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The Acute Scrotum

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DDx: Acute Scrotal Pain & Enlargement

PAIN →

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

ENLARGMENT →

- 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



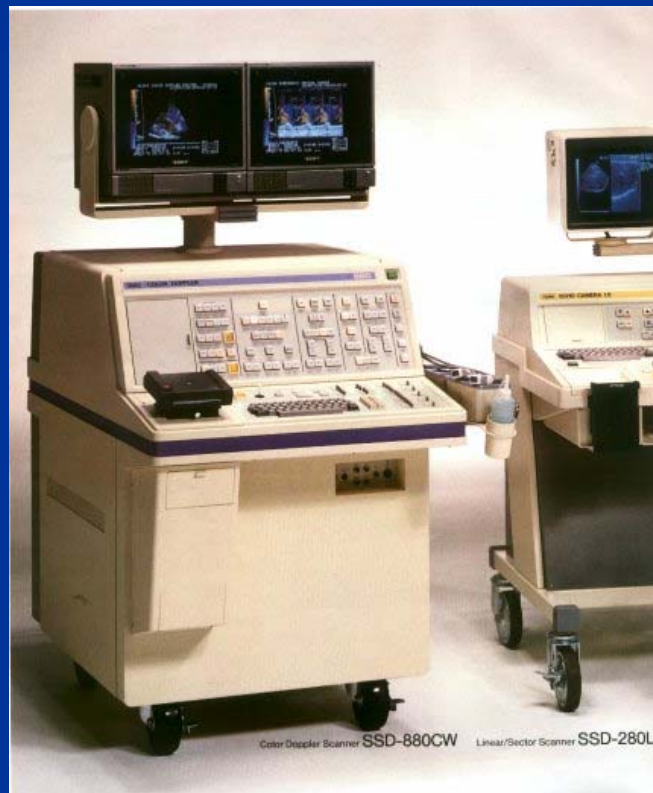
Best Results

- Short-focused, high-resolution, real time 7.5-10 MHz transducer w/ direct contact scanning
- Images taken in saggital and transverse planes



