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Author(s): Gary Faerber, M.D., 2011

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Benign and Malignant Diseases of the Testis and Scrotum

Gary J Faerber, MD
Associate Professor, Department of Urology

Physical Exam

- Palpation- use two hands to palpate the scrotal contents
- Transillumination- can aid in distinguishing solid from cystic masses
- Identify-Testis

  Epididymis

  Vas deferens

  Spermatic cord

CONDUCTING THE EXAMINATION

PALPATION

TRANSILLUMINATION

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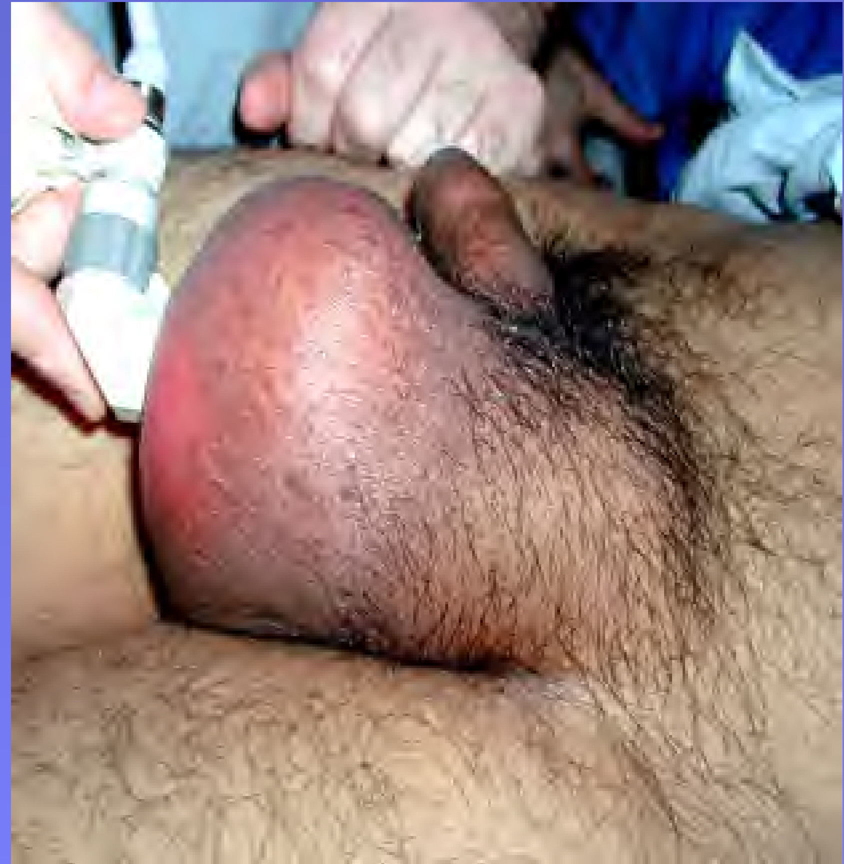
Male Genitourinary Exam: Scrotal Mass

- Transillumination



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Testicular Cancer

- Epidemiology
  - Most common solid neoplasm in men <35 yrs of age
  - 1-2% of all neoplasms
  - Highest incidence Caucasian > Asians > African-American

Testicular Cancer-Risk Factors

- Race
- Age: Highest risk ages 20-40
- Previous Testis cancer: 2-3% risk of development of cancer in contralateral testis
- Cryptorchidism: 50 times more likely to develop cancer in an UDT. The more undescended the testis the higher the risk
- Male Infertility: More likely to have testis cancer

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INITIAL SIGNS AND SYMPTOMS

65% Mass or swelling

9% Pain

9% Mass and Pain

7% Trauma

5% Metastases

5% Other

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Evaluation

- Physical Exam: The BEST diagnostic tool
- Scrotal Ultrasound: Can be used to corroborate PE findings or clarify ambiguous exam
- Serum Markers:

AFP (alpha feto-protein),

Beta-HCG (Human chorionic gonadotropin)

R

m

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Evaluation

Remember:

A mass in the testis is a tumor unless proven otherwise

A testicular mass warrants surgical exploration.

Testicular Neoplasm: Initial Treatment

- Orchiectomy: This is completed through an inguinal approach.
- Staging Studies

  CT scan

  CXR

  Tumor markers: taken preoperatively and post-operatively

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Tumor Markers and Testicular Neoplasm

- Elevated HCG: Choriocarcinoma, embryonal, occasionally seminoma (5-10%)

- Elevated AFP: Yolk sac, pure embryonal, teratocarcinoma. AFP is never elevated in a pure seminoma

Staging of Germ Cell Neoplasms

- A: Confined to the testis
- B: B1: microscopic spread or nodes < 2 cm in size and < 6 nodes

  B2: >6 nodes, 2-6 cm in size

  B3 >6 nodes > 6 cm
- C: Nodal spread beyond retroperitoneum
- D: Other solid organs, ie lungs, brain, liver, etc.

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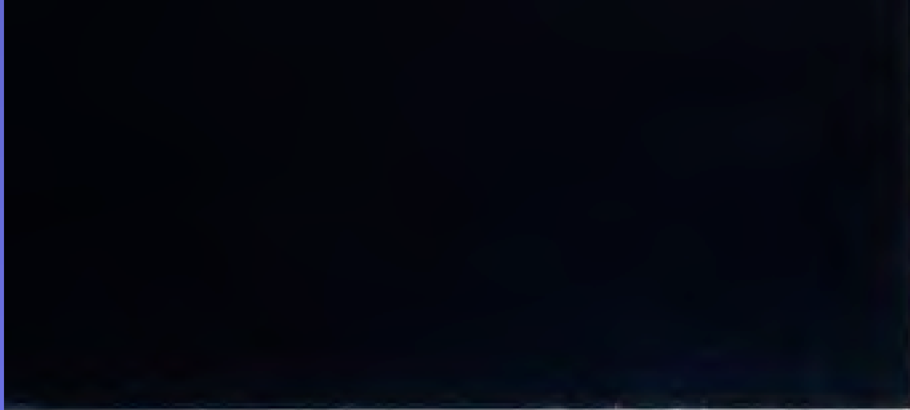

