

TESTICULAR TUMOR

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INTRODUCTION

- Rare cancer
- Affects less than 1% of population
- Young males
- A curable cancer

Blood Supply

Arterial supply

- Testicular artery- Abdominal aorta
- Collateral supply- Cremastric artery, artery to ductus deferens

Venous drainage:

- Pampiniform plexus
- Rt side → IVC
- Lt side → Left renal vein

Lymphatic Drainage

- Drain into the retroperitoneal lymph glands- T11 and L4 Vertebral region

Grouped into:

- Paracaval or precaval nodes
- Interaortocaval nodes
- Preaortic or para- aortic nodes

Lymphatic Drainage (Cont)

- Right- Interaortocaval, paracaval, preaortic, para-aortic
- Left- Preaortic, para-aortic, interaortocaval
- Metastasis to common iliac, external iliac and inguinal- retrograde spread in large volume disease
- Inguinal nodes- prior history of herniorraphy, vasectomy, transscrotal surgeries

EPEDIMIOLOGY

- Constitutes about 1% of all malignancies in males in India.
- Incidence – 0.6 per 100000
- Mortality – 0.3 per 100000
- 95% are Germ Cell Tumours (GCTs)
- 90% GCT are in testes, 2-10% in extra gonadal (eg retroperitoneum, mediastinal)

Pre-Disposing Factors

- Cryptorchidism
- Klinefelter syndrome
- Positive family history (Xq27 locus)
- History of testicular neoplasia
- Intratubular germ cell neoplasia
- Viral infection
- Hormonal factors
- Exposure to environmental oestrogen

Pathological Classification

- Intra tubular germ-cell neoplasia(IGCN)
- Germ Cell (90-95%)
 - Seminoma (Classic, anaplastic, Spermatocytic)_
 - Non seminomatous (Embryonal carcinoma, Teratoma, Yolk sac, Choriocarcinoma, Mixed germ-cell)
- Sex-Cord Stromal (Leydig, Sertoli, Granulosa, Fibroma-thecoma, stromal, Gonadoblastoma, Sex cord-stromal)
- Lymphoma, rabdomyosarcoma, melanoma

Clinical Features

Primary tumor:

- Painless testicular lump
- Sensation of heaviness
- Dragging pain
- Mimic epididymo-orchitis
- Sudden pain and enlargement due to hemorrhage mimicking torsion
- History of trauma (co-incidental)

Clinical Features

Metastatic disease:

- Abdominal or back pain
- Dyspnea, hemoptysis, chest pain
- Jaundice
- Pedal edema

Clinical Examination

- Enlarged testis (except choriocarcinoma)
- Nodular testis
- Firm to hard in consistency
- Loss of testicular sensation
- Secondary hydrocele
- General examination for metastasis

Tumor Markers

- Onco-fetal Substances :
 - AFP - Trophoblastic Cells
 - Beta HCG - Syncytiotrophoblastic
- LDH
- Inhibin

Clinical significance

- Diagnostic evaluation in primary disease
- Tumor burden- Persistent elevation after orchiectomy suggests a metastatic disease rather than retroperitoneum
- Monitoring therapeutic response: failure to decline proportional to half life indicate an incomplete response
- Prognostic value

Staging Workup

- Complete blood count
- Liver function test
- Renal function test
- Tumor markers
- CT Scan- Chest, abdomen, Pelvis

Staging (TNM)

- Tx: cannot be assessed
- To: no evidence of primary tumor
- Tis: intratubular cancer
- T1: limited to testis & epididymis, no vascular invasion
- T2: limited to testis & epididymis, vascular/lymphatic invasion, tunica vaginalis involvement
- T3: Spermatic cord
- T4: Scrotum

Staging (Cont.)