Body Imaging

- Ultrasound, Color Doppler, Power Doppler





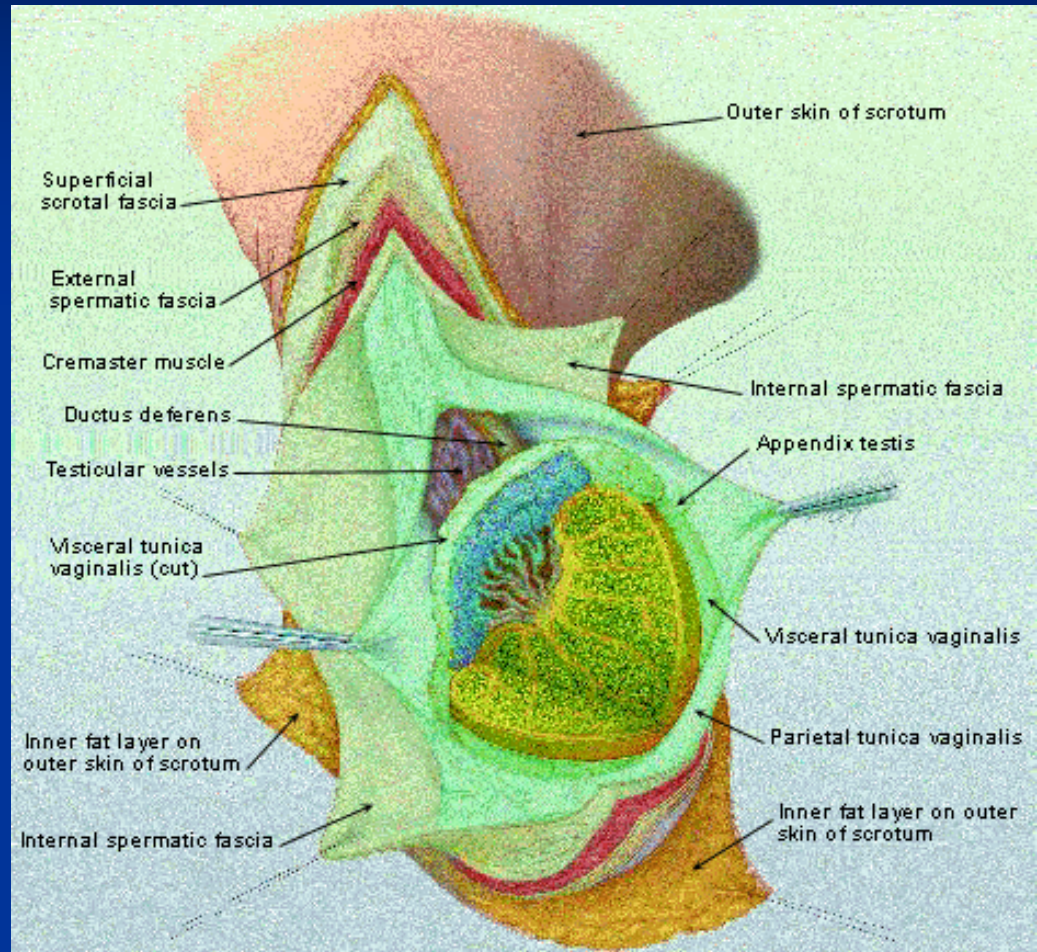
Acute Scrotum

- Trauma
- Torsion
- Infarction
- Inflammatory
- Abscess





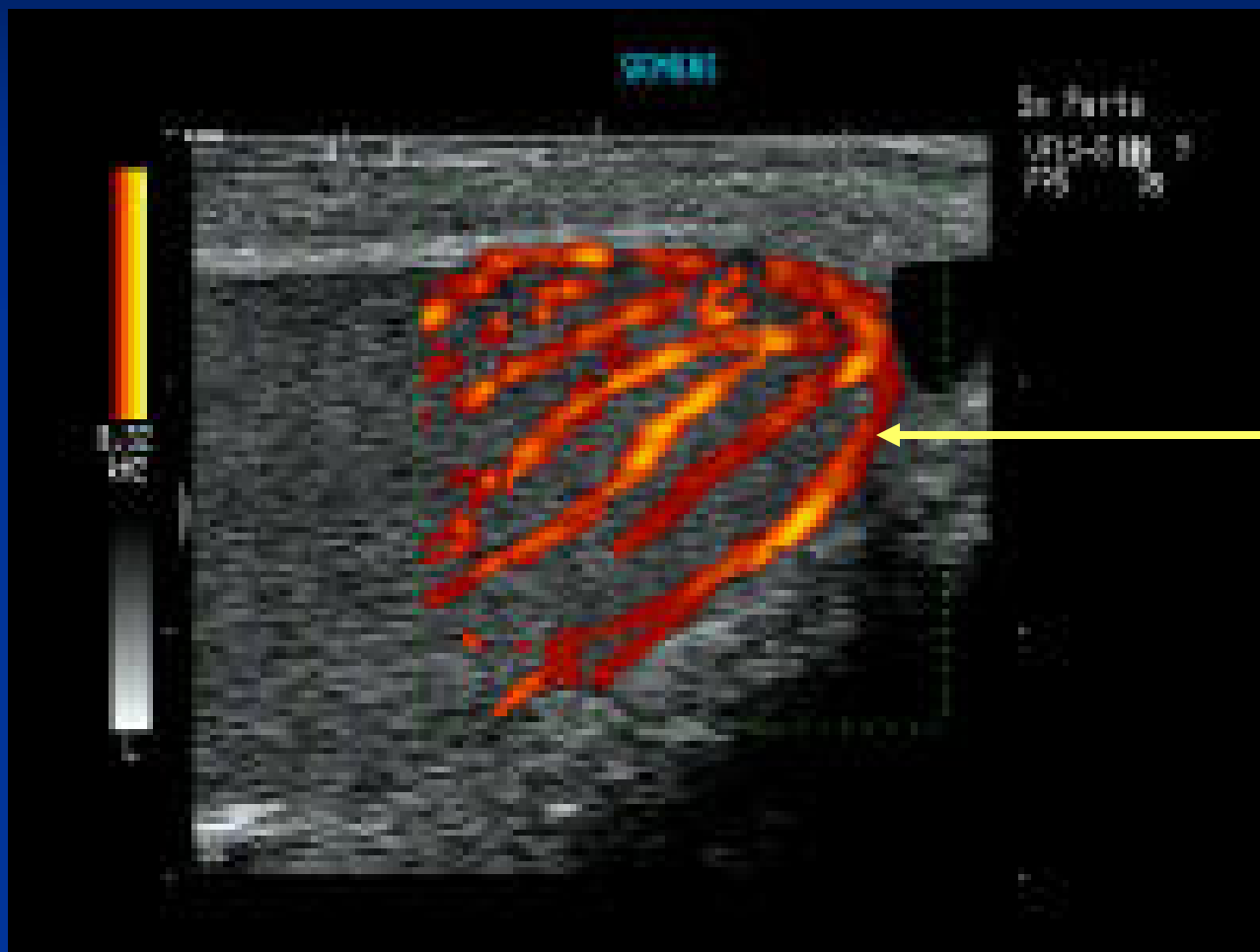
ANATOMY



From: http://matweb.hcuge.ch/Selected_images/Testis_images/Testis--_%20normal_diagrams.htm AND
<http://www.aafp.org/afp/980215ap/junnila.html>