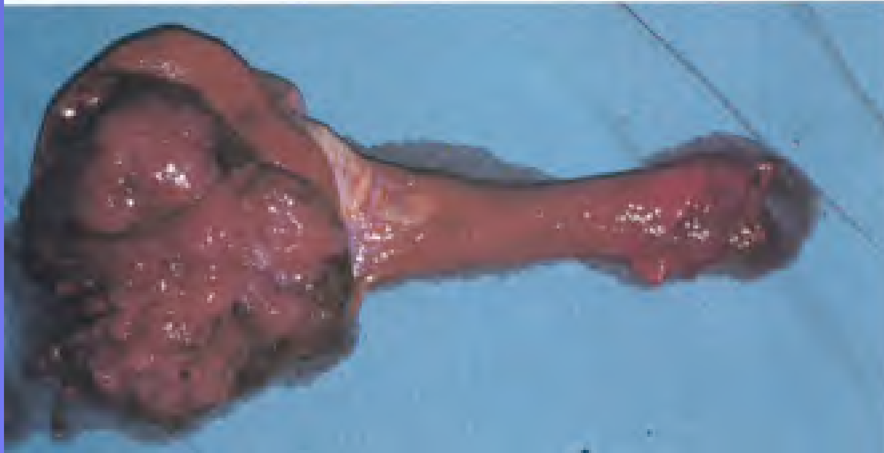

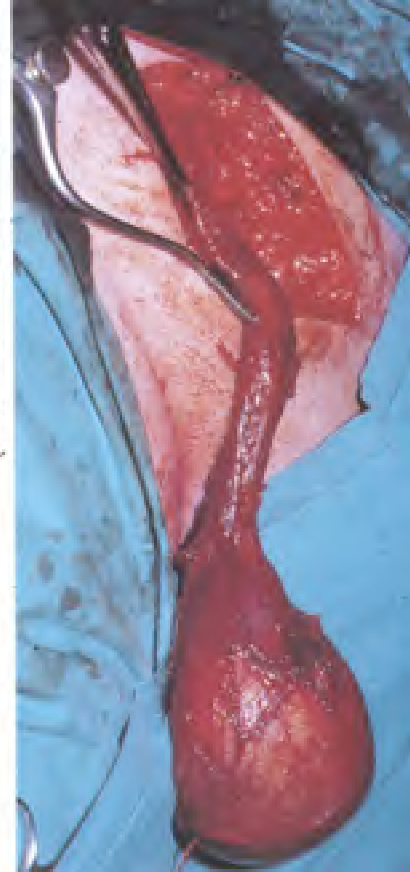

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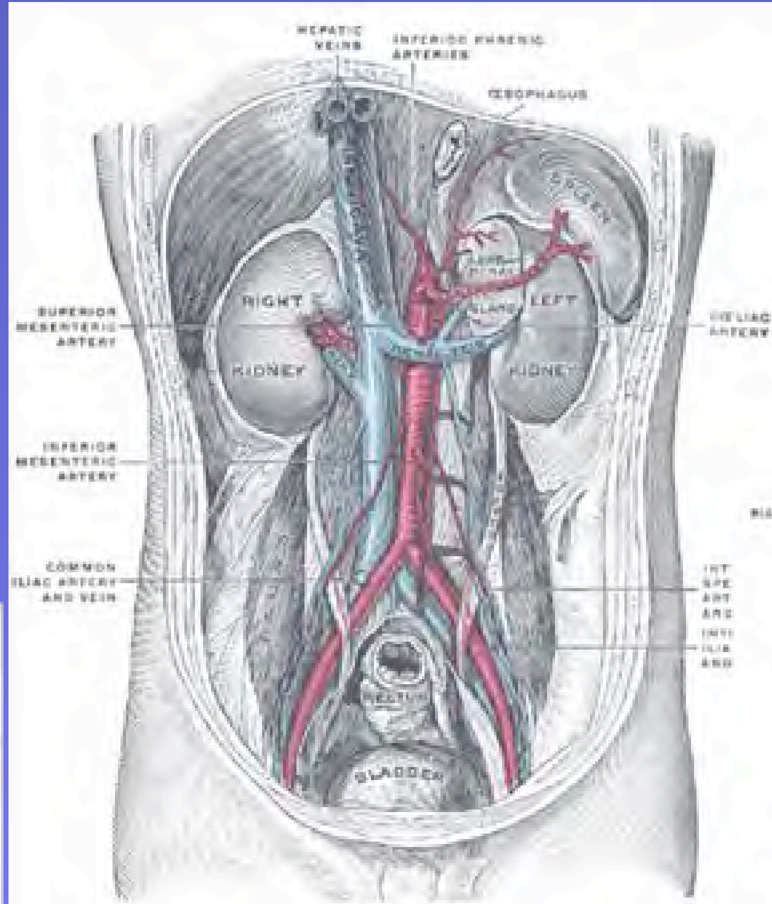

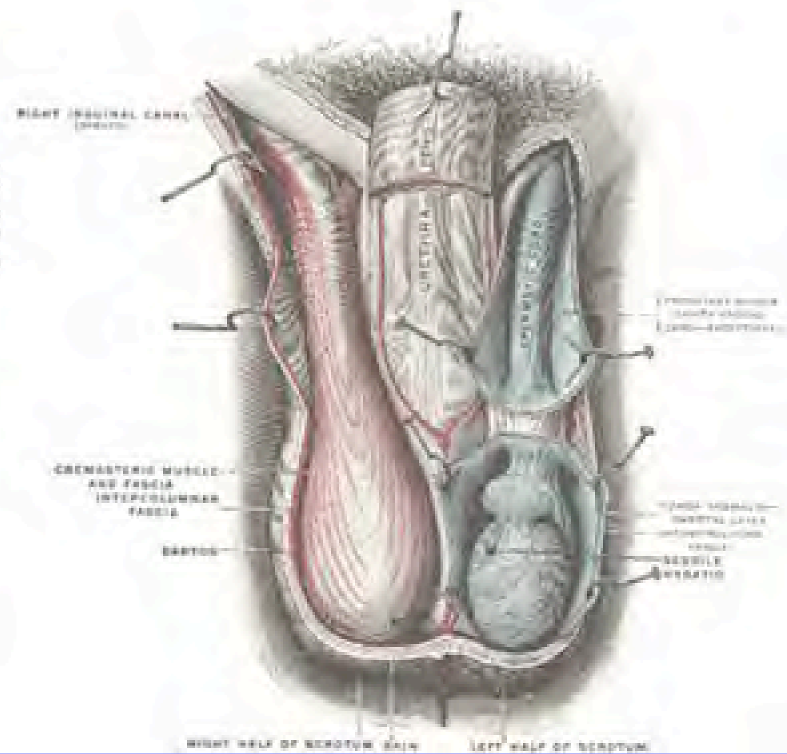

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PD-EXP Gray's Anatomy

Therapy for Seminoma

- Stage A, B: Radical orchiectomy

Observation with CT scan, serum markers

or

External radiation

95-100% cure

Therapy for Seminoma

- Stage B2 or C: Radical orchiectomy
  Chemotherapy

>85% survival

Therapy for NSGCT

- Stage A: Radical orchiectomy

  Chemotherapy

or

Close observation

>85% survival

Therapy for NSGCT

- Stage A: Radical orchiectomy

Chemotherapy

or

Close observation

or

Retroperitoneal lymph node dissection

>85% survival

Therapy for NSGCT

- Stage B1, B2: Radical orchiectomy

Chemotherapy

or

Retroperitoneal lymph node dissection

>70% survival

Therapy for NSGCT

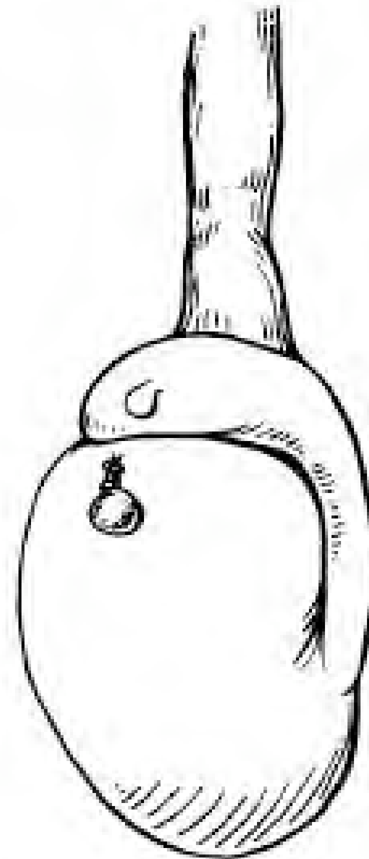
- Stage B3, C, D: Radical orchiectomy

  Chemotherapy

>40-50% survival

Testicular Torsion

- Most commonly seen in males ages 12-18 yrs. BUT IT CAN OCCUR AT ANY AGE
- Twisting of the spermatic cord causes testicular ischemia. Twisting of >720 results in complete testicular artery occlusion.
- Ischemia time of >6 hrs usually results in testicular demise.



