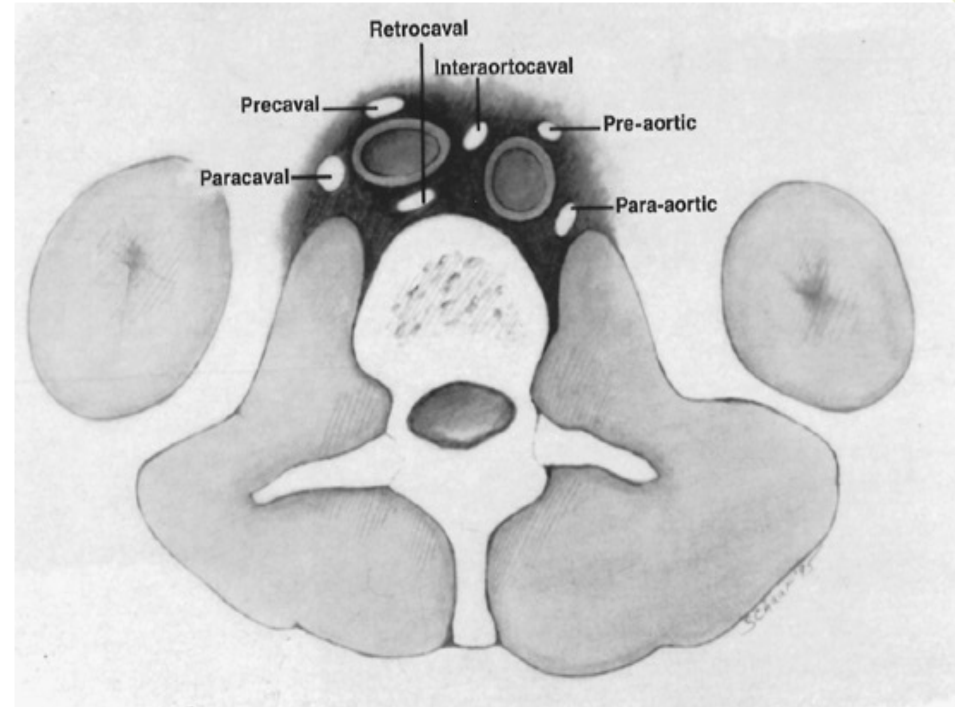
- Testis
  - Interaortocaval
  - Paracaval,preaortic

- Scrotum
  - Inguinal
  - pelvic



METASATATIC WORKUP – NODAL ASSESSMENT

METASATATIC WORKUP – NODAL ASSESSMENT

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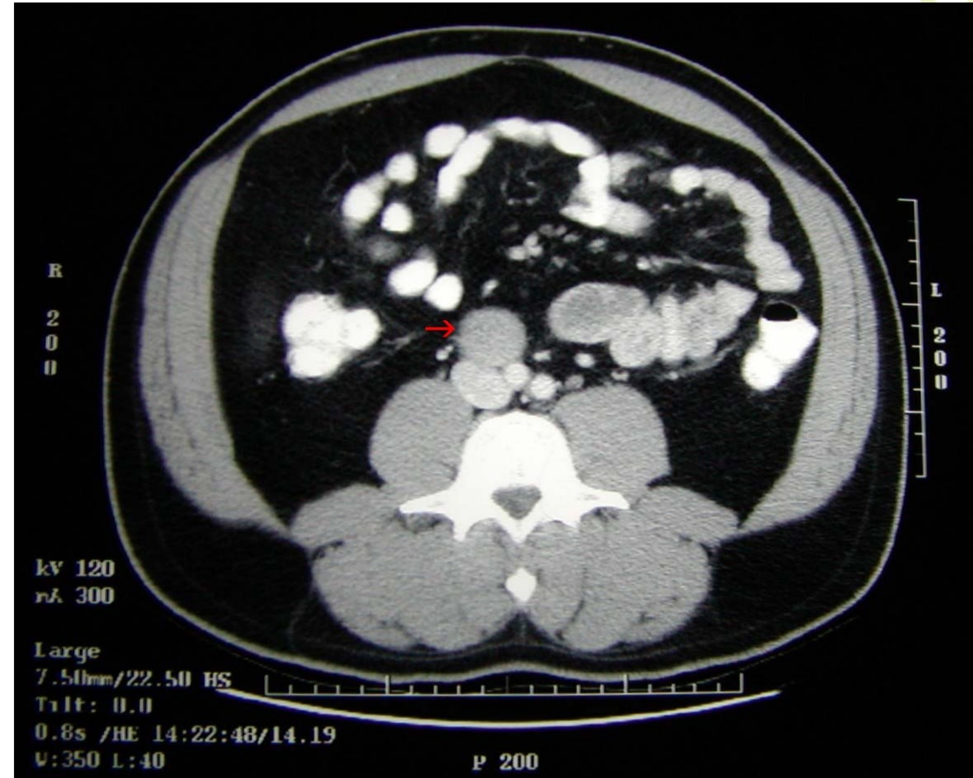
- **CT ABDOMEN**

- Retroperitonel node
- Identify nodes more than 5mm



METASTATIC WORKUP - DISTAL METASTASIS

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METASTATIC WORKUP - DISTAL METASTASIS

