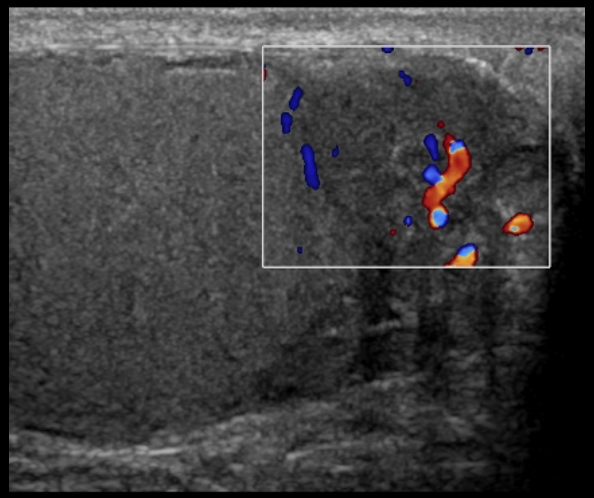
TRUE NORTH IMAGING

2018 CME
SONOGRAPHER DAY

SCROTAL & HERNIA ULTRASOUND



Rt Epi TAIL AREA SAG

Sharon Shin, MD FRCPC

May 6, 2018

Scrotal Imaging at TNI

- At True North Imaging, we perform approximately 40-50 scrotal ultrasounds a week

- We see a lot of pathology!
    - Testicular cancers
    - Epididymitis-orchitis, intrascrotal abscess, including granulomatous/TB infection of the scrotum
    - Scrotal trauma
    - Hernias
    - Undescended testes
    - And yes…. many varicoceles and many many epididymal head cysts!