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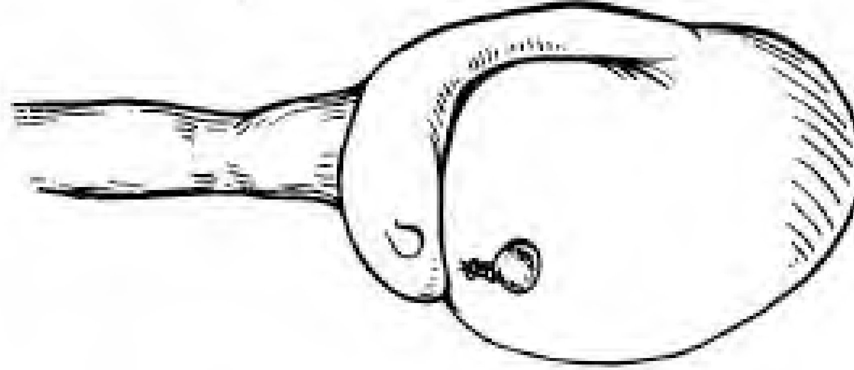
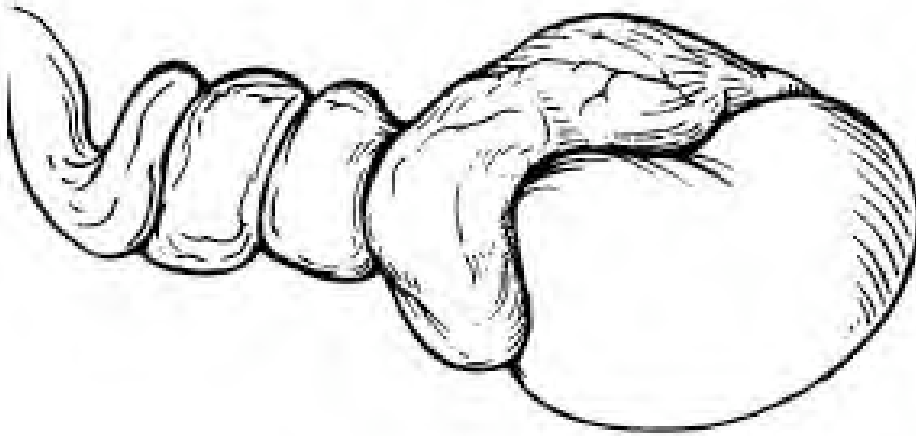


Torsion of Appendix Testis



Torsion of Testicle

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Testicular Torsion

- TESTICULAR TORSION IS A UROLOGIC EMERGENCY AND REQURIES SURGICAL EXPLORATION!

- TESTICULAR TORSION IS A UROLOGIC EMERGENCY AND REQURIES SURGICAL EXPLORATION!

Testicular Torsion: Presentation

- Acute pain: Usually not associated with trauma to testis.

"I was sound asleep and the pain woke me"

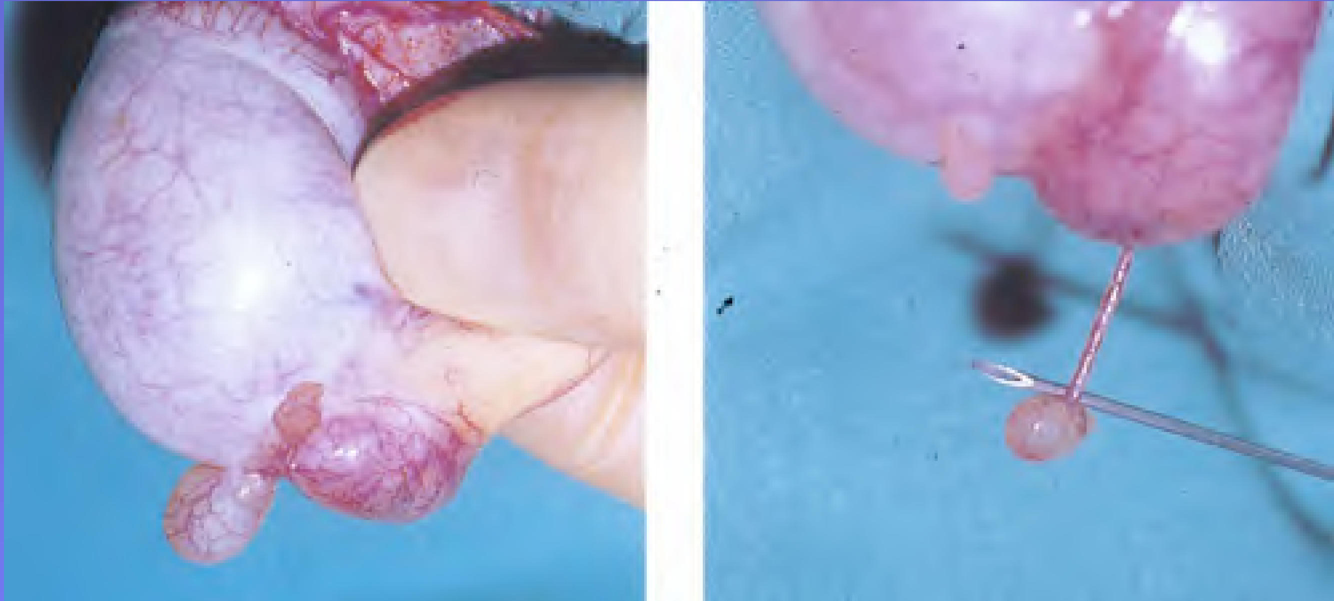
- Nausea, vomiting
- Low-grade fever

Testicular Torsion: Presentation

- Physical exam: Epididymis anterior
- Horizontal lie to the testis
- Testis lying high in the scrotal sac
- Exquisite tenderness to palpation.
- Possible associated reactive hydrocele

Testicular Torsion: Differential Diagnosis

- Epididymitis
- Testicular tumor
- Orchitis
- Torsion of appendix testis
- Traumatic rupture of testis (testis fracture)