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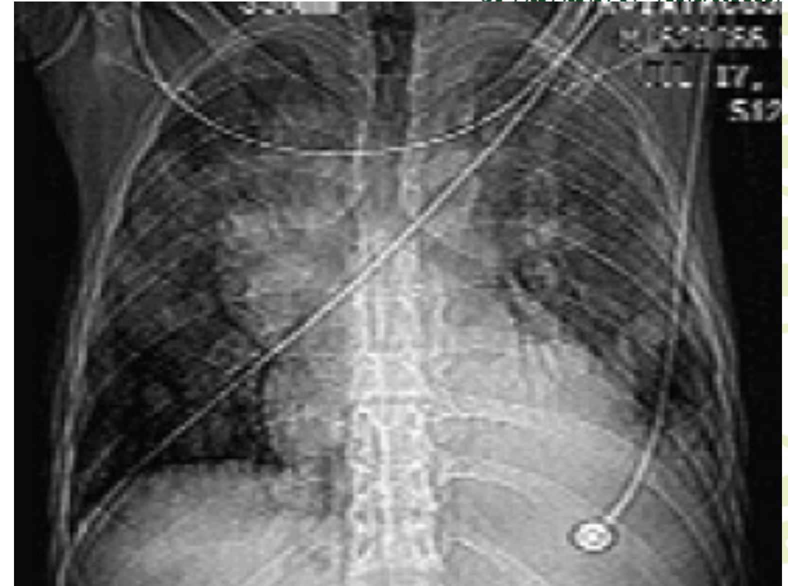
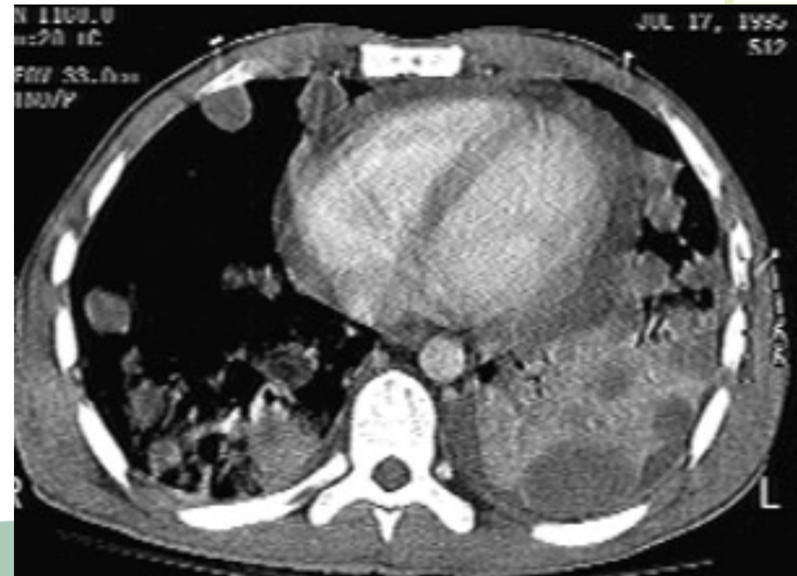
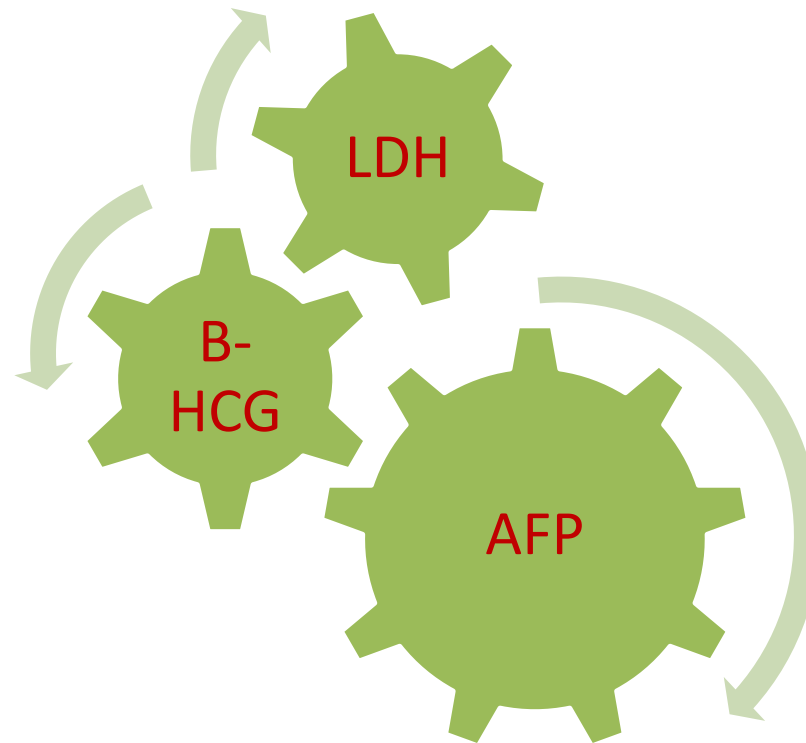
- **X-ray chest**
- **CT Chest**

  Symptomatic individuals
- **Bone Scans**

  Symptomatic individuals

TUMOR MARKERS



TUMOR MARKERS

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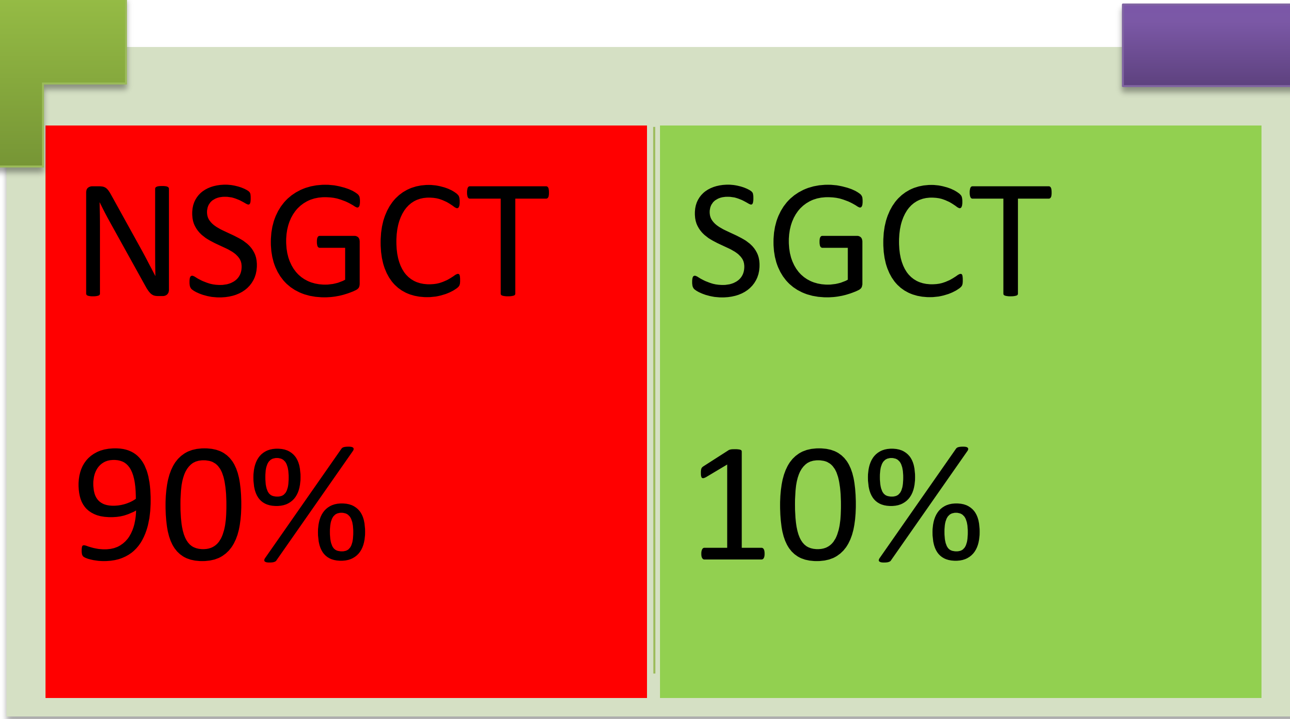

APPLICATIONS - TUMOR MARKERS

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NSGCT

- AFP elevated in 50-70% cases
- hCG elevated in 40 60% cases
- Taken together 90% will have elevation of markers

SGCT

- In seminoma 5-10 % cases will have elevation of hCG .
- AFP Never elevated

Tumour markers

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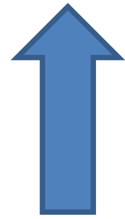
	NSGCT	SGCT
• AFP	↑	N
• βHCG	↑	↑
• LDH	↑	↑