Power Doppler -Normal Testis



Normal
Vasculature
of Testis

From http://matweb.hcuge.ch/Selected_images/Testis_images/testis_normal_imaging.htm.



Blunt Trauma

Testis →

- Mobility in scrotum
- Elasticity of scrotum

Injury occurs w/:

- Compression against solid object such as pubic bones
- Burst tunica albuginea



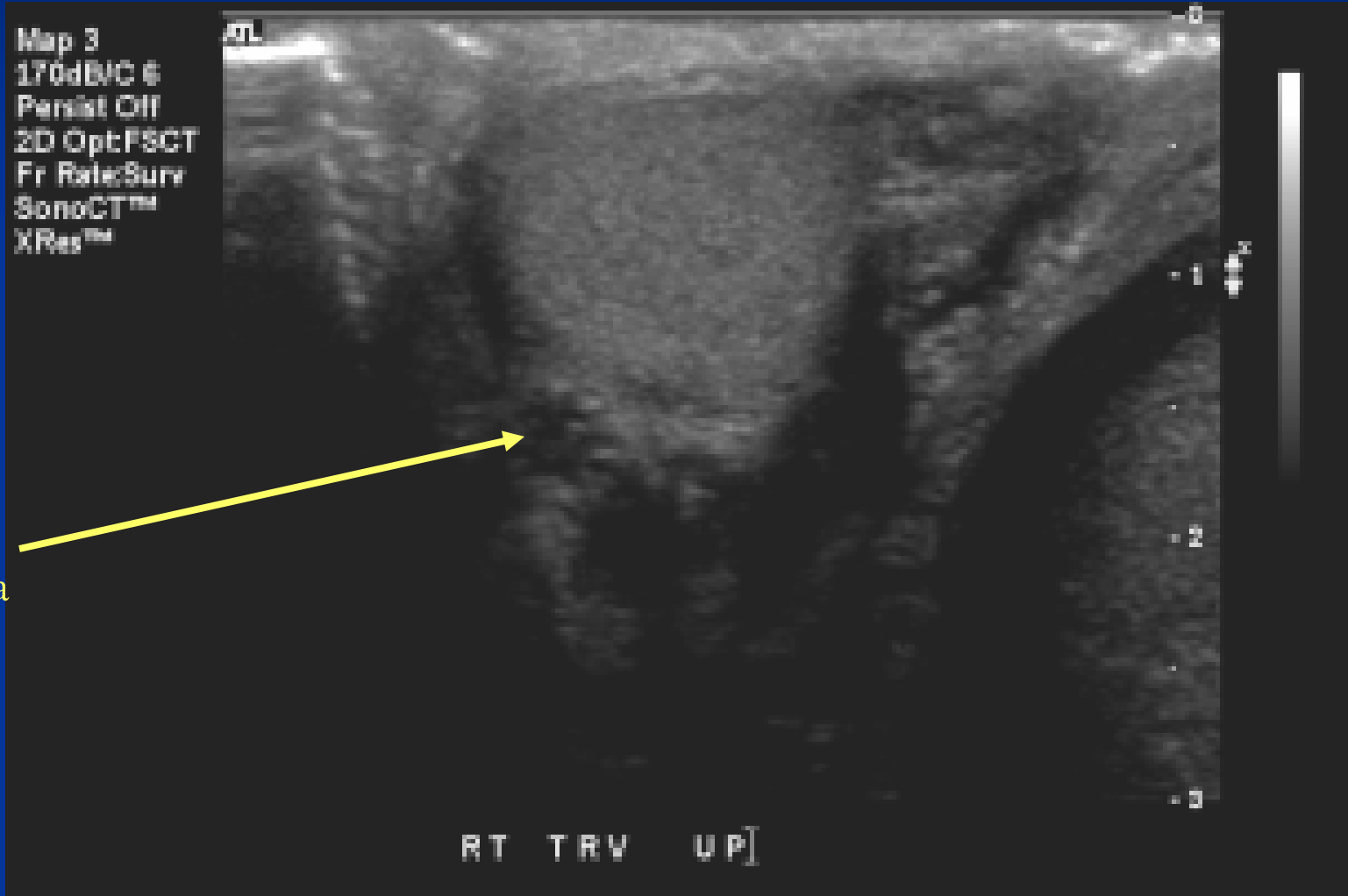


Why Important to Diagnose

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



Normal Testicle



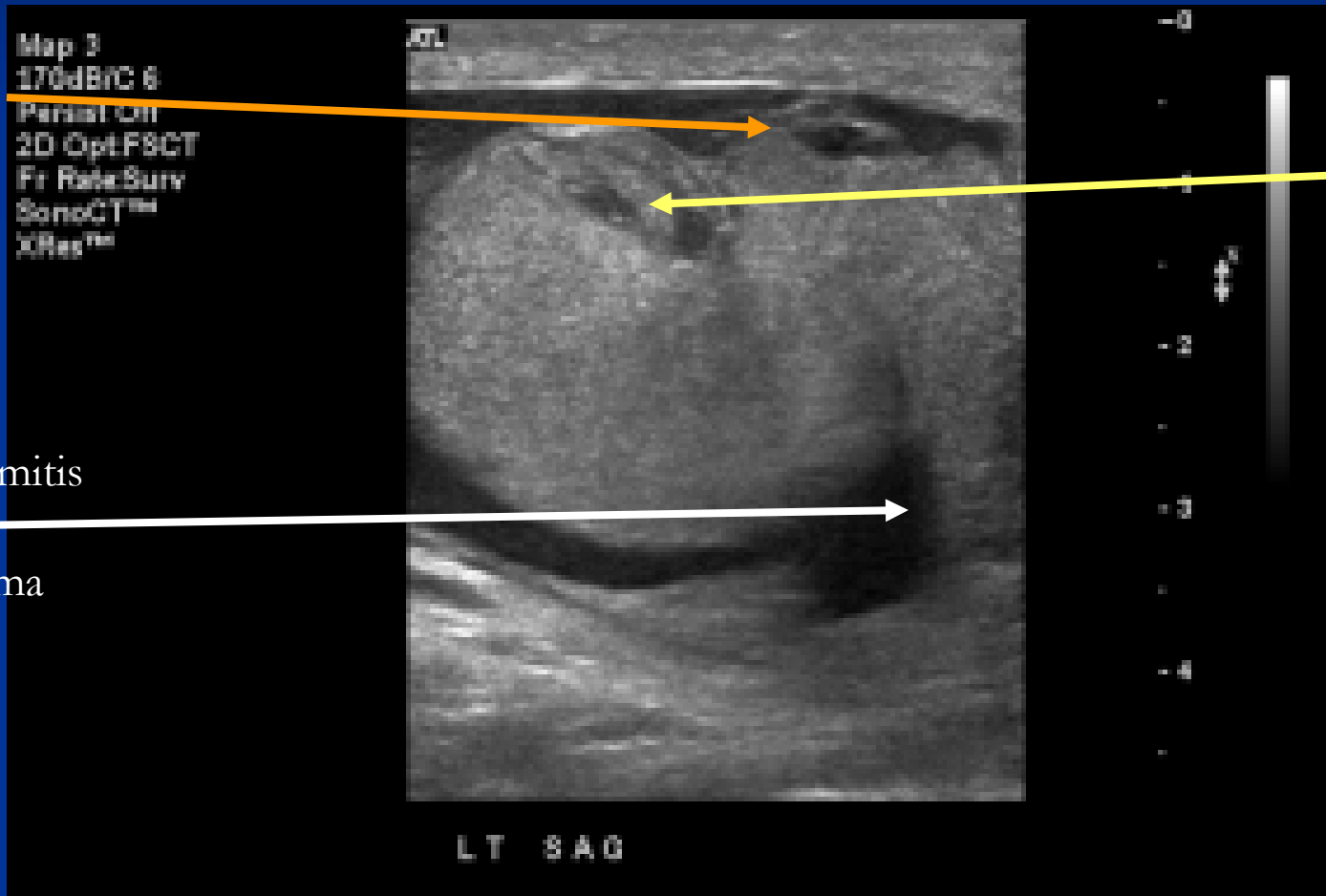
From BIDMC ED Sept. 8, 2002: s/p MCC vs car, now p/w scrotal ecchymosis