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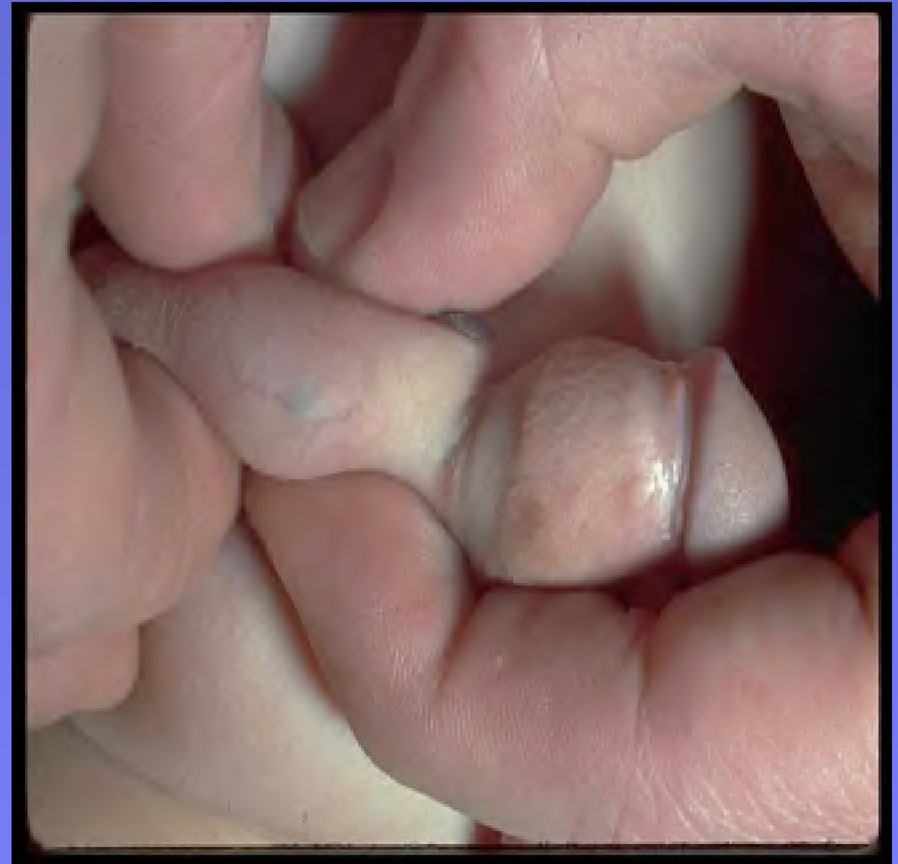
Male Genitourinary Exam:

- Blue dot sign



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Testicular Torsion: Diagnostic Tests

- History and PE often are enough
- Nuclear testicular scan

or

- Doppler ultrasound

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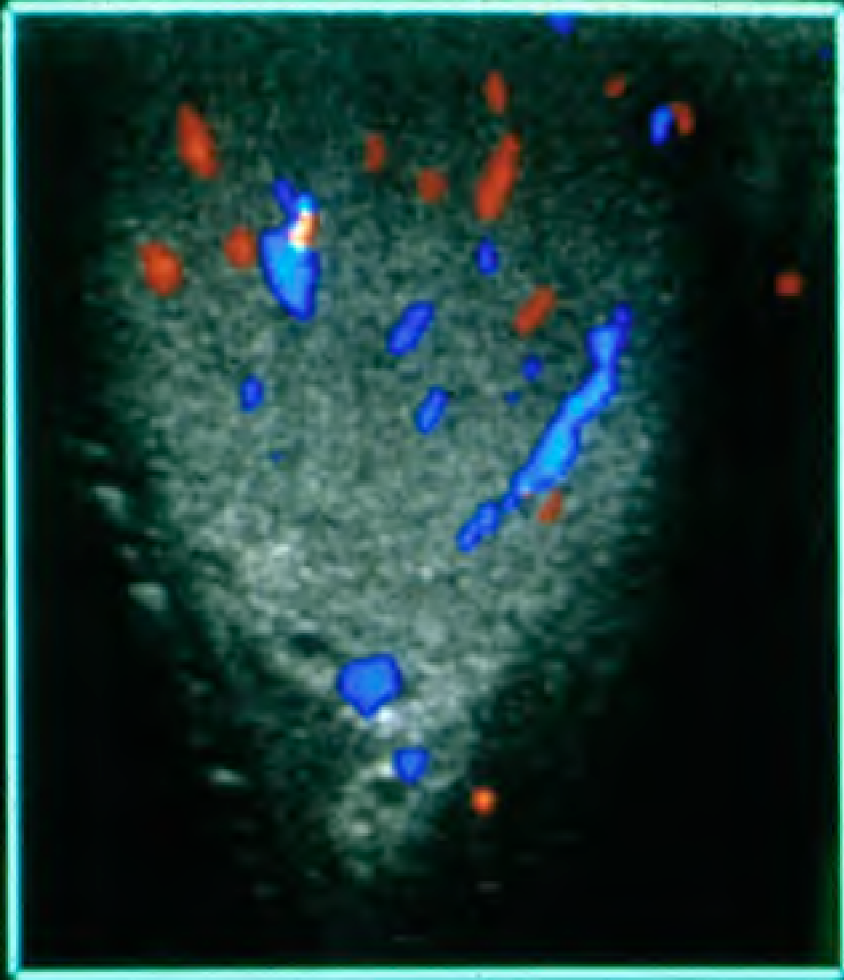

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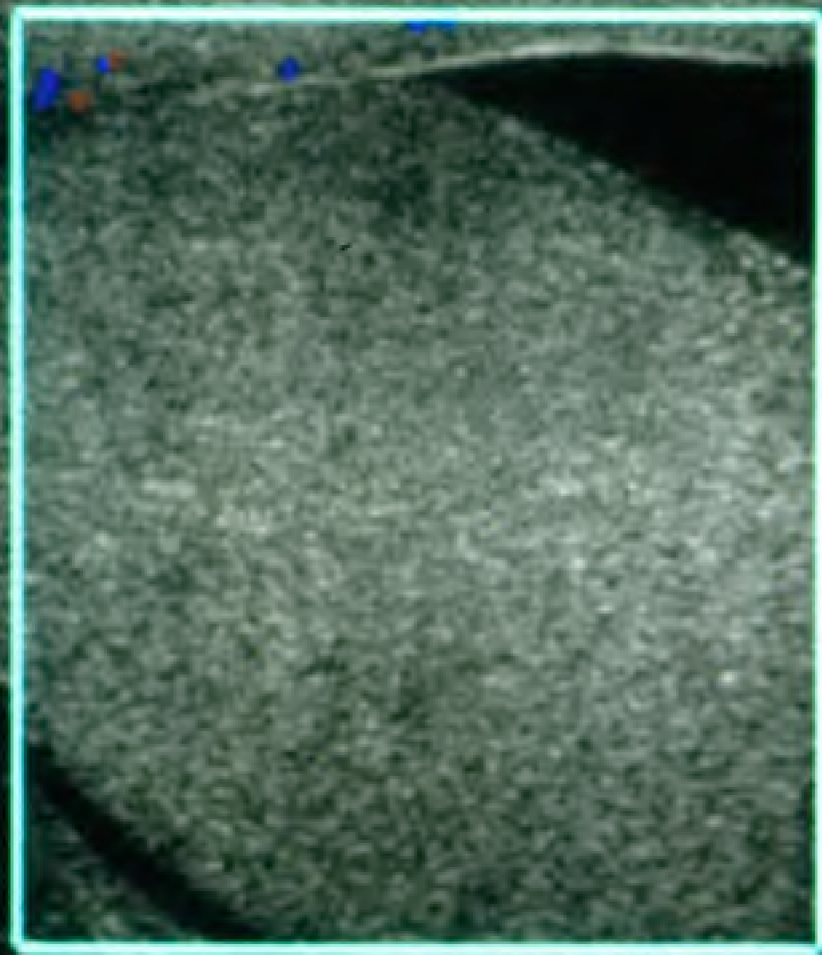