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SEMINOMA TO BE RULED OUT

SINGAPORE

SURGICAL PROCEDURE

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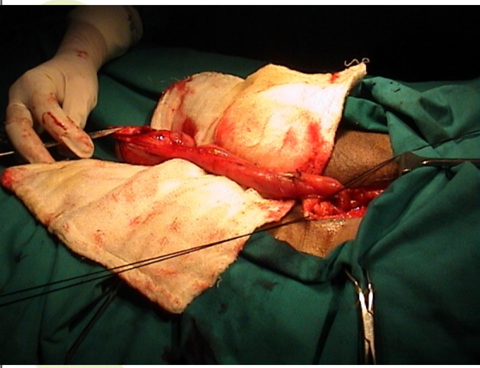
RADICAL ORCHIDECTOMY

IS STANDARD MINIMUM SURGICAL PROCEDURE FOR

DIAGNOSIS
STAGING
TREATMENT



TRICK OF SURGERY

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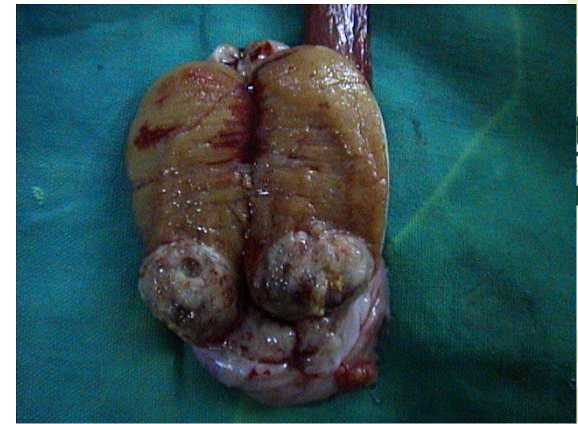
- Inguinal incision
- Early high ligation of spermatic cord at the level of deep ring
- Vas & vessels separately clamped & ligated
- Respective stumps to be pushed into the retroperitoneum
- Testes & Spermatic cord removed en bloc

CHAVASSEU'S MANOEVRE
CHOICE FOR SUSPECTED CASES



- Inguinal incision
- Noncrushing clamp applied to the cord structures at the level of deep ing.ring
- Bivalve the Testes to inspect the interior
- Appropriate biopsy/ frozen section with minimal handling

Dwaraga, Gujarat

STAGING

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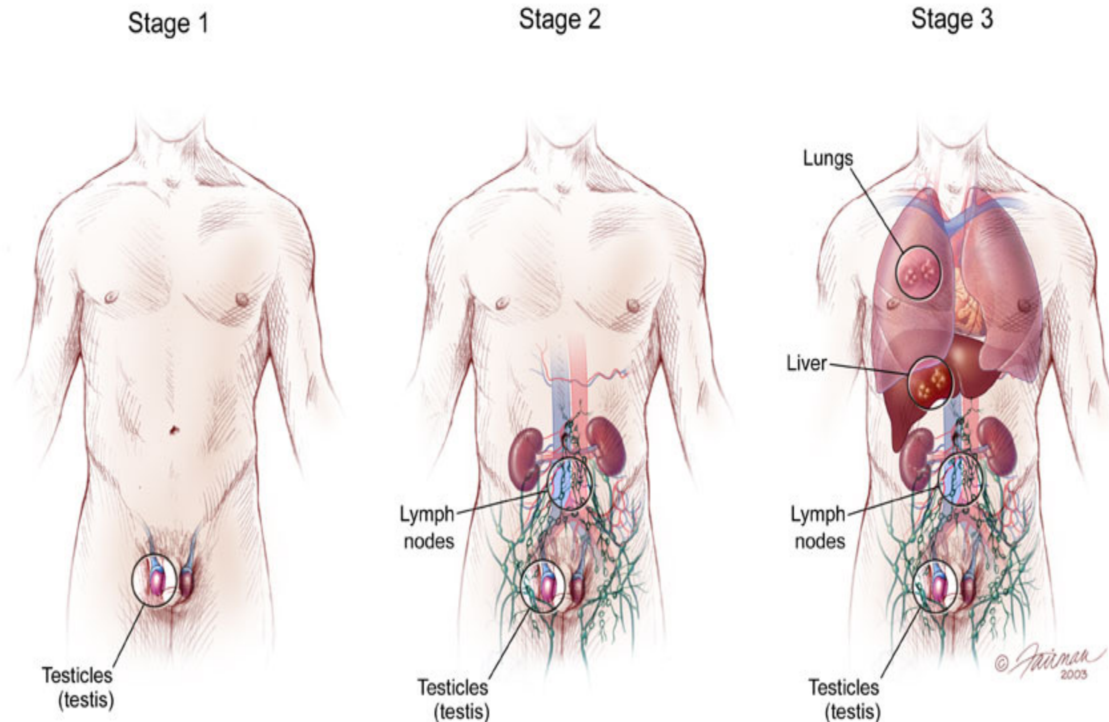
CLINICAL STAGING

- Stage I - confined to testis
- Stage II - Clinical or radiological evidence of spread beyond testis but with in regional L.N.
  - B_1 -<2cm
  - B_2 -2-5cm
  - B_3 - >5cm
- Stage III – Disseminated above diaphragm / visceral disease



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STAGING ALWAYS POST SURGICAL

STAGING

- T- Primary tumor
  - pTx-primary tumor can not be assessed(no surgery done)
  - pTo – no evidence of primary tumor
  - pTis -Carcinoma in situ

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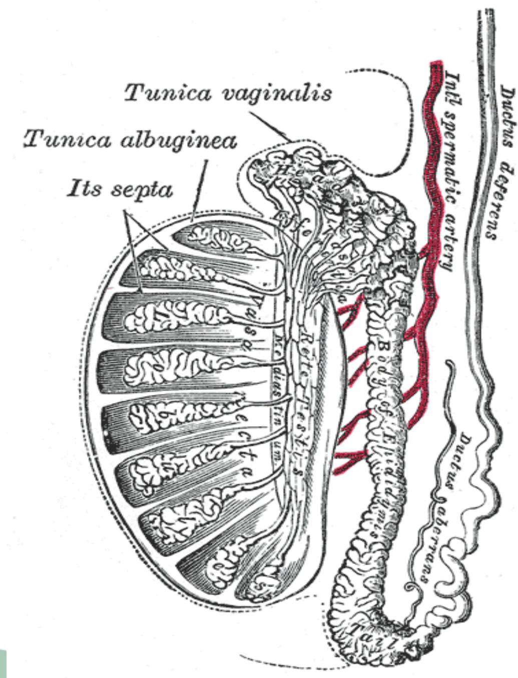
- pT1 –limited to testis,epididymis,
  no vascular or lymphatic invasion,
  Tunica albugenia involved but not T.vaginalis

- pT2- limited to testis and epididymis
  with vascular and lymphatic invasion
  involvement of T. Vaginalis