Testicular Rupture

Tunica
Albuginea
Rupture

Epididymitis
w/
hematoma



hematoma

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



Testicular Torsion

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



From: <http://health.discovery.com/diseasesandcond/encyclopedia/2485.html>



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



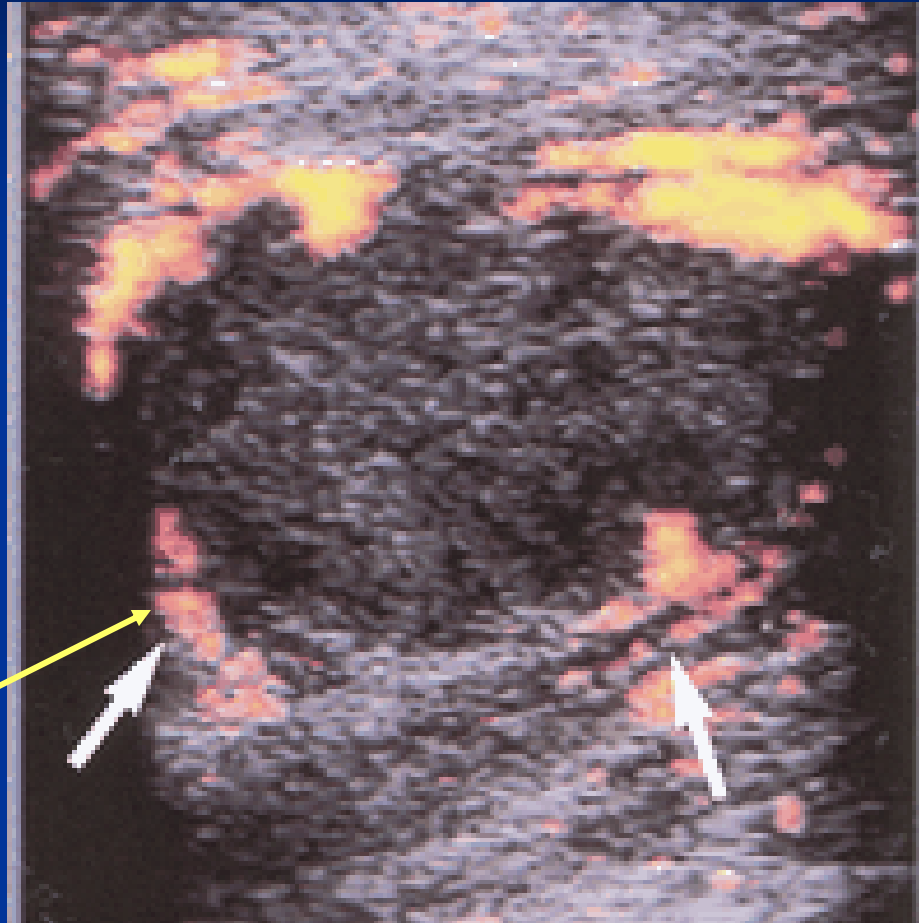


Color-flow Doppler Examination

- Visualize Testicular Arteries
- Torsion: lack of flow
- Epididymitis: increased flow in epididymis
- Orchitis: increased flow in testes