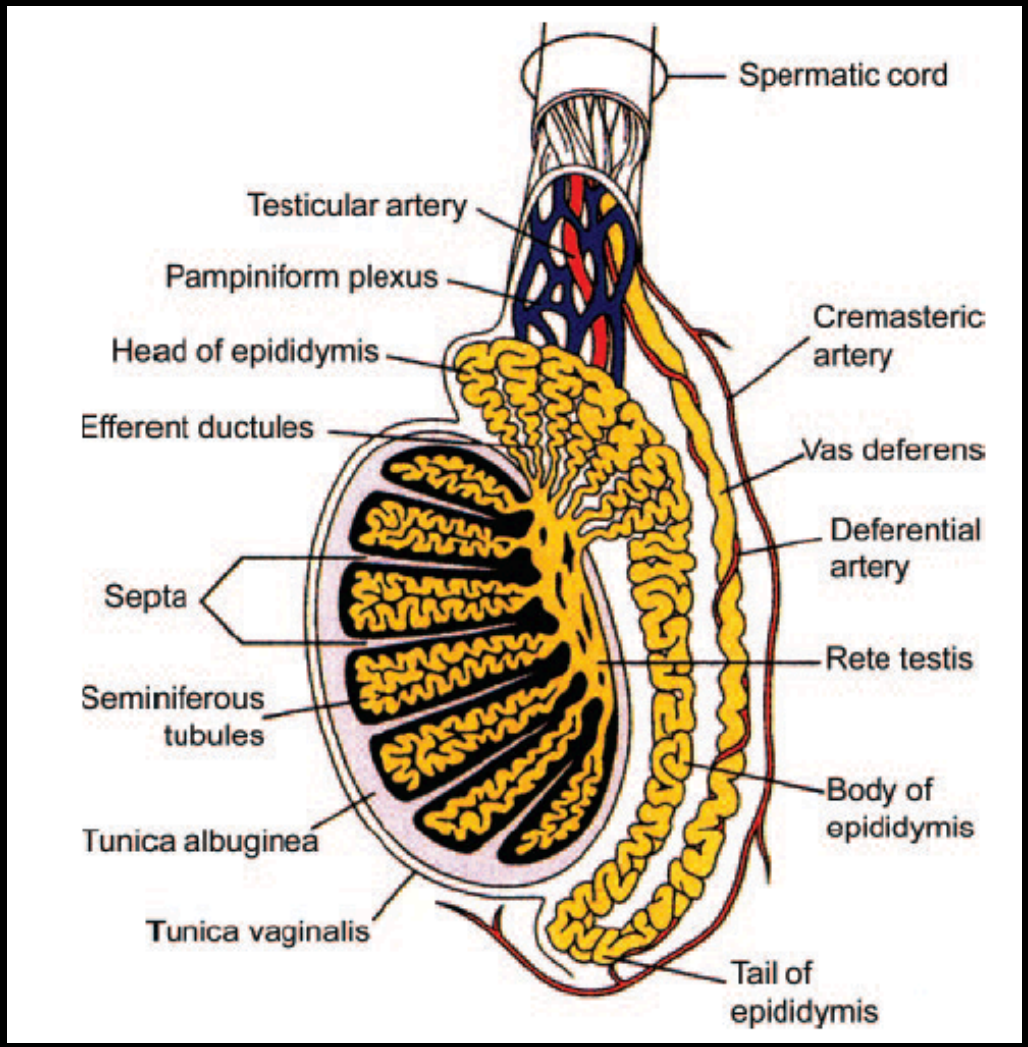
Scrotal & Hernia Ultrasound - Overview

- Testicular Anatomy
- Scrotal Ultrasound Technique
  - scan both testicles in same image, without and WITH doppler
- Scrotal Masses & Testicular Cancer
- Testicular Microlithiasis – updated consensus guidelines
- Testicular Torsion
- Epididymitis – Orchitis → ALWAYS follow-up US with orchitis
- Testicular Trauma
- Infertility Workup – varicocele
- Pediatrics – undescended testes, torsion of appendix testis

- HERNIAS – Supine, then Stand them UP!
  - ♀♂ • Hernia Scanning Protocol – Inguinal Hernias ♂ >>> ♀
  - ♀ • Cyst of the Canal of Nuck
  - ♀ • Pregnant – Round Ligament Varices (RLV) – NOT a hernia!