- pT3 – invasion spermatic cord

- pT4 – invasion of scrotum



REGIONAL NODES

Nx – Regional nodes can not be assessed

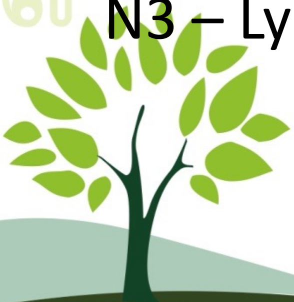
No – No nodal metastasis

N1 – metastasis with lymph node mass 2cm or less in greatest
. dimension or

multiple nodes none more than 2cm

N2 – lymph node mass more than 2cm but not more than 5cm or
. multiple nodes none more than 5 cm

N3 – Lymph node mass more than 5cm in greatest dimension



DISTANT METASTASIS

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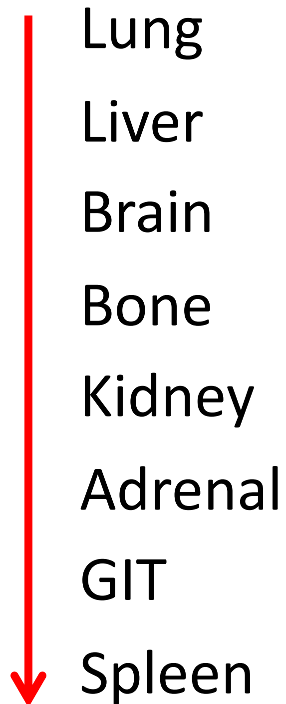
- Mx - Distant mets. can not be assessed
- Mo - No distant mets.
- M1a

  Non regional lymph nodes or lung mets.
- M1b

  other sites

- Blood - Distant metastases in decreasing order



Lung

Liver

Brain

Bone

Kidney

Adrenal

GIT

Spleen

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SERUM TUMOR MARKERS

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- Classification based on value of hCG and AFP after orchidectomy
- Sx – not available or not done
- S0 – within normal limits

	LDH		hCG (mIU/ml)		AFP (ng/ml))
S1	1.5xN	and	<5000	and	<1000
S2	1.5-10 xN	or	5000-50000	or	1000-10000
S3	>10 X N	or	>50000	or	>10000

STAGE GROUPING

Stage 0	pTis	N0	M0	S0 Sx
Stage I	pT1-4	N0	M0	S0
Stage I S	Any pT	N0	M0	S1
II A	Any pT/Tx	N1	M0	S0 or S1
II B	Any pT/Tx	N2	M0	S0 or S1
II C	Any pT/Tx	N3	M0	S0 or S1
III A	Any pT/Tx	Any N	M1a	S0 or S1
III B	Any pT/Tx	Any N	M0	S 2
	Any pT/Tx	Any N	M1a	S2
III C	Any pT/Tx	Any N	M0	S3
	Any pT/Tx	Any N	M1 b	Any S

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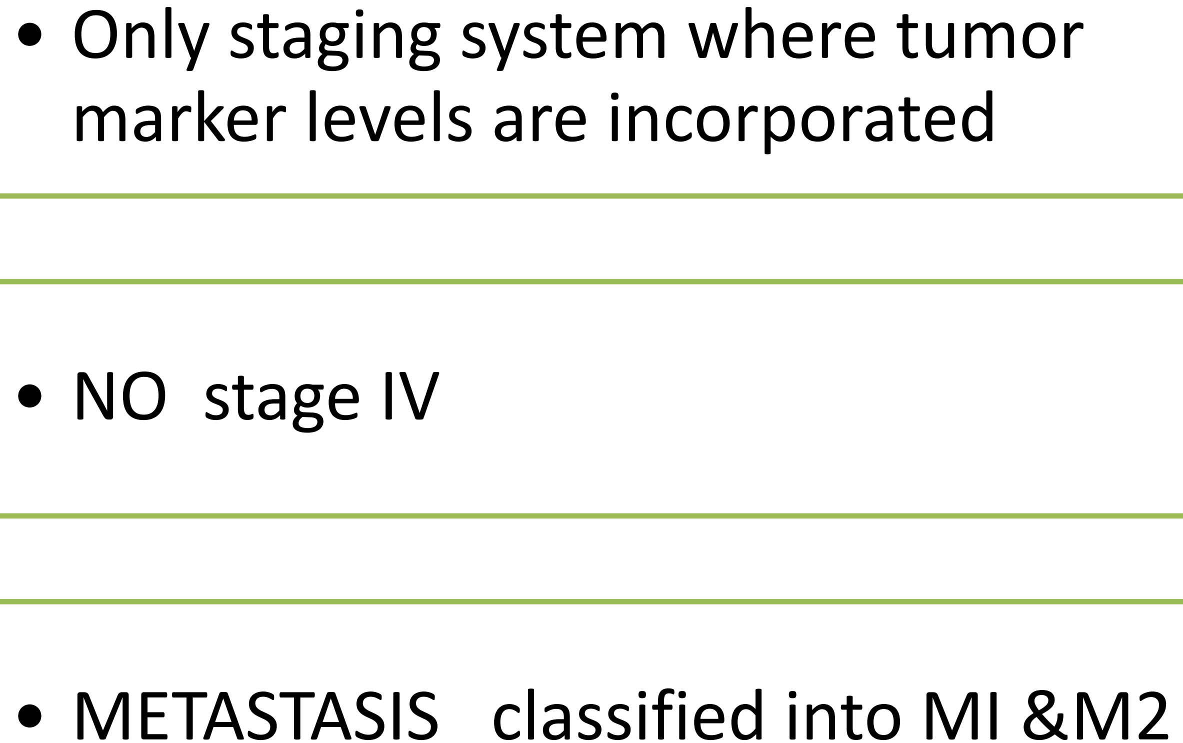
STAGING



Mount Alps, Switcharland

ONCO PRINCIPLE

STAGING

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Stage I

Stage II A B C

Stage III M1. M2

MANAGEMENT STAGING

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Stage I

Stage II A B

Stage II C

Stage III M1. M2

MANAGEMENT STAGING

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Management of clinical stage 1

Management of low tumour burden - clinical stage 2 a & b

Management of high tumour burden - clinical stage 2 c & 3

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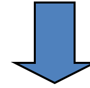
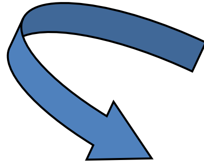
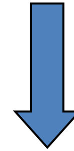
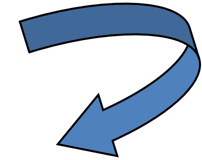
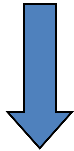
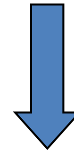
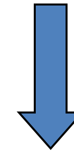
SGCT



High Orchidectomy

Stage I	Stage IIA & IIB	Stage IIC & III

Stage I	Stage IIA & IIB	Stage IIC & III
1. Adjuvant RT 2500 to 3000Gy 2. Observation	Adjuvant RT 2500 to 3000Gy	Adjuvant Chemo