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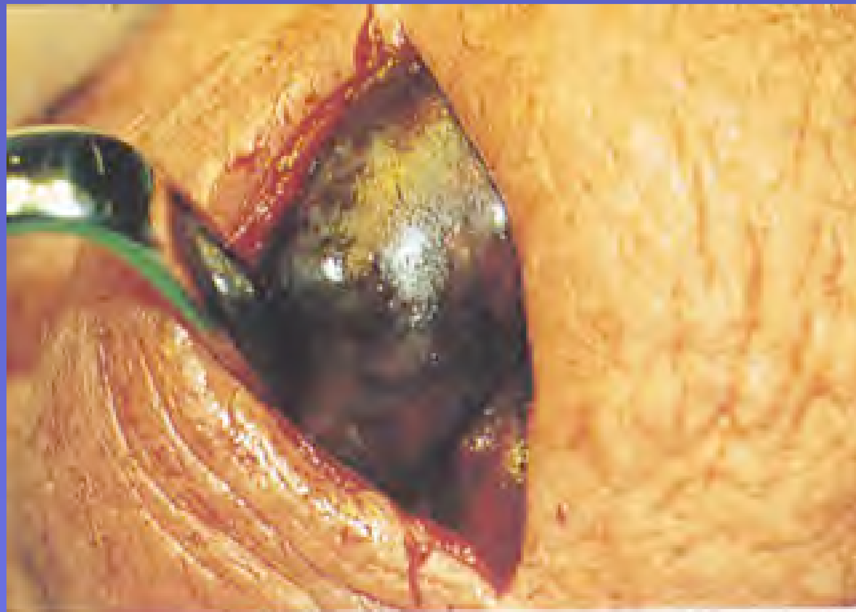
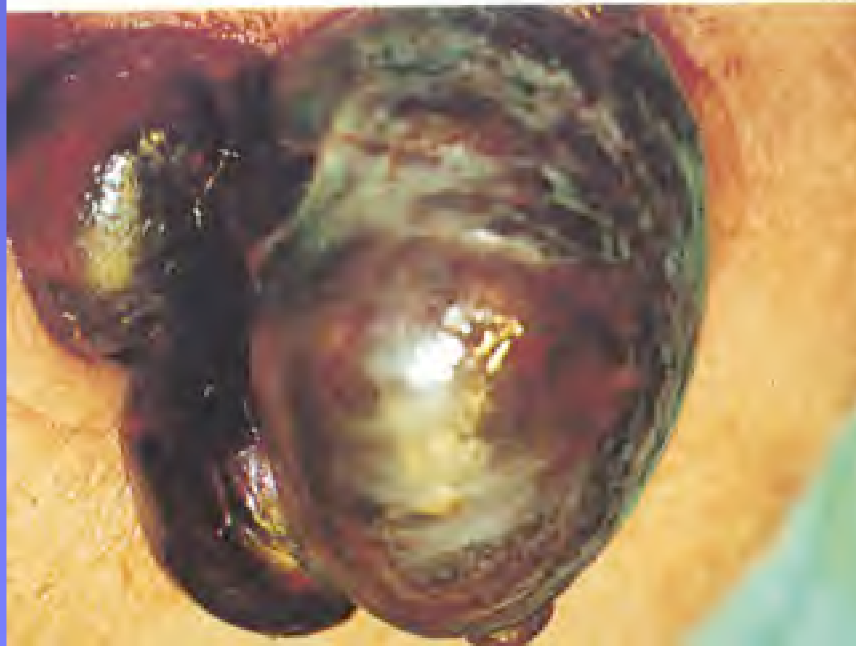
Testicular Torsion: Treatment

- Emergent surgical exploration:
- If testis is viable then de-torse and perform bilateral orchidopexy

- If testis is not viable, the perform orchiectomy and perform contralateral orchidopexy.





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Epididymitis/Orchitis

- Infection/Inflammation
  - Usually retrograde infection up the vas deferens
  - Sometimes can be due to systemic illness ie viral
  - Blood-borne infection, ie TB

Drawing of an acute epididymo-orchitis removed

Epididymitis/Orchitis

- Risk Factors
  - Sexual activity
  - Congenital anomalies
  - Bladder outlet obstruction (BPH)
  - Neurogenic bladder dysfunction

Epididymitis/Orchitis: Presentation

- Scrotal pain and swelling
- Voiding symptoms
- Fever
- PE: Scrotal swelling, hydrocele, erythema, pain on palpation (epididymal > testicular pain), urethral discharge
- Urinalysis: pyuria, bacteriuria

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Epididymitis/Orchitis: Pathogens

- Age-dependent
  - Pediatric population: gm negative enteric organisms
  - Young adult: chlamydia, gonorrhea
  - Older adult: gm negative enterics

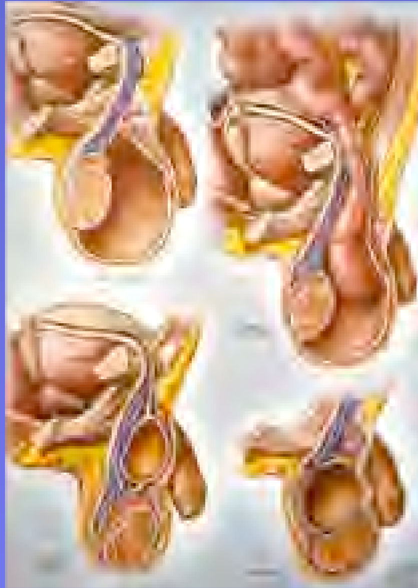
Epididymitis/Orchitis: Treatment

- Bug-dependent:
- Gm- enterics: SMX:TMP, quinolones
- STD’s: Tetracycline, Ceftriaxone, quinolones

- Bedrest, scrotal elevation
- *If symptoms worsen-suspect possible testicular abscess and get a scrotal ultrasound*

Benign Scrotal Masses

- Hydrocele
- Spermatocele
- Varicocele
- Hematocele



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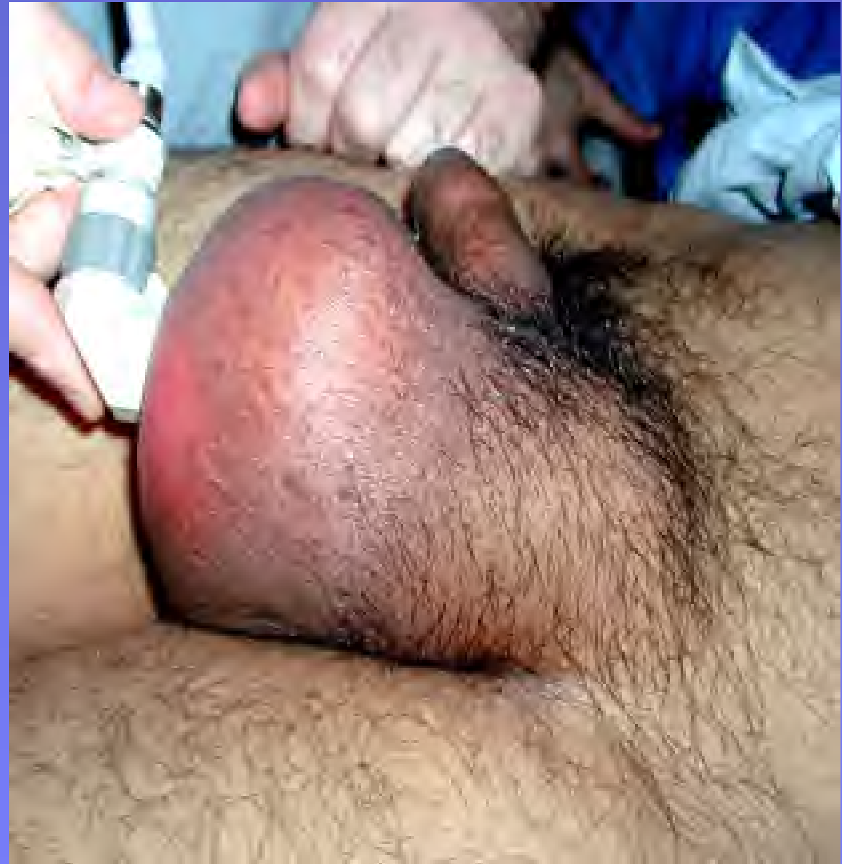
Male Genitourinary Exam: Scrotal Mass

