SEMINOMA

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SUNY Downstate Grand Rounds
The Brooklyn VA Hospital
2/10/11
Case Presentation

50 y/o M w/ an incidental finding of a 3x4 retroperitoneal mass adjacent to the pancreatic head on u/s done for work up of acute renal insufficiency
Case Presentation

Tolerating diet, normal bowel habits, denied abdominal or back pain, nausea, vomiting, change in weight or appetite, night sweats, or urinary symptoms
Case Presentation

• PMH:
  – HTN, hyperlipidemia, schizoaffective disorder (depressed type), polysubstance abuse

• PSH:
  – appendectomy, RIH repair

• SH:
  – lives in shelter, denies etoh use, smokes 5 cigs/day, remote h/o polysubstance abuse

• FH:
  – noncontributory
Physical Exam

- **Cvs:** S1S2 RRR
- **Chest:** CTA B/L
- **Abd:** soft, ND, NT, +BS, old RLQ scar
- **Rectal:** good tone, no masses appreciated, guiaic neg
- **GU:** WNL
- **Ext:** FROM x4, 2+ pulses x4
Labs

- H/H 15.8/46.8
- BUN/Crt 14/1.8
- Amylase/lipase WNL
- Ca 19-9: 6
- CEA 2.2
- urine metanephrine and catecholamines WNL

CXR (10/4):
- 0.6mm granuloma
MRI
EUS requested, however, unobtainable in a timely fashion

IR consulted for biopsy, deemed unsafe

12/13: exploratory laparotomy, possible excision of retroperitoneal mass
AFP: 2.7, BHCG: <2

Testicular U/S:
- Heterogeneously appearing R. testis suspicious for neoplastic infiltrate

Urology consulted
Work Up

- ~1 week postop, tolerating diet, normal bowel function, ambulating
- Case d/w tumor board
- Underwent radical R orchiectomy
L: normal testis  
R: testis w/ seminoma
Postop

- Discharged POD #1 s/p orchiectomy
- Seen POW #2: no complaints, resumed normal daily activities
- Started chemotherapy POW#6 (cisplatin & etoposide)
Testicular Tumors

- Malignant testicular tumors
  - 9 new cases/100,000 men

- Germ Cell tumors
  - 90-95% of all primary testicular tumors
  - Seminoma (35%) or nonseminoma (embryonal, teratoma, choriocarcinoma, mixed)

- Remainder of the primary testicular tumors: nongerminal neoplasms: Leydig, Sertoli, gonadoblastoma (rare & often benign)
Testicular Tumors

- Typically 18-40 yrs of age
- Incidence varies among races and countries
- Incidence 2x in men w higher SES
- Seminoma most common tumor in B/L primary testicular tumors
- Malignant lymphoma most common B/L tumor of the testis
H/O Cryptorchidism

- 7-10% h/o cryptorchidism, 5-10% occur in the contralateral testis
- RR of malignancy is highest in the intra-abdominal testis (1/20); inguinal testis (1/80)
- Slightly higher incidence on R parallels increased cryptorchidism on the R
- Orchiopexy does not alter the malignant potential but facilitates examination and detection
Totipotential germ cells differentiate → spermatocytes

Abnormal differentiation → totipotential tumor cells (seminoma or embryonal carcinomas)

Embryonal cells undergo intraembryonic pathways → choriocarcinoma (hCG)

Embryonal cell undergo extraembryonic pathwy → yolk sac tumor (AFP)
Metastatic Spread

- Usually lymphatic in stepwise fashion (except choriocarcinoma spreads hematogenously)

On the R:
- Precaval, preaortic, paracaval, R common iliac, R external iliac
- Ultimate site is interaortocaval area at the level of the R renal hilum

On the L:
- Preaortic, L common iliac, L external iliac
- para-aortic area at the level of the L renal hilum
Metastatic Spread

- Alterations in drainage
  - Epididymis or spermatic cord invasion → distal ext iliac or obturator nodes
  - Scrotal invasion → inguinal mets

- Retroperitoneum is the most common site of mets but could also be visceral
  - Lung, liver, brain, bone, kidney, adrenal, GI, spleen
  - Lung is most common site for choriocarcinoma
Metastatic Seminoma