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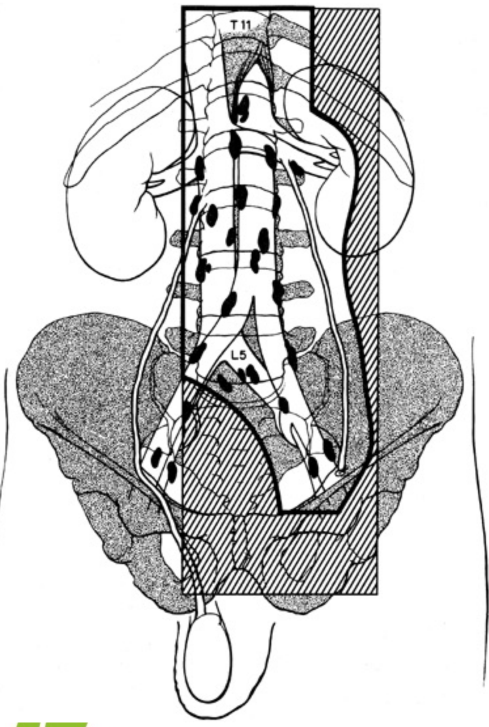
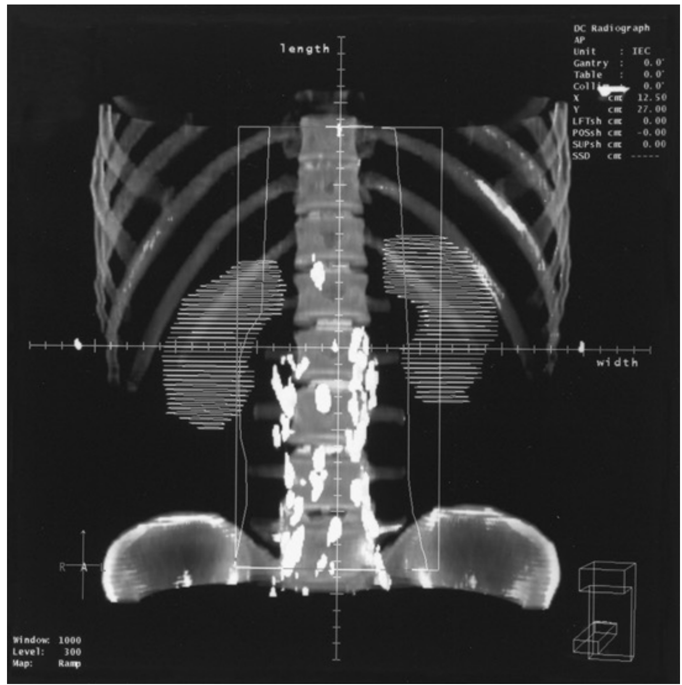
ADJUVANT RT





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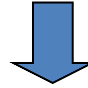
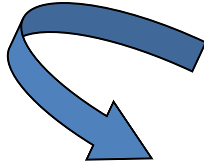
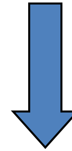
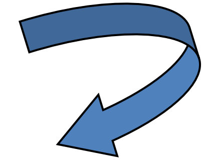
NSGCT



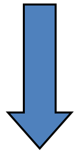
High Orchidectomy

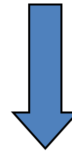


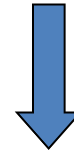




Stage I	Stage IIA & IIB	Stage IIC & III







Stage I	Stage IIA & IIB	Stage IIC & III
Observation RPLND Chemotherapy	RPLND + / - Adj. Chemotherapy	Adjuvant Chemo

MANAGEMENT OF NSGCT-STAGE 1

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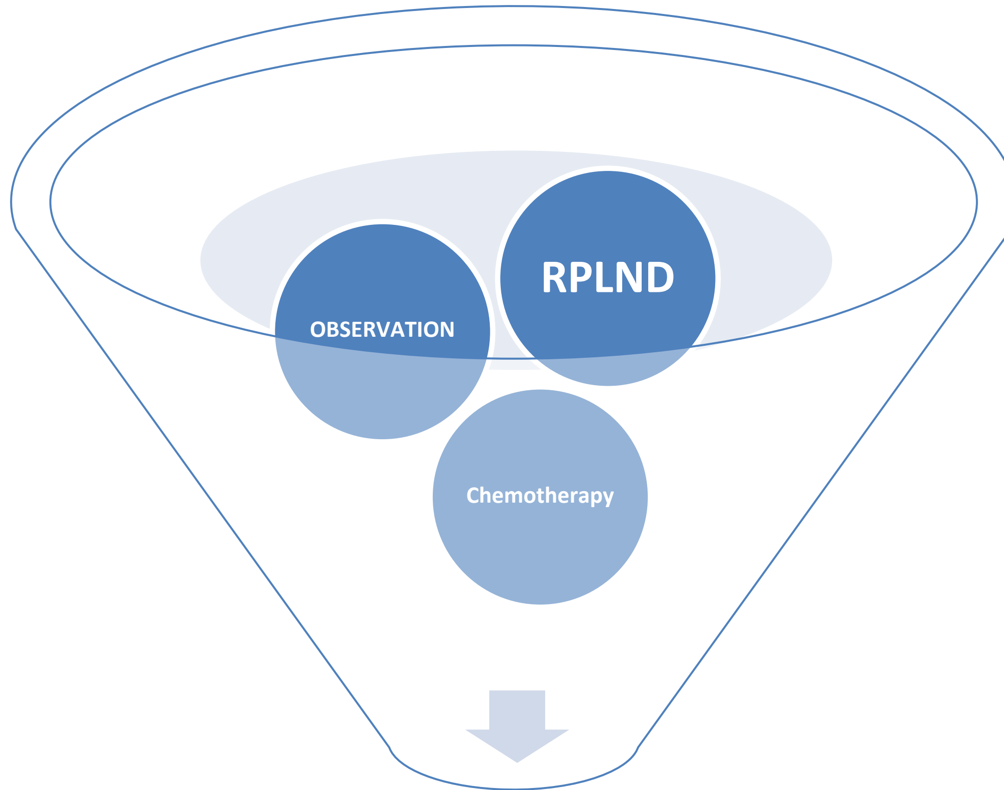