- Transillumination



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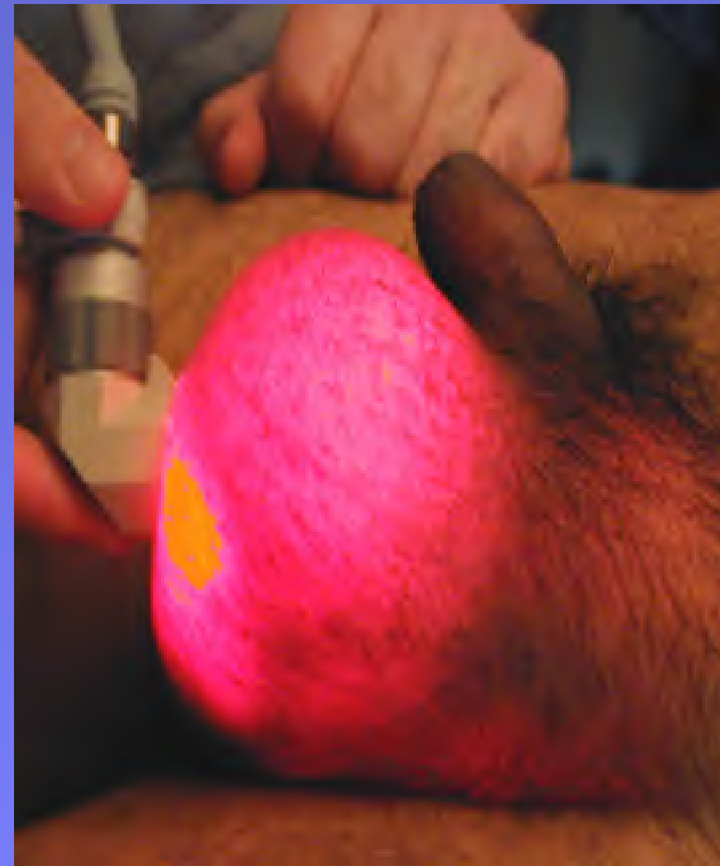
Male Genitourinary Exam: Scrotal Mass

- <u>Transillumination!</u>



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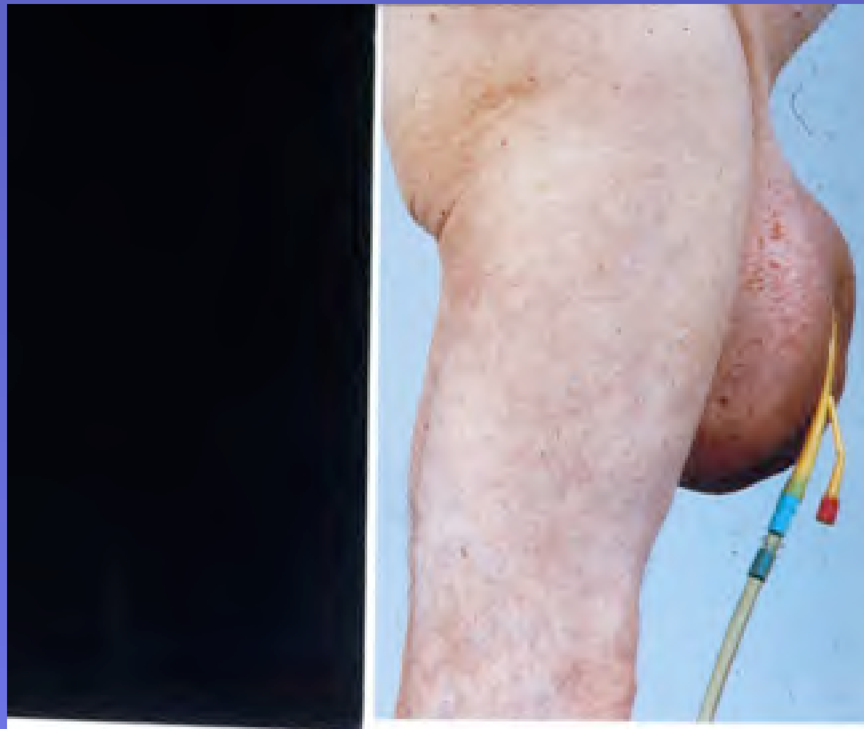

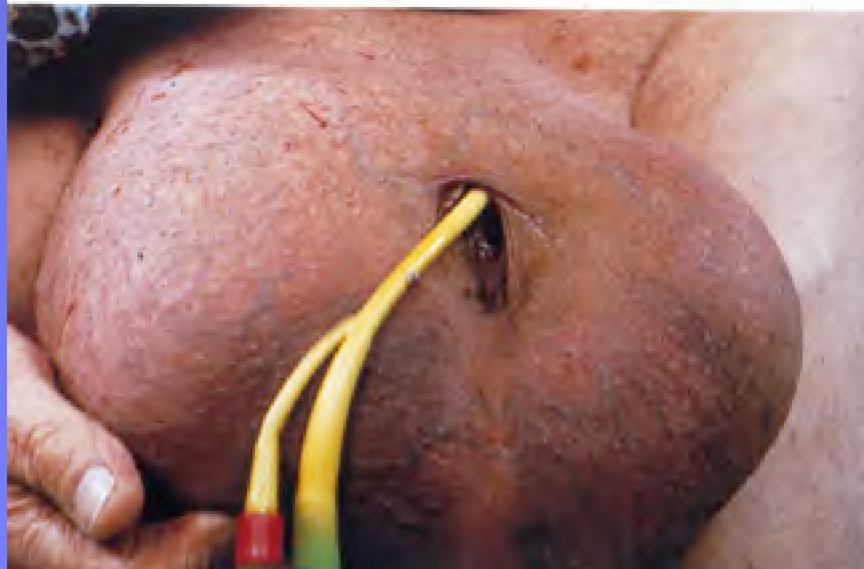

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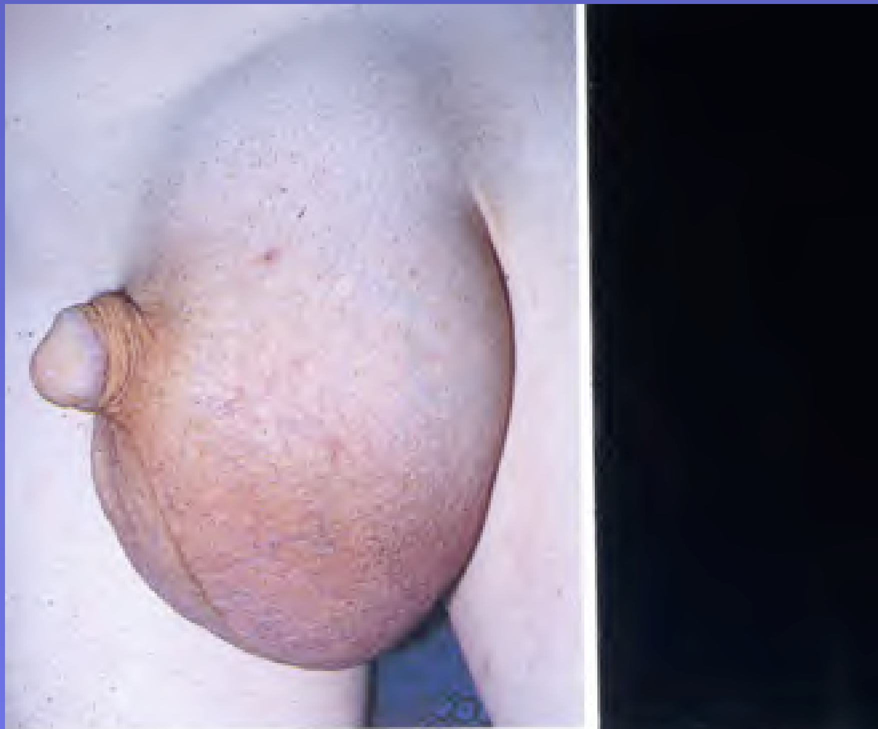