Regional lymph nodes:

- Nx; Regional lymph nodes cannot be assessed
- No: size < 2cm
- N2: size >2cm but <5cm
- N3: size >5cm

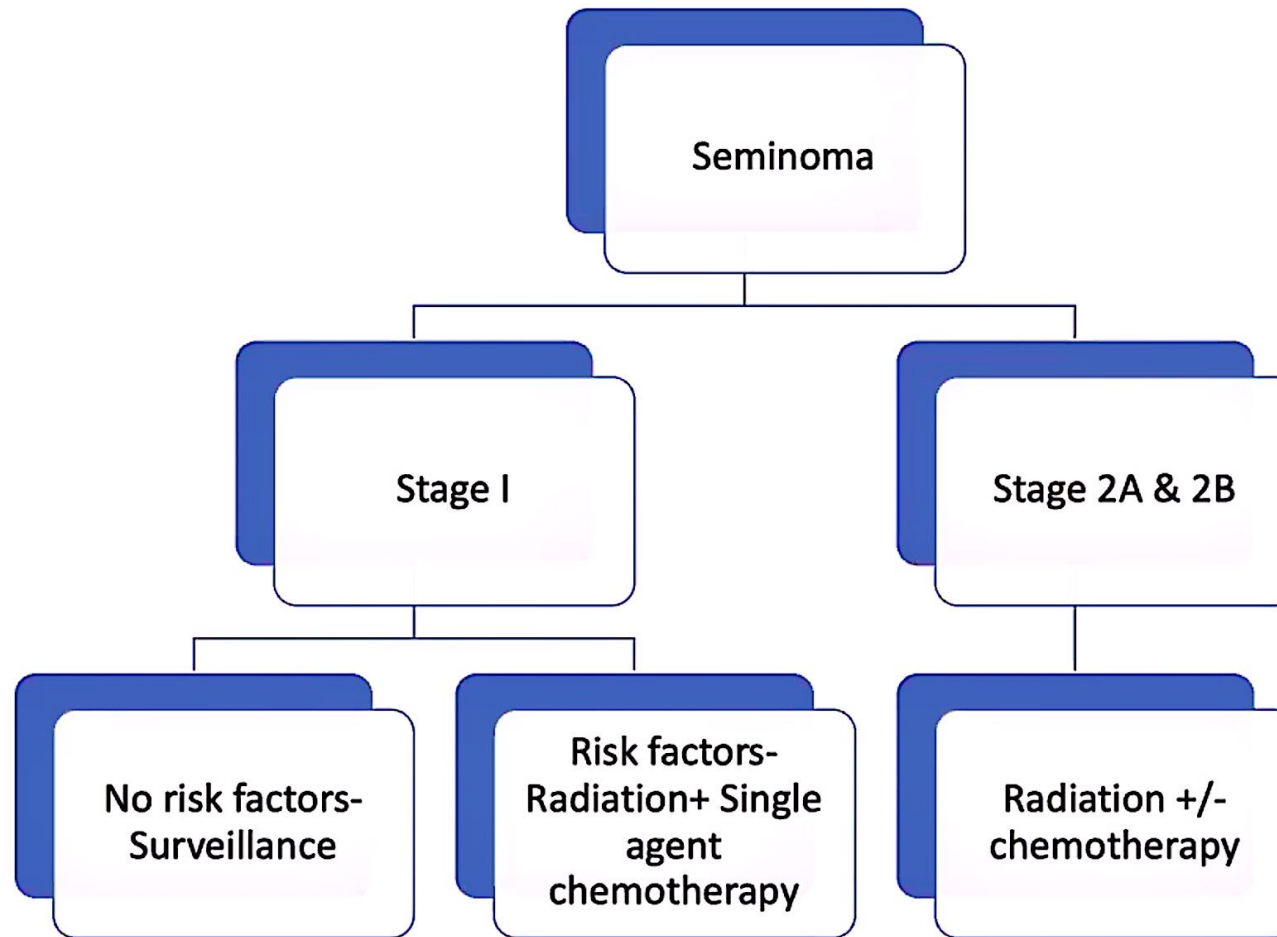
Distant metastasis:

- Mo: no evidence of distant mets
- M1: non regional nodal or pulmonary mets
- M2: non pulmonary visceral mets

Surgery- Radical Orchiectomy

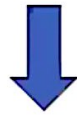
- Inguinal incision
- Cross clamping of spermatic cord vasculature
- Delivery of testis into the surgical field.
- Scrotal violation- increased local/regional recurrence, but no difference in distant recurrence rate or overall survival.