Torsion – Power Doppler US

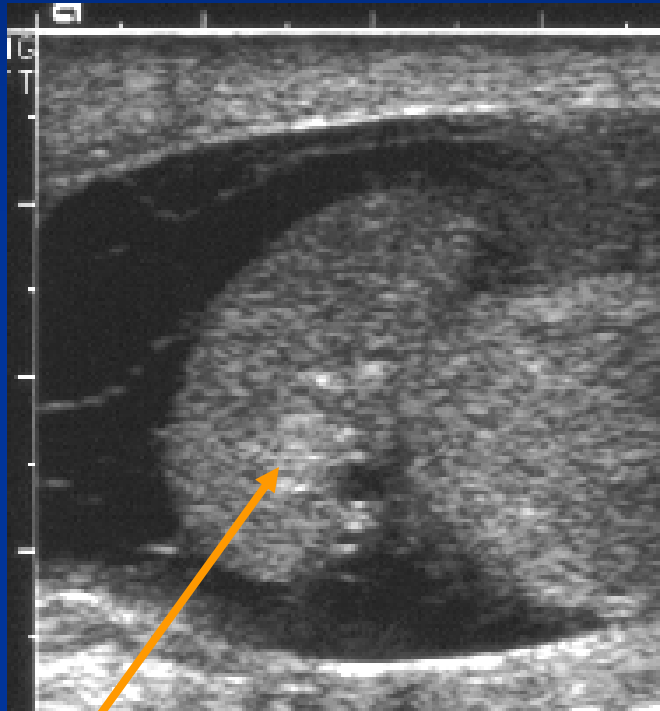


absence of
perfusion in
testicle w/
rim of
peripheral
hyperemia

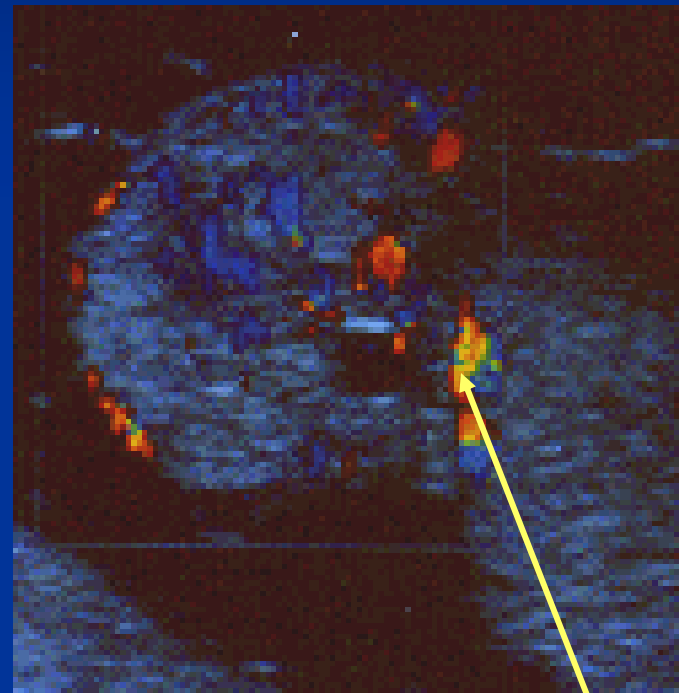
From <http://radiology.rsna.org/cgi/content/full/215/2/313>