- 25% metastatic at presentation
- 10-15% metastatic to regional retroperitoneal nodes
- <5-10% advance to juxtaregional nodes or visceral mets
- 1/3 pts who die have nonseminomatous elements in metastatic sites at autopsy
- Cure rate for all stages exceeds 90%

Campbell-Walsh
Bredael et al., 1982.

www.downstatesurgery.org
Symptoms

- Most common: painless testicular enlargement
- Pain 10% possibly from intratesticular hemorrhage or infarction
- 10% symptoms of mets: back pain, dyspnea, anorexia, N/V, bone pain, LE swelling
- 10% found incidentally
On Physical Exam

- Firm nontender testicular mass or diffuse enlargement
- Easily separable from epididymis
- Transillumination can help distinguish from hydrocele
- Abdominal mass
- Lymphadenopathy
Labs

- Anemia
- LFTs
- Renal function tests
- AFP – usually elevated in nonseminomatous tumors
- B-hCG – elevated in 65% nonseminomatous 10% seminomas
- LDH – elevated in 60% of pts
- PLAP – placental alkaline phosphatase, elevated in 40%
Imaging

- Scrotal Ultrasound
  - Hypoechoic area within the tunica albuginea
  - Distinguishes tumor from epididymis or hydrocele

- CXR

- Abd/pelvis CT
Radical Orchiectomy

- Inguinal approach
- Definitive procedure for Dx & locol Tx
- Minimal morbidity, Mortality ~0
- Permits early control of vascular and lymphatic supply & en-bloc removal of testis w/ all its tunicae
- Proceed despite advanced Dz, testis can harbor tumor despite chemo
Scrotal Orchietectomy

- Requires surgical excision of a retained spermatic cord
- Excision of the contaminated scrotum
- If pure seminoma, irradiation of the groin & ipsilateral scrotum may suffice
Primary Tumor

- **Tx**: 1° tumor cant be assessed
- **T0**: no evidence of 1° tumor
- **Tis**: in situ
- **T1**: limited to testis & epididymis & no vascular/lymphatic invasion
- **T2**: limited to testis & epididymis + vasc/lymph invasion, or tunica vaginalis involved
- **T3**: spermatic cord involved
- **T4**: scrotum involved
Regional Lymph Nodes

- **Nx**: can't be assessed
- **N0**: no regional nodal mets
- **N1**: lymph node(s) <2cm
- **N2**: lymph node(s) >2cm but <5cm
- **N3**: lymph node(s) >5cm
Distant Metastases

- M0: no evidence of mets
- M1: Nonregional nodal or pulmonary mets
- M2: Nonpulmonary visceral mets
Staging

- **S1**: T1-T4, N0, M0
  - **Ia**: T1
  - **Ib**: T2-4

- **SII**: any T, any N, M
  - **IIa**: any T, N1
  - **IIb**: any T, N2
  - **IIc**: any T, N3

- **Stage III**: any T, any N, M
Stage I Seminoma

- Inguinal orchiectomy followed by therapeutic or adjuvant RT
- 25Gy to para-aortic nodes
- 5-year survival > 95%

Campbell-Walsh, Smith’s General Urology, Fiveash et al, 1998
Stage IIa&b

- w/ postop RT: survival 70-92%
  - IIa survival rates >90%
  - ~½ IIb pts develop mets outside the radiation fields

=> Stage IIb: chemo
Stage IIc & III

- >90% w/ stage III achieve complete response to chemo
- 90% remain Dz free during 4 yr f/u

Campbell-Walsh, Smith’s General Urology, Horwich et al 1997

www.downstatesurgery.org
Postchemo Residual Mass

- Most pts explored after chemo only have residual necrosis or fibrosis
- => well-delineated, postchemo, retroperitoneal masses detected by CT should be resected if >3cm VS contd observation
POINTS TO REMEMBER

- Seminoma: perform radical inguinal orchiectomy
- Stage I, Iia: adjuvant RT
- Stage IIb-III: adjuvant chemo
- Good prognosis
- Perform GU exam when evaluating retroperitoneal masses
- Cryptorchidism associated w/ Ca
  - > on R
  - Intraabdominal>inguinal
- Orchiopexy → easier exam & detection
References

- Campbell-Walsh Urology. 9th edition. 2007
- Current Diagnosis & Treatment: Surgery. 13th edition. 2010
Good-bye, Testicles
Anne Welsh Guy
Illustrated by Frank Vaughn