Treatment- Seminoma (Low stage)

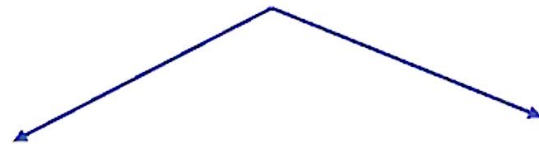


Treatment of Advanced Seminoma

Cisplatin based chemotherapy



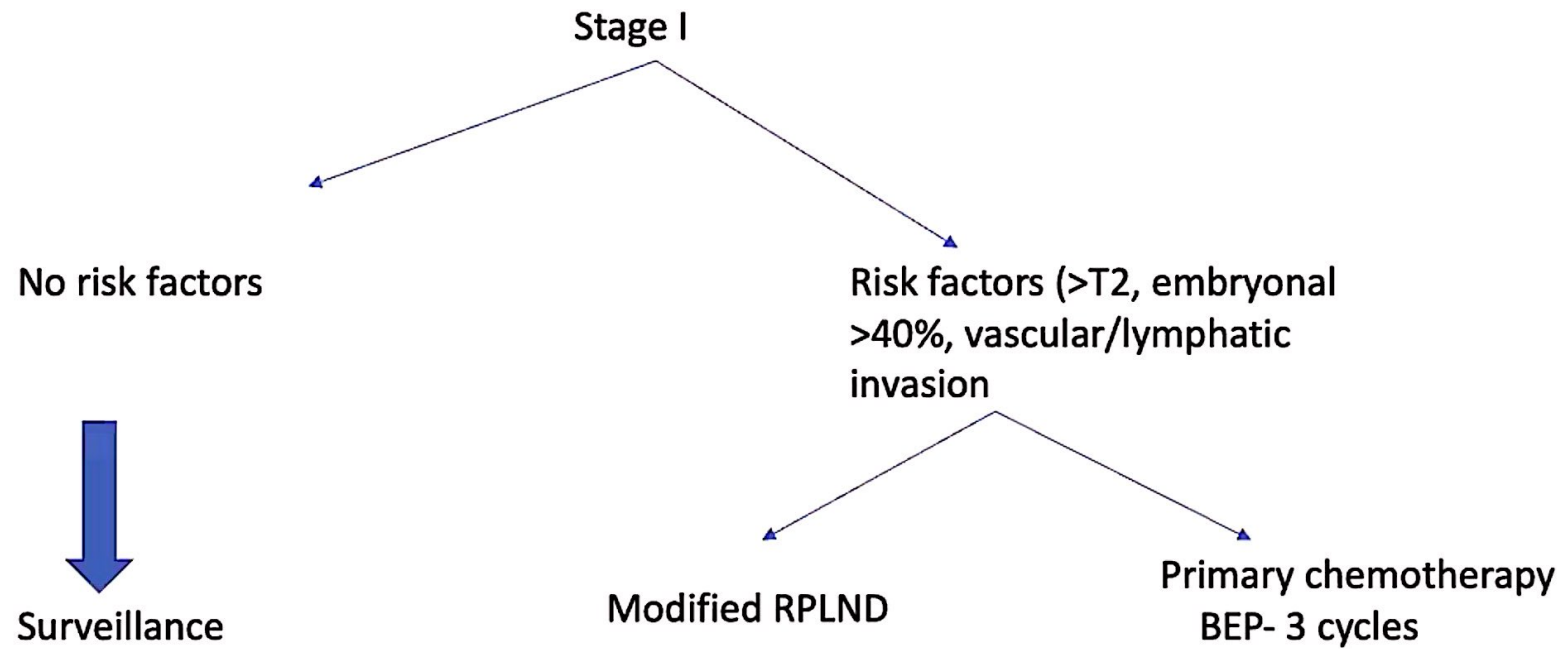
Residual retroperitoneal mass on CT scan