Epididymitis: Color flow doppler US



Increased size of epididymis

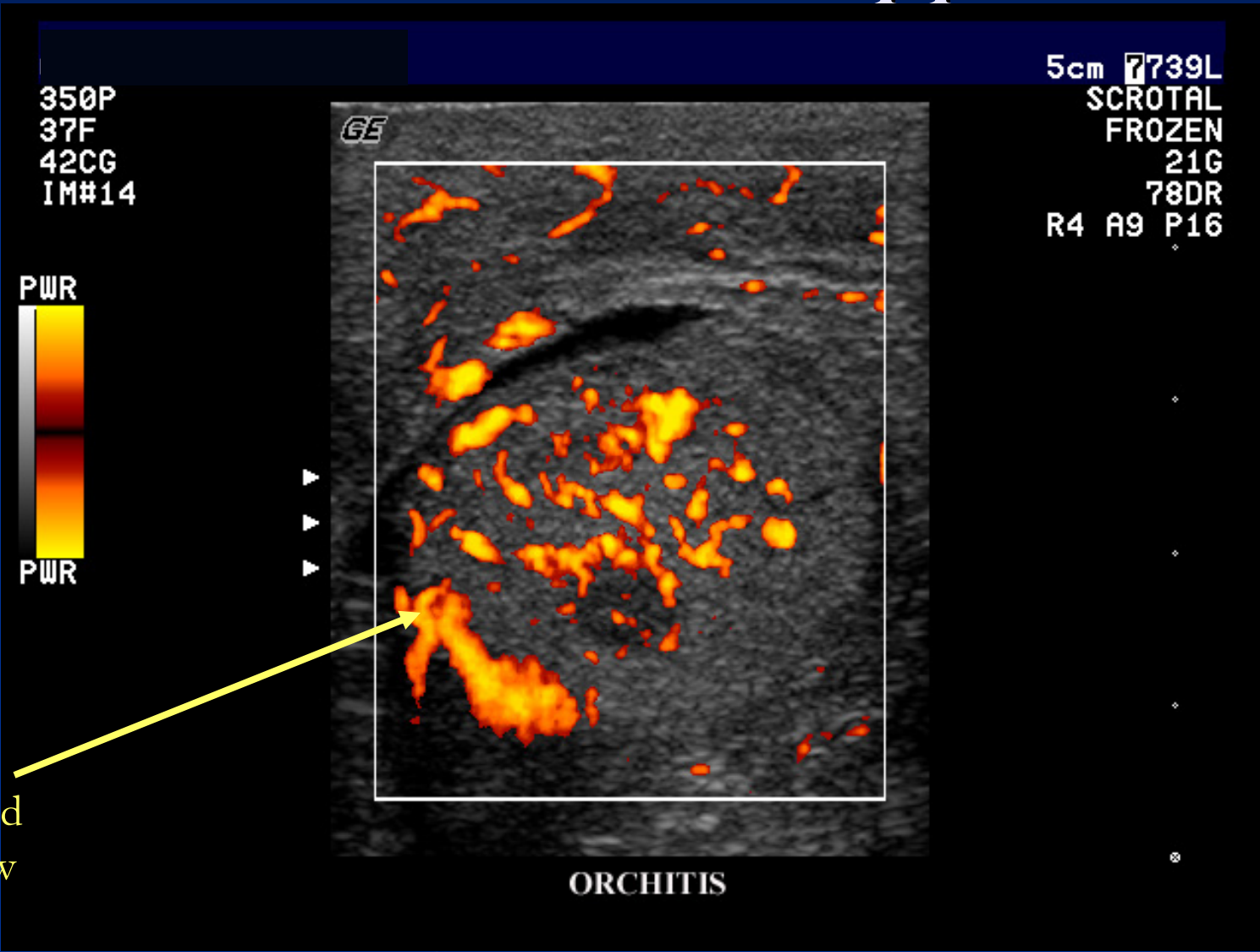


enlarged epididymal head with increased blood flow

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



Orchitis: Power Doppler US



Increased
test. flow

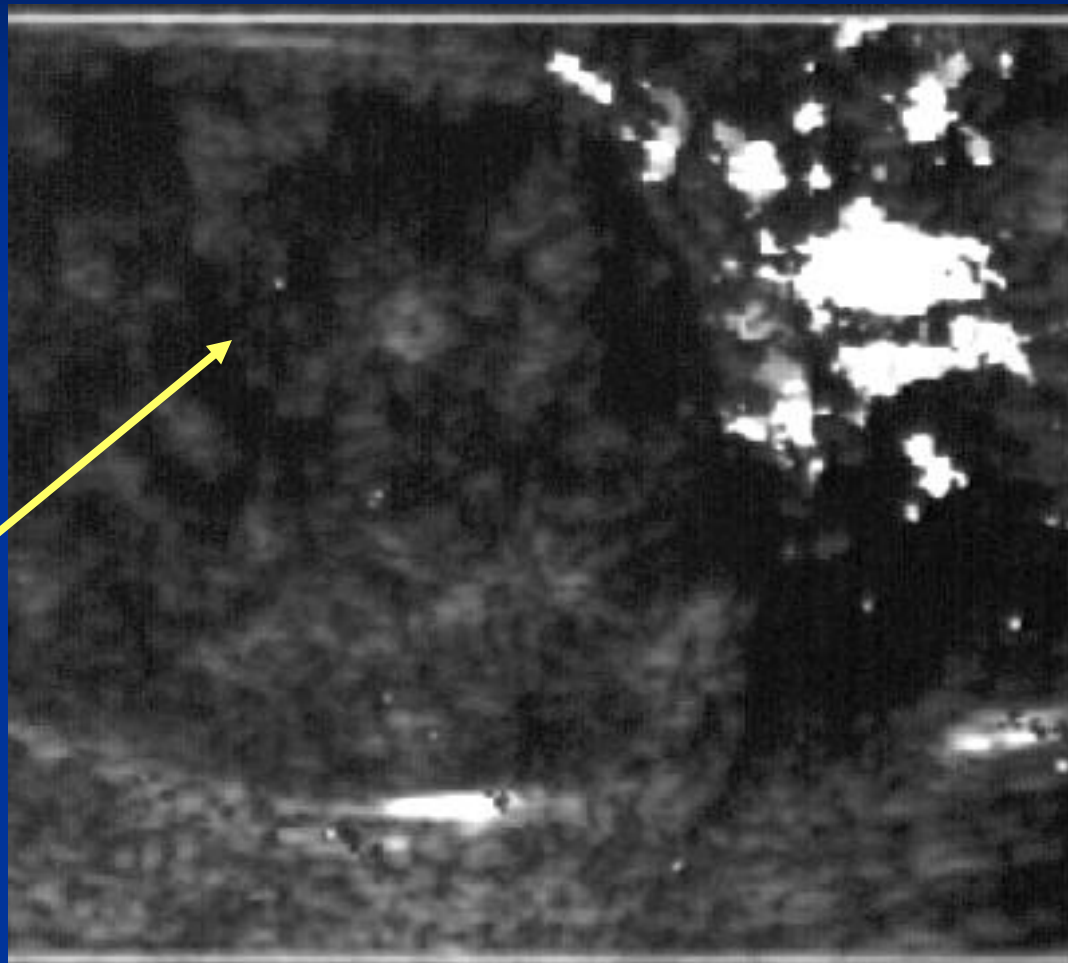


Testicular Infarction

- 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

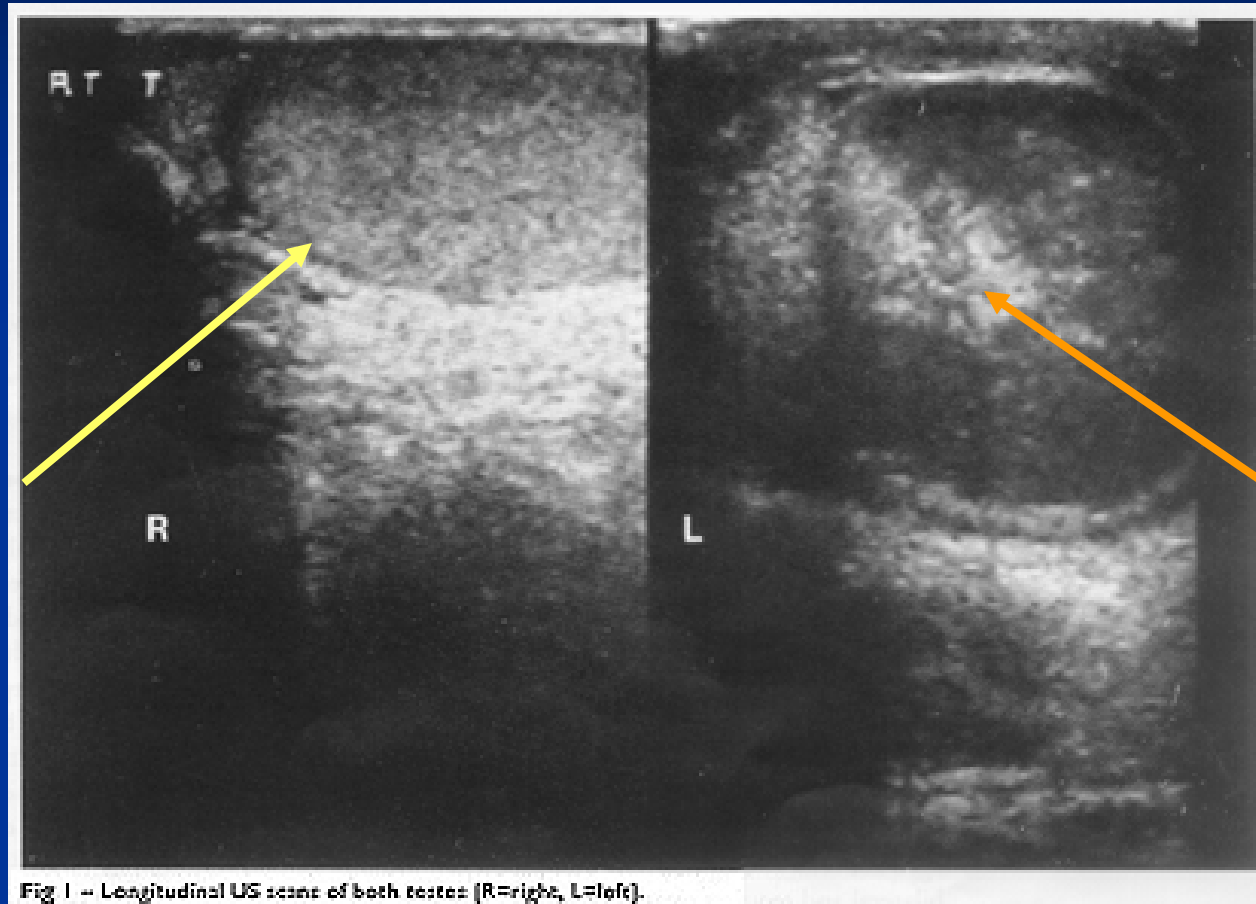
- Accompany epididymo-orchitis
- Complication of missed torsion
- Necrotic tumor
- Infectious Agents: Mumps, Smallpox, TB, Influenza





Testicular Abscess US

Normal



Hyperechoic
abscess

Fig 1 - Longitudinal US scans of both testes (R=right, L=left).

From <http://www.sma.org.sg/smj/4001/articles/4001me1.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 own destiny.

Sept 12, 01



What do you see?





References

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