The Acute Scrotum

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DDx: Acute Scrotal Pain & Enlargement

PAIN
- Inflammatory disorder
- Testicular torsion
- Testicular infarction
- Testicular abscess
- Trauma

ENLARGEMENT
- Hydroceles
- Hernias
- Hematomas
- Testicular torsion
- Epididymitis
- Abscess
- Trauma

*In 20% of cases, testicular tumors may present with a painful mass.*
Modes of Scrotal Imaging

- Ultrasound
- Radioisotope Scanning
- Computed Tomography
- Magnetic Resonance Imaging
- Angiography
Primary Modality: Ultrasound

- Accuracy
- Convenience
- Comfort
- Absence of Ionizing Radiation
Best Results

- Short-focused, high-resolution, real time
  7.5-10 MHz transducer w/ direct contact scanning

- Images taken in sagittal and transverse planes
Body Imaging

- Ultrasound, Color Doppler, Power Doppler

From http://www.ob-ultrasound.net/aloka_880.html
Acute Scrotum

- Trauma
- Torsion
- Infarction
- Inflammatory
- Abscess
ANATOMY

Power Doppler - Normal Testis

Blunt Trauma

Testis

- Mobility in scrotum
- Elasticity of scrotum

Injury occurs w/:

- Compression against solid object such as pubic bones
- Burst tunica albuginea
Why Important to Diagnose

- Rapid surgical intervention within 72 hrs = 90% saved
- Delayed = 55% salvage rate
Normal Testicle

Tunica Albuginea Intact

From BIDMC ED Sept. 8, 2002: s/p MCC vs car, now p/w scrotal ecchymosis
Testicular Rupture

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Tunica Albuginea Rupture

Epididymitis w/ hematoma

hematoma
Testicular Torsion

- Ischemia & Infarction
- Abnormality in fusion of tunica vaginalis & scrotal wall
- Bell Clapper Anomaly

Testicular Torsion

- **Children & Adolescents**
- **Adults:** 20% of acute trauma incidence
- **Preceded by trauma, sexual intercourse, strenuous activity:** forceful contraction of cremaster
Signs & Symptoms

- Pain @ rest (due to ischemia)
- Enlargement hemiscrotum
- Nausea & vomiting
- Tense & tender testis
- Fever
- Erythema & Edema of scrotal skin
Epididymitis and/or Orchitis

- Most common
- 75-80% cases of acute scrotal pain
- Epididymitis: 64%
  20-29 y.o.
- Orchitis: viral origin
Color-flow Doppler Examination

- Visualize Testicular Arteries
- Torsion: lack of flow
- Epididymitis: increased flow in epididymis
- Orchitis: increased flow in testes
Torsion – Power Doppler US

Absence of perfusion in testicle with rim of peripheral hyperemia

From http://radiology.rsnajnls.org/cgi/content/full/215/2/313
Epididymytis: Color flow doppler US

Increased size of epididymis

From http://www.med.wayne.edu/diagRadiology/TF/GU/GU03.html

enlarged epididymal head with increased blood flow
Orchitis: Power Doppler US

Increased test. flow

From http://www.gemedicalsystems.com/rad/us/products/log_700pro/msul7or1l.html
Testicular Infarction

- **US** → hypoechoic mass or diffusely heterogenous and smaller hypoechoic testis
- **Decrease in size w/ age**
- **Tumor will increase in size w/ age**
Testicular Infarction - US

Anechoic areas of necrosis

From http://www.uhrad.com/ctarc/ct222c2.jpg
Testicular Abscess

- Accompany epididymo-orchitis
- Complication of missed torsion
- Necrotic tumor
- Infectious Agents: Mumps, Smallpox, TB, Influenza
Testicular Abscess US

![Ultrasound Image]

- Normal
- Hyperechoic abscess

From http://www.sma.org.sg/smj/4001/articles/4001mc1.html
Infarct vs. Abscess

How could you differentiate between an infarct and an abscess if you are not sure on US?

Power Doppler!!!!
What’s the Diagnosis?

Tunica Albuginea Rupture w/ flow to testis
We can never take back yesterday, or prevent those moments in time we wished had never happened; however we can rest assured in that the things we do today will make our tomorrow. And in that, we are the keepers of our own destiny.

Sept 12, 01
What do you see?
References

- [http://www.ob-ultrasound.net/aloka_880.html](http://www.ob-ultrasound.net/aloka_880.html)
- [http://matweb.hcuge.ch/Selected_images/Testis_images/testis_normal_imaging.htm](http://matweb.hcuge.ch/Selected_images/Testis_images/testis_normal_imaging.htm)
- [http://radiology.rsanjnl.org/cgi/content/full/215/2/313](http://radiology.rsanjnl.org/cgi/content/full/215/2/313)
- [http://www.med.wayne.edu/diagRadiology/TF/GU/GU03.html](http://www.med.wayne.edu/diagRadiology/TF/GU/GU03.html)
- [http://www.sma.org.sg/smj/4001/articles/4001me1.html](http://www.sma.org.sg/smj/4001/articles/4001me1.html)
- [http://www.gemedicalsystems.com/rad/us/products/log_700pro/msul7or1l.html](http://www.gemedicalsystems.com/rad/us/products/log_700pro/msul7or1l.html)
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