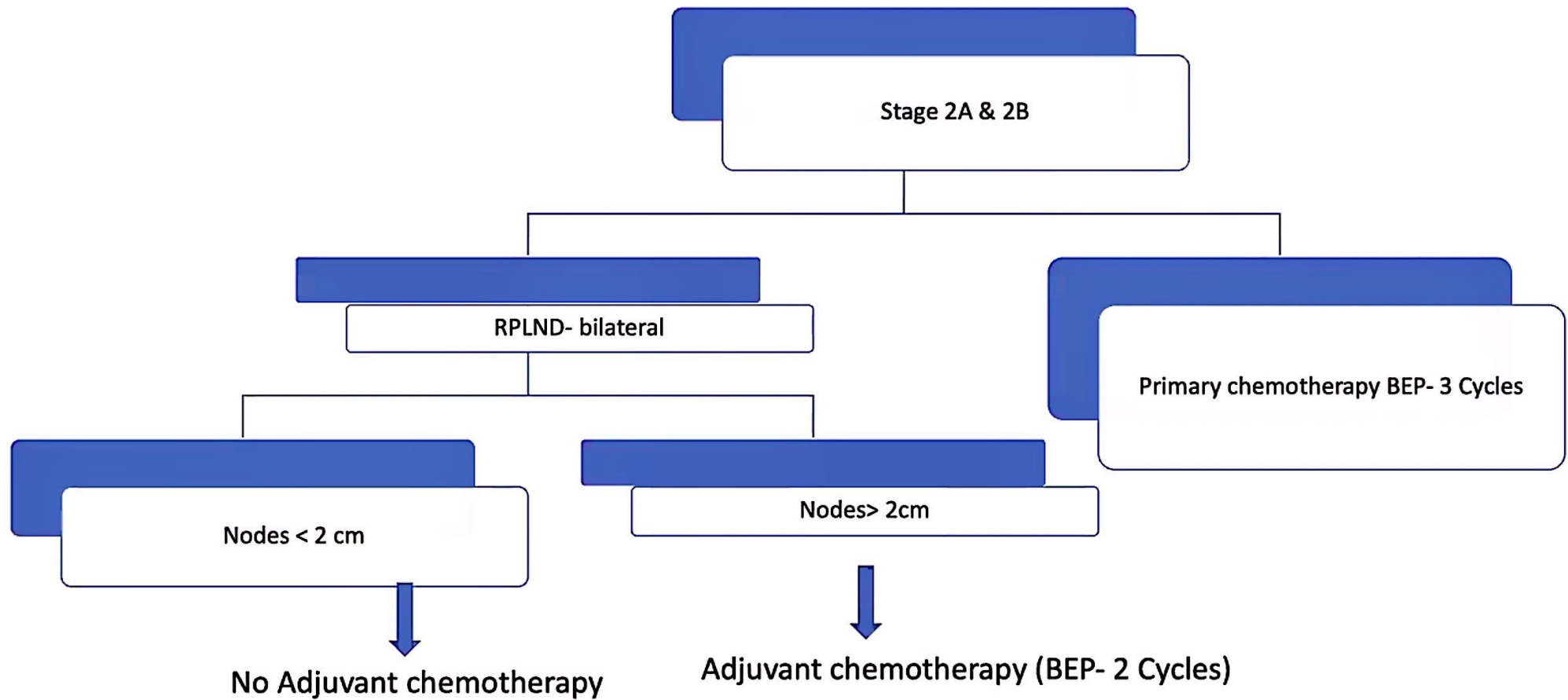
Diffuse desmoplastic reaction-
Observation