MANAGEMENT OF NSGCT-STAGE 1

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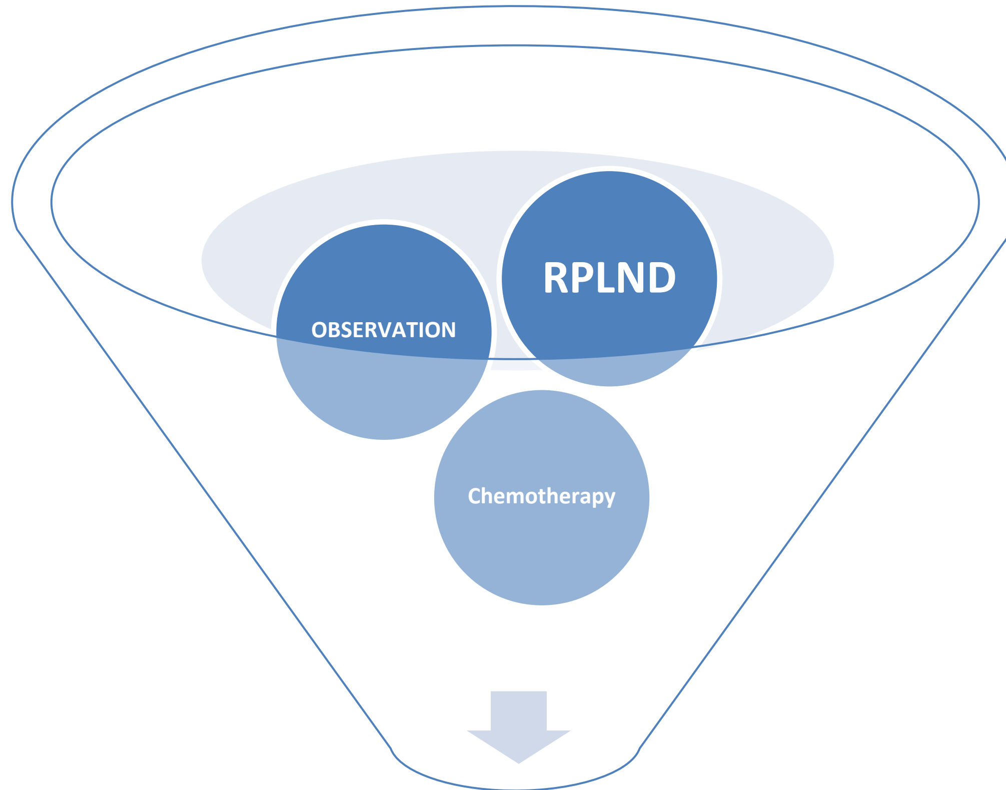

- **FACTORS DECIDING THE TREATMENT**
- histologic features
- tumor marker

NSGCT-STAGE1

Chemotherapy following radical orchiectomy

- Persistently elevated serum tumor markers AFP/beta-HCG/both after orchiectomy

NSGCT-STAGE1

observation following radical orchiectomy

- Clinical stage1-NSGCT with a T1 tumor
- Serum tumor markers-normal

NSGCT-STAGE1

RPLND following radical orchiectomy

- Clinical stage1-NSGCT with a T2 – T4 tumor
- Serum tumor markers-normal

NSGCT-STAGE1

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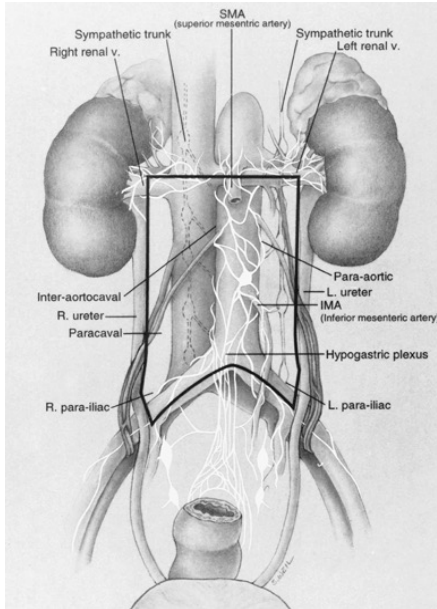
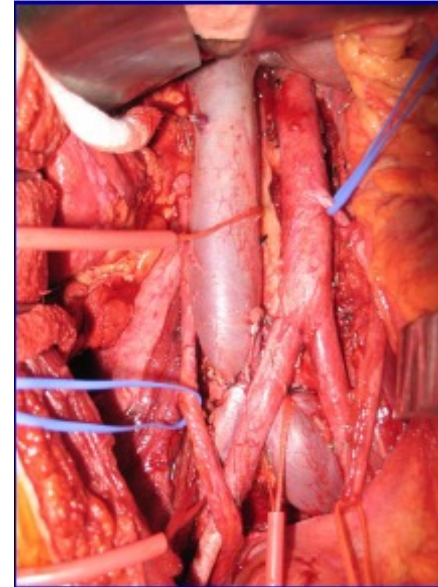
RPLND





NSGCT-STAGE1

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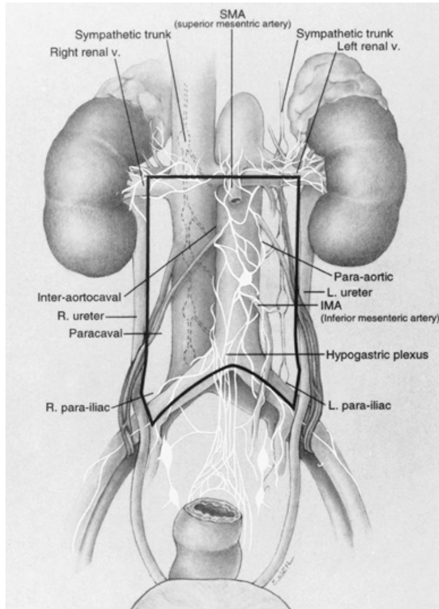
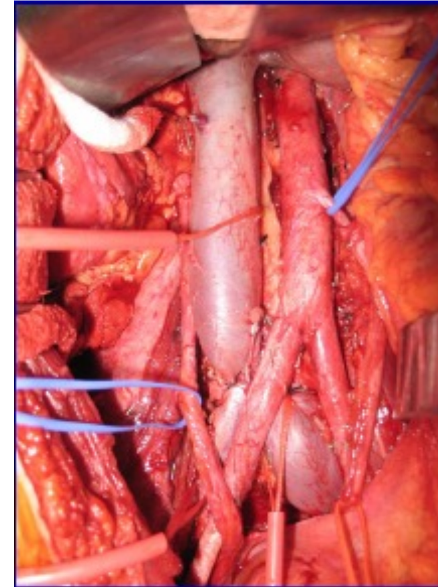
RPLND





INJURY TO

hypogastric plexus - sympathetic fibres responsible for ejaculation

SOLUTION

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RPLND
WITH TEMPLATS

NERVE AVOIDING RPLND TEMPLATES

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- Designed to avoid hypogastric plexus and contralateral sympathetic fibres responsible for ejaculation
- Preservation of ejaculation in 50 to 80%

