Testicular and Penile Cancer Datasets

Eva Compérat
Hôpital Tenon
Université Pierre et Marie Curie
UPMC Paris VI
France
Testicular Cancer

**Testis**
Dan Berney
Muhammad Idrees
Satish Tickoo
Asli Yilmaz
Hema Samaratunga
Darren Feldman
Rob Hamilton
Eva Compérat
Testis

• Two choices “Recommended “and “required”

• Clinical information (recommended)
  • Provide information with impact on diagnosis
  • Affect interpretation
  • Relevant
    • Past medical history, risk factors, prior testicular tumours, ethnicity, cryptorchidism, orchidopexy, family history, clinical syndroms
    • History of injury, torsion or chemotherapy (ChT)

• Serum tumor markers (recommended)
  • ↑AFP- or βHCG levels need for addidional sections
  • Ideally required, difficult to obtain
Testis

- Operative procedure (required)
  - Radical or partial
  - Influences assessment of margins

- Tumor focality (required)
  - Coalescence?
  - Determination of maximum diameter
  - Different nodules $\rightarrow$ different tumour types
  - Multifocality linked to clinical syndroms
    - Peutz Jegher-, Carney syndrom
Testis

- **Bloc identification key (recommended)**
  - Internal/external review
  - Facilitates retrieval of blocs
    - Research, clinical trials, molecular analysis
    - Tumour sampling generous
      - Alter clinical management
      - Allow assessment of LVI, GCNIS

- **Must be sampled**
  - Cord resection margin and base +/- further cord
  - Tumour and rete, epididymis, hilum/cord
  - Uninvolved testis
  - Hemorrhagic, necrotic areas
International Collaboration on Cancer Reporting
Testis

- Maximum tumor dimension (required)
  - Prognostically significant
  - Seminoma ++
    - AJCC TNM 8\textsuperscript{th} edition
    - Seminoma
    - pT1a < 3cm pT1b > 3cm
    - 3cm predictor of relapse (HR 1.87)
  - NSGCT less evident
    - LVI more important

- Not 100% clear if S or NSGCT on gross
- If multifocal $\rightarrow$ longest diameter of largest focus
Testis

• Macroscopic extent of invasion (required)

• Tumor focality (required)
  • Different nodules → different tumour types
Difficult if coalescent

Courtesy Dr Camparo
Testis

- Histological type (required)
  - % in NSGCT predictive
    - % embryonal carcinoma (EC)
  - If predominantly EC → 1/3 M+
    - No EC no M+ p=0.05
  - Other tumor elements should also be given
  - Eyeball quantification enough
    - Intermingled elements (YS-EC)
      - Report scars

Dunphy Cancer 1988
Testis

• Microscopic extent of invasion (required)

  • Rete testis invasion predicts recurrence (x1.7) seminoma
  • Less clear for NSGCT
  • Rete testis invasion and tumor size interdependent
  • Mention type of invasion and tumor size
    – Adjuvant ChT, guidelines
  • Not part of the pTNM
  • Hilar soft tissue invasion (pT2 AJCC 8th edition)
  • Invasion of epididymis pT2
  • Direct invasion to cord (seminoma) prognosticator?
Testis

- **Lymphovascular invasion (required and recommended)**
  - ↑ Risk for M+, imppt for pT stage
    - LVI present or not identified
    - Equivocal → not identified
    - Mostly in the periphery
    - Seminoma → significant predict relapse
      - Smear artefacts, challenging
    - Sex cord tumours +++
Testis

• Intratubular lesions (required and recommended)
  – Germ cell neoplasia in situ (GCNIS)
  – Precursor for most invasive GCT
  – Presence/absence (helpful)

  – Pagetoid invasion of the rete → significance unknown
Testis

- **Margin status (required)**
  
  Partial orchidectomy margin +++
  Residual tumor?
  (FS can be useful, but experience needed)
  (Partial orchidectomy feasible if <2cm)
  State invasion of scrotal skin
  Vascular invasion in spermatic cord → no true margin

- **Coexisting pathology (recommended)**
  
  - “Burnt out”
  - Endocrine dysorders (Klinefeler, intersex conditions)
  - Report surrounding parenchyma (spermatogenesis)
    - Prepubertal teratoma, status of contralateral testis
Testis

• **Ancillary findings (recommended)**
  – IHC can be helpful
  – Isochromosome i(12p) additional

• **Response to neoadjuvant therapy (recommended)**
  – ChT prior to surgery
  – Use prefix “y” if staging tumor after treatment to report residual disease
Testis

• Pathology staging (required)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumour cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumour (e.g. histologic scar in testis)</td>
</tr>
<tr>
<td>Tis</td>
<td>Intratubular germ cell neoplasia (carcinoma <em>in situ</em>)</td>
</tr>
<tr>
<td>T1</td>
<td>Tumour limited to the testis and epididymis without vascular/lymphatic invasion;</td>
</tr>
<tr>
<td>T2</td>
<td>Epididymal invasion pT2</td>
</tr>
<tr>
<td></td>
<td>Hilar soft tissue invasion pT2</td>
</tr>
<tr>
<td></td>
<td>Discontinuous involvement of spermatic cord by LVI → M1</td>
</tr>
<tr>
<td>T3</td>
<td>Tumour invades the spermatic cord with or without vascular/lymphatic invasion</td>
</tr>
</tbody>
</table>
International Collaboration on Cancer Reporting

RPLND

Testis
Dan Berney
Muhammad Idrees
Satish Tickoo
Asli Yilmaz
Hema Samaratunga
Darren Feldman
Rob Hamilton
Eva Compérat
Retroperitoneal lymphadenectomies (RPLNDs)

