Testis-Sparing Surgery: Tips and Tricks

Andrew J. Stephenson, MD, FRCSC, FACS
Director of Urologic Oncology
Associate Professor of Surgery
Glickman Urological and Kidney Institute
Cleveland Clinic
Who is a candidate for testis-sparing surgery?

• Very few patients....
  – No role in men with normal contralateral testis
  – Synchronous bilateral tumors (lesion < 2 cm) and normal testicular androgen production
  – Solitary testis with lesion < 2 cm and normal testicular androgen production
  – Suspect benign testis tumor (e.g. dermoid cyst)
  – Prepubertal testis mass → 75% benign
  – Indeterminate testis lesion < 1 cm
Who is a candidate for testis-sparing surgery?

• Very few patients....
  – No role in men with normal contralateral testis
  – Synchronous bilateral tumors (lesion < 2 cm) and normal testicular androgen production
  – Solitary testis with lesion < 2 cm and normal testicular androgen production
  – Suspect benign testis tumor (e.g. dermoid cyst)
  – Prepubertal testis mass → 75% benign
  – Indeterminate testis lesion < 1 cm

• Biopsy of normal testicular parenchyma should always be performed in adults → 80-90% ITGCN in pts with GCT
Why Testis-Sparing Surgery for GCT?

**PROS**

- Testicular androgen production
  - ~ 1/3 burn-out over time
  - Transdermal T replacement
- Preservation of fertility if observational approach taken for ITGCN
  - Sperm harvest and cryopreservation
- Cosmesis
  - Testicular prosthesis
- Psychological

**CONS**

- Uncertainty re: recurrence
  - Low rate of LCR with 18-20 Gy radiation therapy
  - Life long FU
Testis-Sparing Surgery: Considerations

• Remind yourself that orchiectomy = standard-of-care

• Is the testis worth saving?
  – Hormonal production → If ↑ LH or ↓ testosterone → orch
  – What is the size of the lesion? → < 2 cm? Polar vs. central?
    – Multi-nodular? Multi-focal?

• What are the goals of testis preservation for the patient?
  – Hormonal
  – Fertility
  – Psychological

• Is the patient compliant?
  – Close surveillance is essential
Testis-Sparing Surgery: Considerations

- Indeterminate < 1 cm lesions
  - Majority are benign (cysts, small infarcts, Leydig cell nodules, small Leydig or Sertoli cell tumors)
  - Up to 40% represents GCT (usually seminoma)
  - Treatment:
    - Serial US, orchiectomy, inguinal exploration and FS
Testis-Sparing Surgery: Postop

- If GCT histology or ITGCN and no fertility desired → 18-20 Gy RT → very low risk of LCR → Testosterone replacement needed 15-25% pts
  - dose reductions associated with higher risk of GCT

- If GCT histology or ITGCN and fertility desired → close observation and deferred RT at the time of parternity or assisted reproduction
  - Serial US @ 3, 6, 12 mos then annually thereafter
  - Regular testicular self-examination
Testis-Sparing Surgery Experience

- German TCSG, 1994-2000, 73 pts from 8 hospitals
  - 17 synchronous bilateral tumors, 56 metachronous tumors in solitary testis
  - Mean size 1.5 cm (0.5-3.0) → 82% ITGCN
  - Median FU > 7 yrs
  - 46 pts with ITGCN → 18 Gy RT → No local recurrence
  - 22 pts with ITGCN → No RT → 4 LCR → Cured by orch
    - 10 pts deferred RT for fertility → Successful paternity in 50% → Deferred RT in all → All NED
  - 15% hypogonadal

Heidenreich et al. J Urol 2001
Testis-Sparing Surgery: Operative Approach

- Sperm banking preop if future paternity desired
- Inguinal approach, intraop US for localization
- Clamping of cord ± cold ischemia
- Incision of tunica
- Enucleation of lesion outside pseudo-capsule
- Additional biopsies of surrounding parenchyma
- Intraop frozen section
- Meticulous hemostasis, suture closure of tunica
Cleveland Clinic

Every life deserves world class care.