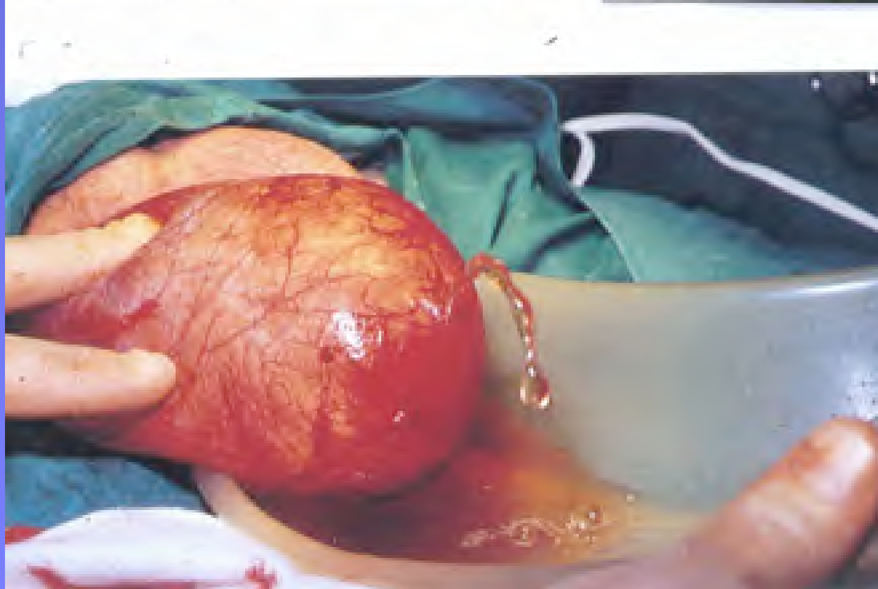

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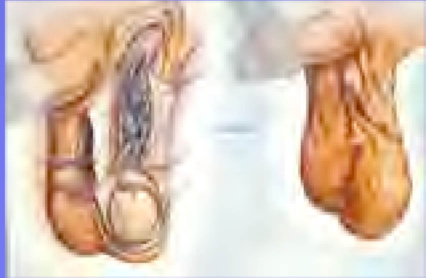
Varicocele

- Abnormally dilated internal spermatic vein
- 10-15% of adult males have varicoceles
- 90% found on left
- 10% bilateral
- Usually asymptomatic, but occasionally may cause a heavy dull pain especially if men have been upright for long periods of time.



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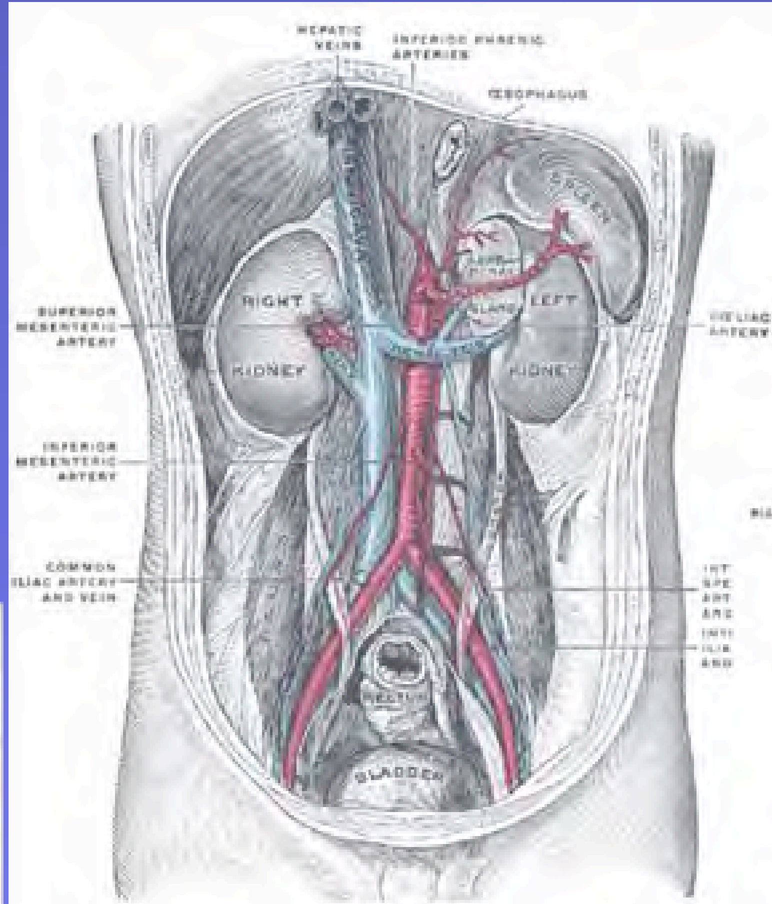

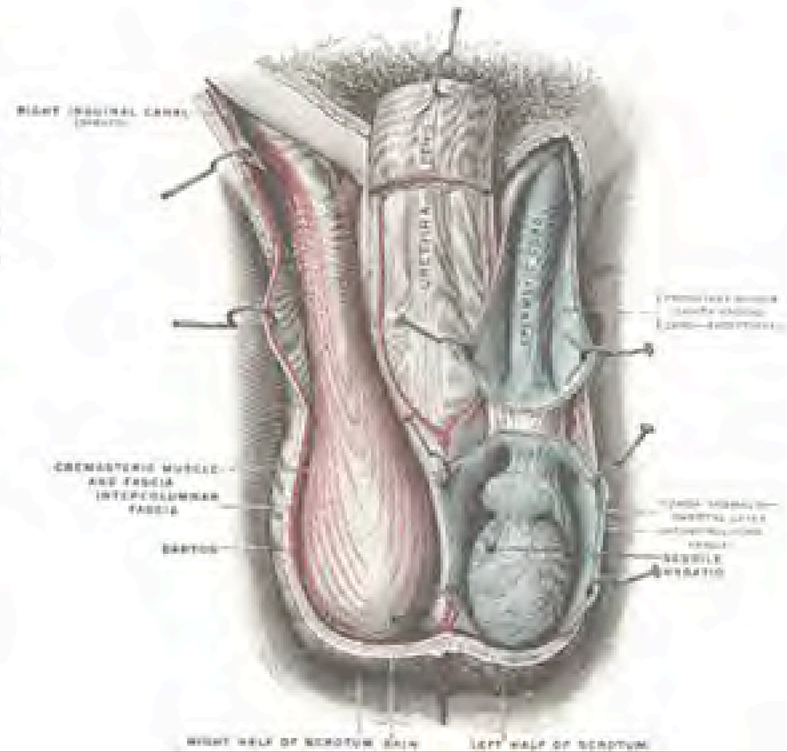

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Spermatocele

- Rupture of epididymal ducts
- Filled with sperm
- Usually asymptomatic

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Case Study

- You are called to the ER to evaluate a 21 year old UM undergraduate student with "ball pain"

Case Study

- 21 yo with scrotal pain.
- What aspects of the history are important in this case?