MODIFIED NERVE AVOIDING TEMPLATE FOR RIGHT TESTICULAR TUMOR

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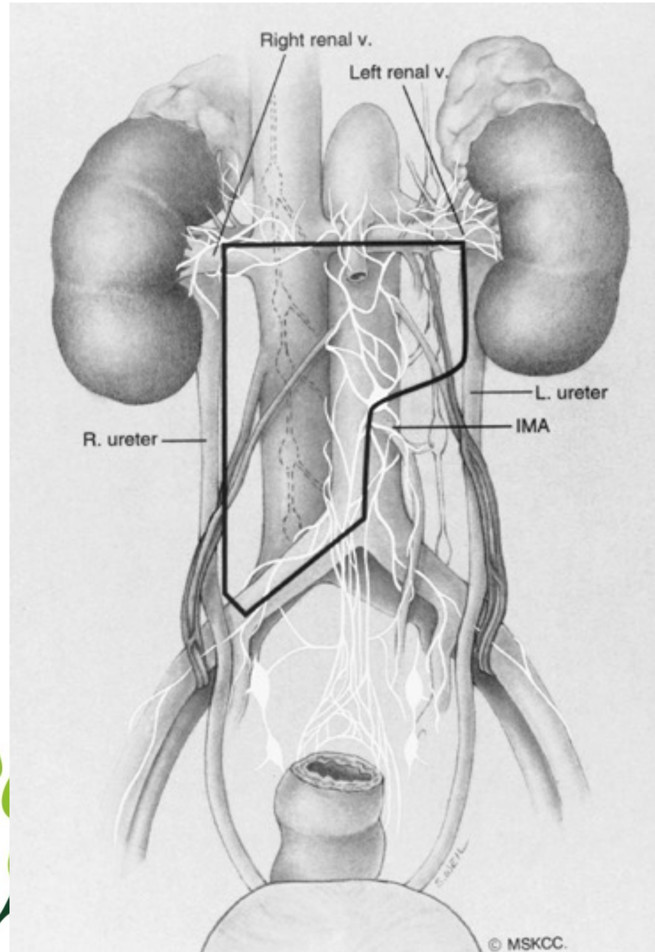

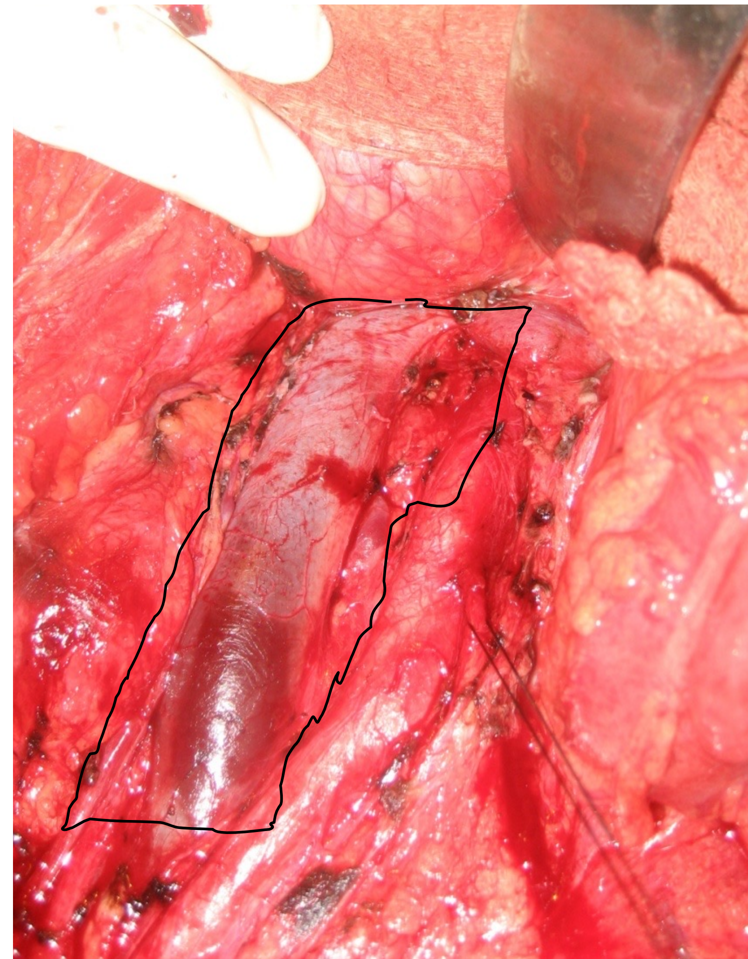

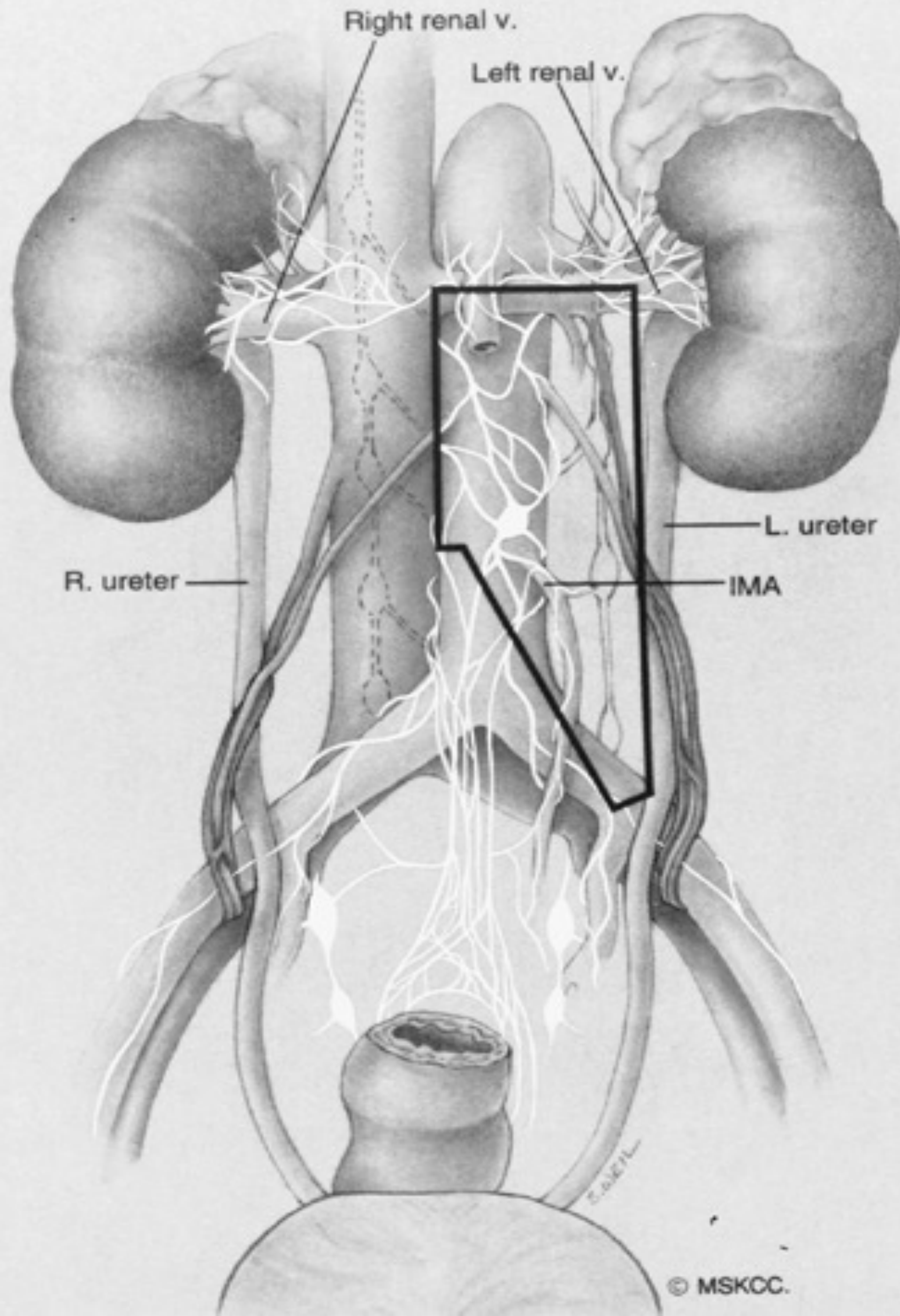

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MODIFIED NERVE AVOIDING TEMPLATE FOR LEFT TESTICULAR TUMOR

MANAGEMENT OF NSGCT

STAGE

I. VS. 2A & 2B

STANDRED RPLND IN STAGE II NO TEMPLATS

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MANAGEMENT OF NSGCT STAGE 2A & 2B