- Clinical information (recommended)
  - Mostly for NSGCT but sex cord tumours also possible

- Pre-procedure tumor markers (recommended)
  - PostChT RPLND, markers
  - ↑AFP-, βHCG additional sections

- Specimen submitted (required)
  - Right side tumours
    - Interaortocaval, pre- and paracaval LN
  - Left side tumours
    - Para and preaortic
  - Controlateral involvement more frequent in right tumours
  - Remaining sites must be identified
RPLNDs

• Size of largest nodal metastasis (required)
  – LN size associated with teratoma and other viable elements
  – Difficult to measure when confluent
  – Take overall if not identifiable

• Bloc identification key (recommended)
  – Number of nodes impacts to prognosis
  – Comprehensive sampling of residual masses
  – Take all areas with macroscopic appearances
  – All LN (microscopic disease++)
  – Total number
RPLNDs

- **Histological tumour type (required)**
  - Crucial for treatment
  - Pathology (especially after treatment) can be different
  - 40-50% necrosis
  - 40% teratoma
  - 10% mixture
    - Sarcomatoid changes, GCT with somatic type malignancy

- **Report viable elements +++**
RPLNDs

- **Margin status (required)**
  - Important prognostic factor, orientation
  - Ensure all margins are true margins
  - Minimum distance to nearest margin
- **Extranodal extension (required)**
  - AJCC upstages pN1 → pN2 → ChT
RPLNDs

• Pathological staging (required)
  – AJCC/UICC
  – All non lymphoid sites should be M+

• Alternative “Modified Royal Marshden Staging System”
  – Stage
  – I tumour confined to testis
  – II infradiaphragmatic nodal involvement
    • IIA-D size dependent
  – III supraclavicular/mediastinal involvement
  – IV extranodal metatstases
Penile Cancer

Penis
Cathy Corbishley
Maurizio Colecchia
Jonathan Shanks
Antonio Cubilla
Elsa Velazquez
Alcides Chaux
Nick Watkin
Penis

- Clinical information (recommended)
  - Prior treatments (topic, RT, ChT)
  - Impact on diagnosis

- Operative procedure (required)
Penis

- Tumour focality (recommended)
  - Squamous cell carcinomas (SCC) associated precancerous changes (PeIN)
  - 5% multifocal
Penis

- Macroscopic maximum tumour dimension (required)
  - Depth of invasion
  - mm from basement membrane to deepest point of invasion
  - Maximum thickness
  - Size of tumour

- Block identification (recommended)
Penis

- Histological tumour type (required)
  - Non HPV related penile SCC
  - HPV related SCC
  - Other rare carcinomas
  - 95% SCC
  - p16 is not mandatory
**Penis**

- **Histological grade (required)**
  - No consensus
  - WHO recommends/ AJCC adopted published soon
    - Any amount of anaplasia = G3
  - Grade worse component

<table>
<thead>
<tr>
<th>Feature</th>
<th>Grade 1</th>
<th>Grade 2</th>
<th>Grade 3</th>
<th>Sarcomatoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytological atypia</td>
<td>Mild</td>
<td>Moderate</td>
<td>Anaplasia</td>
<td>Sarcomatoid</td>
</tr>
<tr>
<td>Keratinisation</td>
<td>Usually abundant</td>
<td>Less prominent</td>
<td>May be present</td>
<td>Absent</td>
</tr>
<tr>
<td>Intercellular bridges</td>
<td>Prominent</td>
<td>Occasional</td>
<td>Few</td>
<td>Absent</td>
</tr>
<tr>
<td>Mitotic activity</td>
<td>Rare</td>
<td>Increased</td>
<td>Abundant</td>
<td>Abundant</td>
</tr>
<tr>
<td>Tumour margin</td>
<td>Pushing/well defined</td>
<td>Infiltrative/ill defined</td>
<td>Infiltrative/ill defined</td>
<td>Infiltrative/ill defined</td>
</tr>
</tbody>
</table>
Penis

• Microscopic maximum dimensions (required)
  – Combination of gross and microscopic if large tumours

• Extent of invasion (required)
  – Anatomy complex
    • Distinction lamina propria/corpus spongiosum

• LVI (required)
  – T1a/b +/- LVI

• Perineural invasion (PNI) (required)
  – T1a/b +/-

• Strongest predictive power
  – Grade, depth infiltration, PNI → Prognostic index
Penis

- **Margin status (required)**
  - Record in mm
  - Deep central soft tissue margin
    - Intervening tissue not identified as
      - periurethral tissue, corpus cavernosum, circumferential shaft
  - Margins of the resection for
    - Penile specimen
    - Circumcision specimens
Penis

• Lymph node status (required)
  – Number of LN+, ECS, pelvic – inguinal
  – Pelvic or ECS pN3 in penile, not urethral TNM

  – Size of largest nodal tumour deposit (not LN size)
  – Tumour +/-, size, ECS +/- to be reported in every site separately, also for sentinel LN

  – Individual cells in LN? Describe

  – IHC in sentinel LN
Penis

• **Staging (Required)**
  – AJCC/UICC
  – changes AJCC
    • pTaN (SCC non invasive)
    • T1a/b described by site where they occur on penis
      – Glans, foreskin and shaft
      – PNI +/-, LVI +/-
    • T2 corpus spongiosum invasion
    • T3 corpus cavernosum invasion
    • pN1
      \[ \leq 2 \text{ unilateral inguinal LN+}, \text{ no ECS} \]
    • pN2
      \[ \geq 3 \text{ unilateral inguinal LN+}
      \text{ or bilateral LN+} \]
SPECIAL THANKS TO
FLEUR WEBSTER
CATHY CORBISHELEY
AND DAN BERNEY