Case Study

- 21 yo with scrotal pain.
- What ancillary tests would you like to perform?
- What would sway you one way or another about whether these tests need to be performed?

Case Study

- 21 yo with scrotal pain.
- What is your working diagnosis?
- What is the differential diagnosis

Case Study

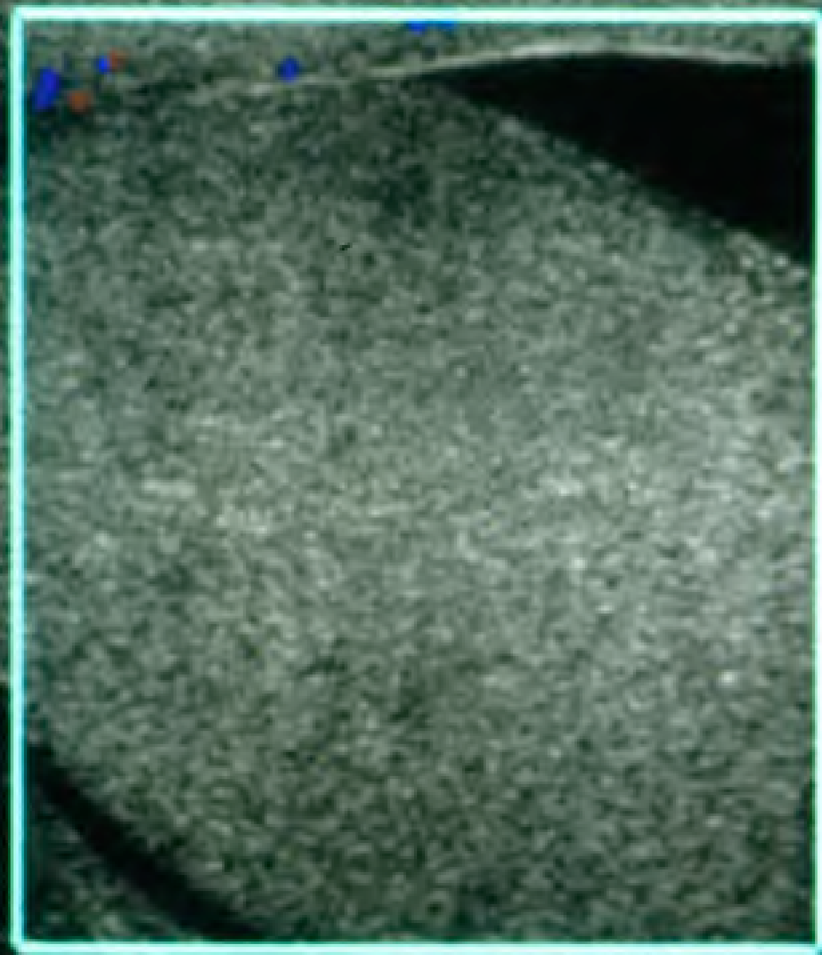
- 21 yo with scrotal pain.
- Important aspects of the History
  - Acute onset, “woke him from a drunken sleep”
  - No recent sexual activity
  - Has had similar episodes in past
  - History of UDT
  - No voiding symptoms

Case Study

- 21 yo with scrotal pain.
- Important aspects of the Physical
  - Exquisite tenderness of testis>epididymis
  - Testis high-riding and more horizontal
  - Epididymis anterior
  - +/- Cremasteric reflex

Case Study

- 21 yo with scrotal pain.
- Important Test results
  - UA negative



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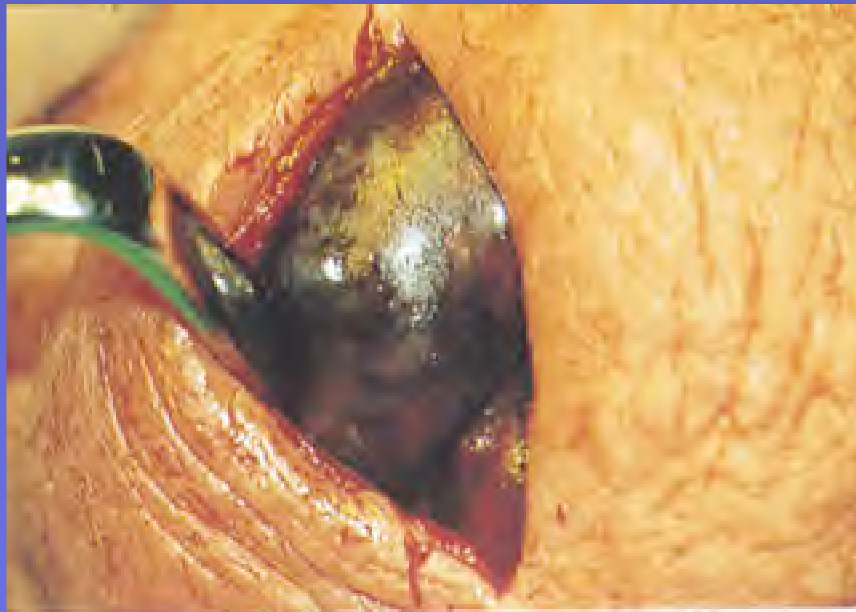

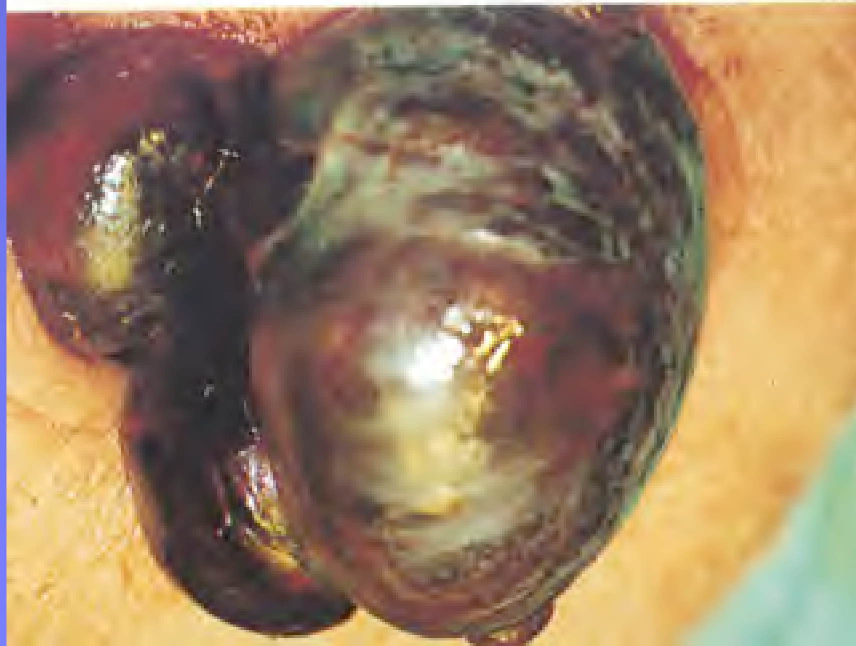

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Case Study

- What do you do now?

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