Well demarcated mass > 3cm-
Surgical resection

Treatment of stage 1 NSGCT



Treatment of stage 2A & 2B NSGCT



Boundaries of RPLND

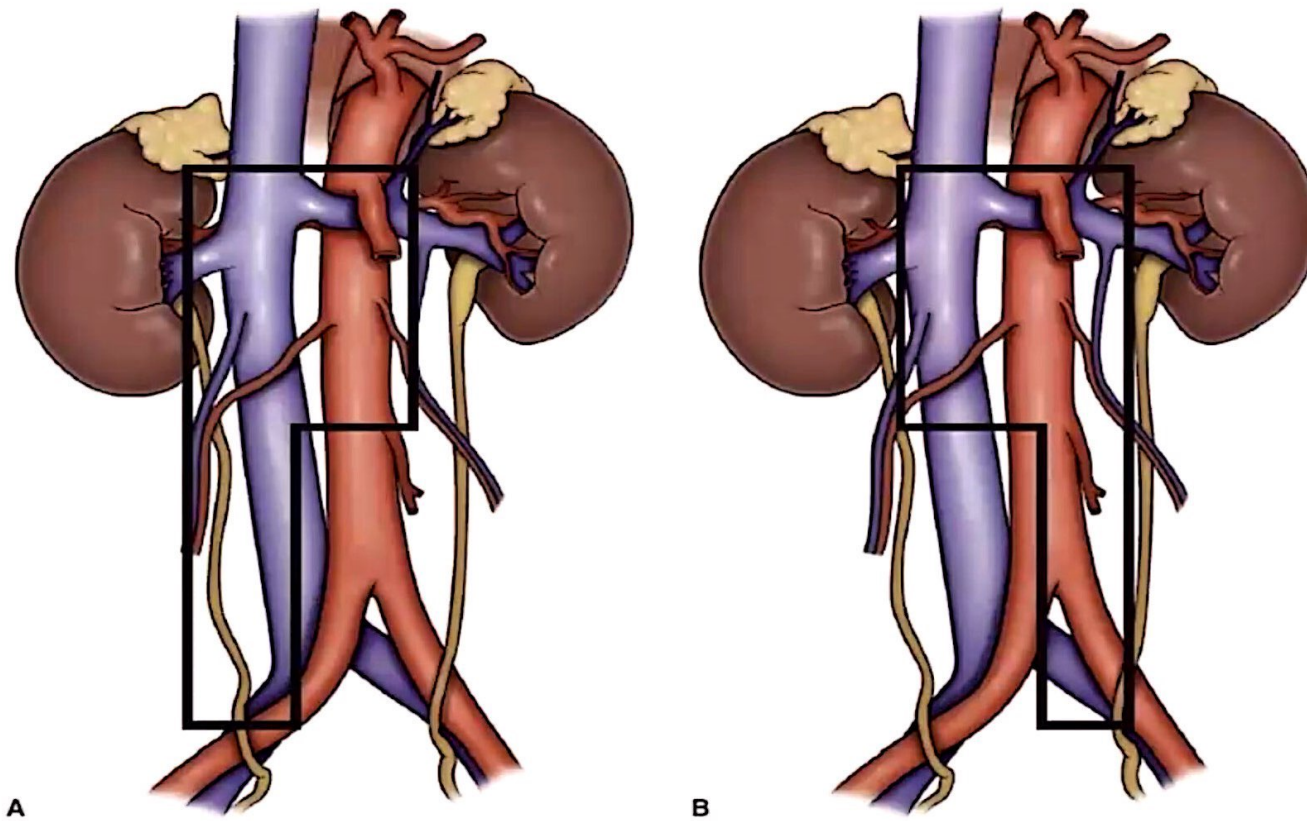


Figure 33-4. Suggested templates for right (A) and left (B) therapeutic laparoscopic retroperitoneal lymph node dissection. These templates can be expanded or contracted based on each patient's tumor.

RPLND- Complications

- Chylous ascites
- Vascular
- Pulmonary- Atelectasis, pneumonia, ARDS
- Gastrointestinal- ileus, pancreatitis
- Erectile and ejaculatory disturbances
- Wound infections

Seminomas Vs. NSGCTs

- Seminoma:
 - Localized to testis, 70%(Clinical stage I)
 - Early lymphatic spread, late hematogenous spread
 - Extremely Radiosensitive
- NSGCT:
 - 60% (advanced stage II and III)
 - Early metastasis, hematogenous route
 - Relatively radioresistant, poor prognosis

Prognosis

- SGCT

Stage 1- 98%

Stage 2 (non- bulky)- 92-94%

Stage 2 (Bulky) and 3- 35-75%

- NSGCT

Stage 1- 96-100%

Stage 2 (non- bulky)- 90%

Stage 2 (Bulky) and 3- 55-80%

THANK YOU