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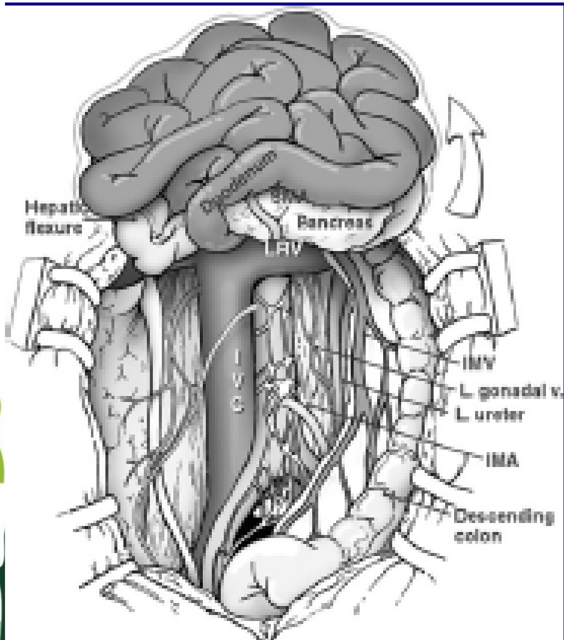
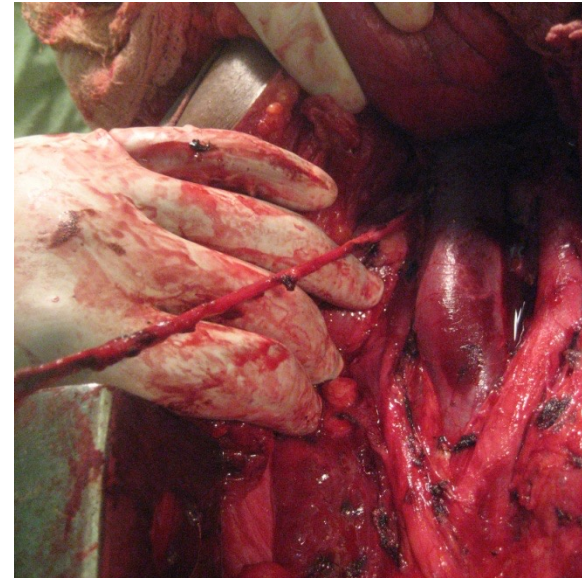
- RPLND - standard treatment

- Margins of resection should not be compromised to maintain ejaculatory function





MANAGEMENT OF NSGCT STAGE 2C & 3

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CHEMOTHERAPY

CHEMOTHERAPY
HIGH TUMOR BURDEN DISEASE

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Previously untreated

- Good risk - EP 4 cycles OR BEP 3 cycles
- Poor&intermediate risk - BEP 4 cycles

AS A METASTASIS

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GOOD RISK :

AFP < 1000 ng/ml

HCG < 5000 mIu/ml

LDH < 1.5 X upper limit of normal

pulmonary metastases

INTERMEDIATE RISK :

AFP 1000 – 10,000 ng/ml

HCG 5000 – 50,000 mIu/ml

LDH 1.5- 10 times upper limit of normal

pulmonary metastases

POOR RISK :

AFP > 10,000 ng/ml

HCG > 50,000 mIu/ml

LDH > 10 X upper limit of normal

Nonpulmonary metastases

AS A METASTASIS

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GOOD RISK :

S1

pulmonary metastases

INTERMEDIATE RISK :

S2

pulmonary metastases

POOR RISK :

S3

Nonpulmonary metastases

CHEMOTHERAPY REGIMENS

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Etoposide 100 mg/sq.m i.v daily for 5 days

Cisplatin 20 mg/sq.m i.v daily for 5 days

Bleomycin 30 u/sq.m weekly on days 2,9 &16

Administered at 21 day intervals

Geneva

SCROTAL VIOLATION

WHAT IS SCROTAL VIOLATION ?

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ACCIDENT

- Trans scrotal incision
- Low Orchidectomy

In testicular tumour

leads to tumor spillage in a field

CONSEQUENCES OF SCROTAL VIOLATION

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TRANS SCROTAL INCISION

- Alters the lymphatic pathway-

  leads to involvement of the inguinal & pelvic nodes at earlier stage - T1,T2&T3

- Tumor spillage & local dissemination

CONSEQUENCES OF SCROTAL VIOLATION

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Low orchidectomy

Resected margin may be

positive in T3 lesion

Persistence of spermatic cord

leads to

compromised RPLND

Increased rate of

local recurrence

LOCAL RECURRENCE RATE IN TESTICULAR TUMOR

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- Scrotal violation
  increases local recurrence rate

- Radical inguinal orchidectomy 0.4%

- Trans scrotal orchidectomy
  - 6 (2.9%) times more-Capelouto et al
  - 20 (7.7%) times more Donohue et al

SCROTAL VIOLATION

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WHAT SHOULD DO

MANAGEMENT OF SCROTAL VIOLATION

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- Hemiscrotectomy & Excision of the spermatic remnants done in all cases
- In Seminoma add RT to hemiscrotum & groin

LOCAL RECURRENCE RATE AFTER ADEQUATE ADDITIONAL TREATMENT

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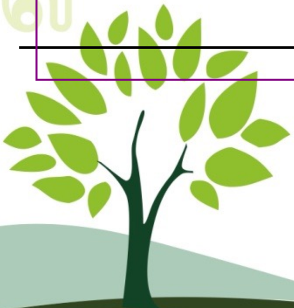
After Scrotal violation additional Treatment minimizes the local recurrence rate as equal as high Orchidectomy

Radical inguinal orchidectomy	0.4%
Scrotal violation with additional Treatment	0.6%

Rome

PROGNOSIS

	Seminoma	Nonseminoma
Stage I	99%	95% to 99%
Stage II	90%	70% to 92%
Stage III	80% to 85%	70% to 80%



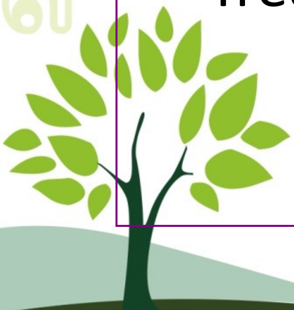
- Improved Overall Survival of Testicular Tumour due to

  Better Understanding of the Disease,

  Tumour Markers and

  Cis-platinum based Chemotherapy

- Current Emphasis is on overall Morbidity of Various Treatment Modalities



THANK YOU

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