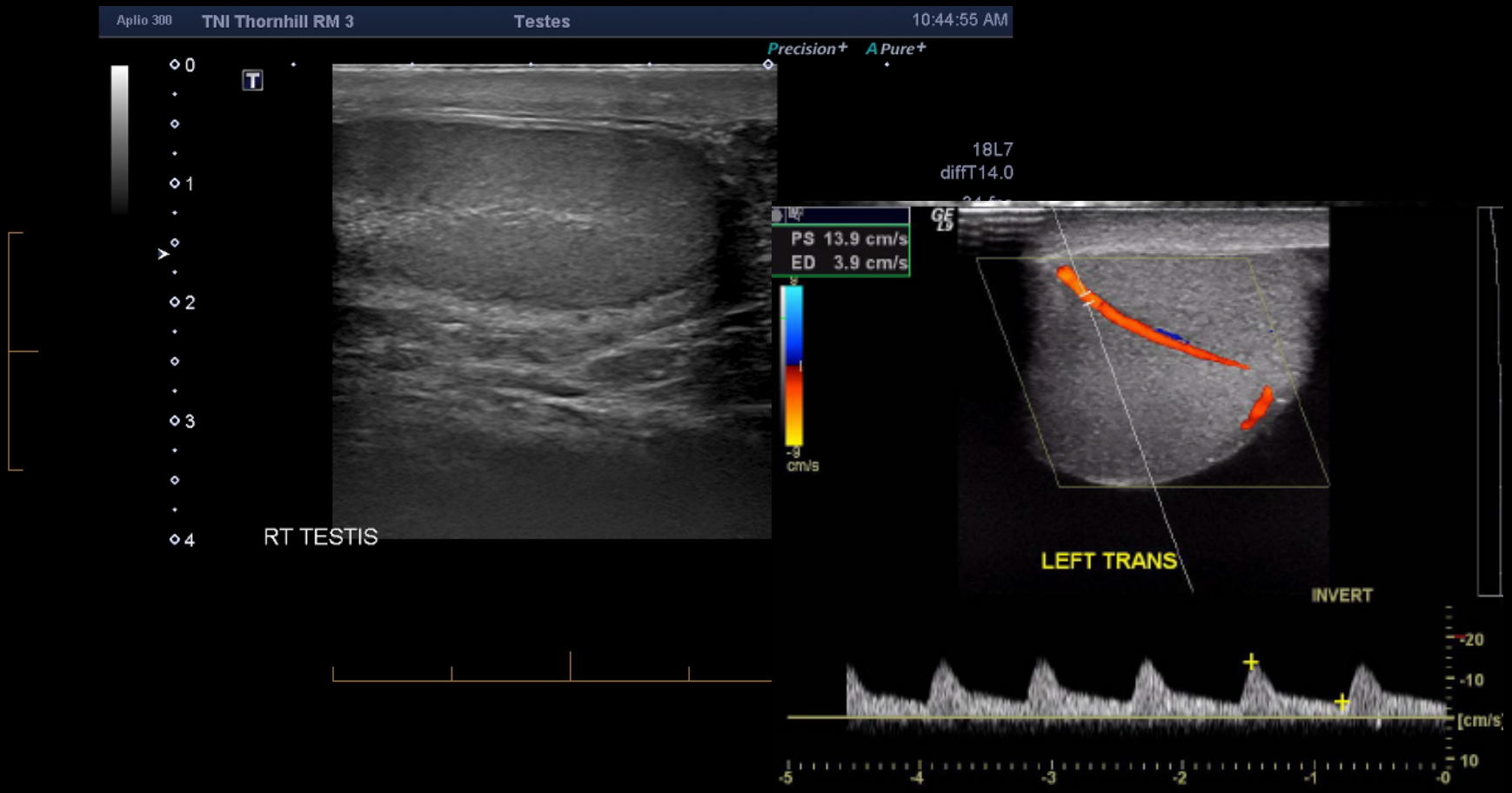
Testicular Anatomy

- Normal testis 5 x 2-3 x 2-3 cm (15-20 cc)



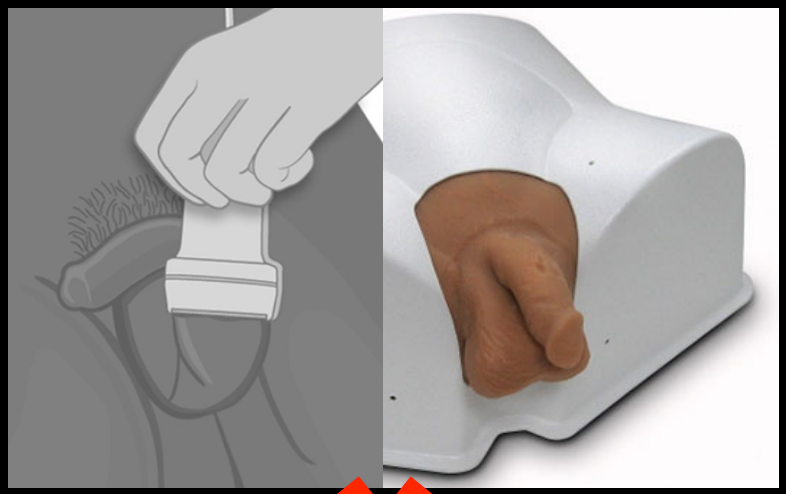
Testicular Anatomy

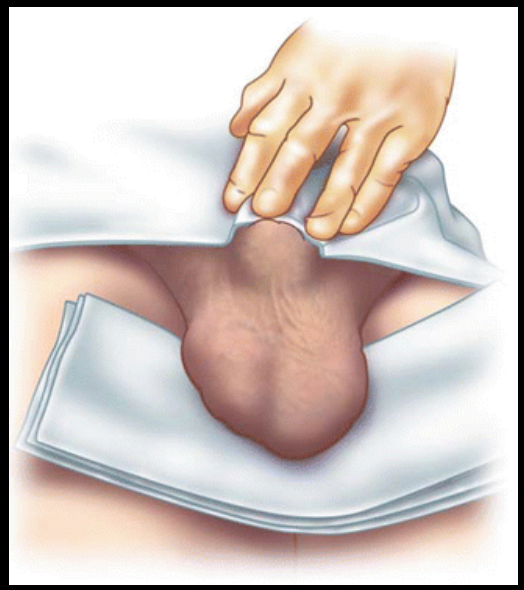
- BLOOD SUPPLY: Testicular artery → capsular arteries (at testicular periphery)→ centripetal artery branches (within testis)



Scrotal Ultrasound Technique

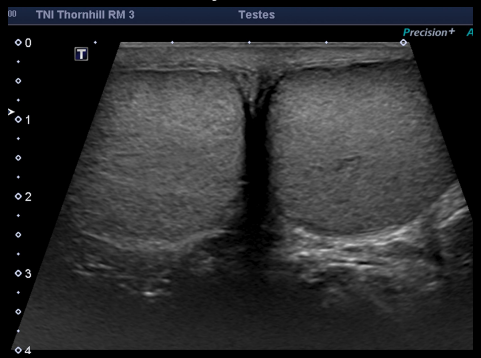
- Support scrotum with draping or towel over thighs
  - *To avoid having scrotum falling between the patient's legs as you scan*
- Cover Penis using another drape to get out of field of scanning
- Use Warm gel

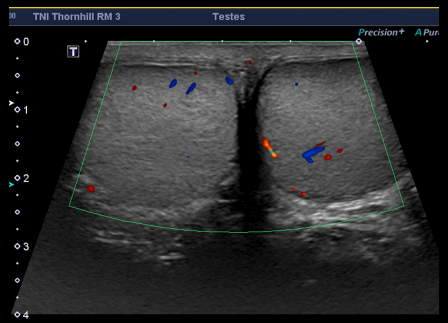




Scrotal Ultrasound Technique

- Start with TRANS image of BOTH testes together in SINGLE screen, without and WITH doppler

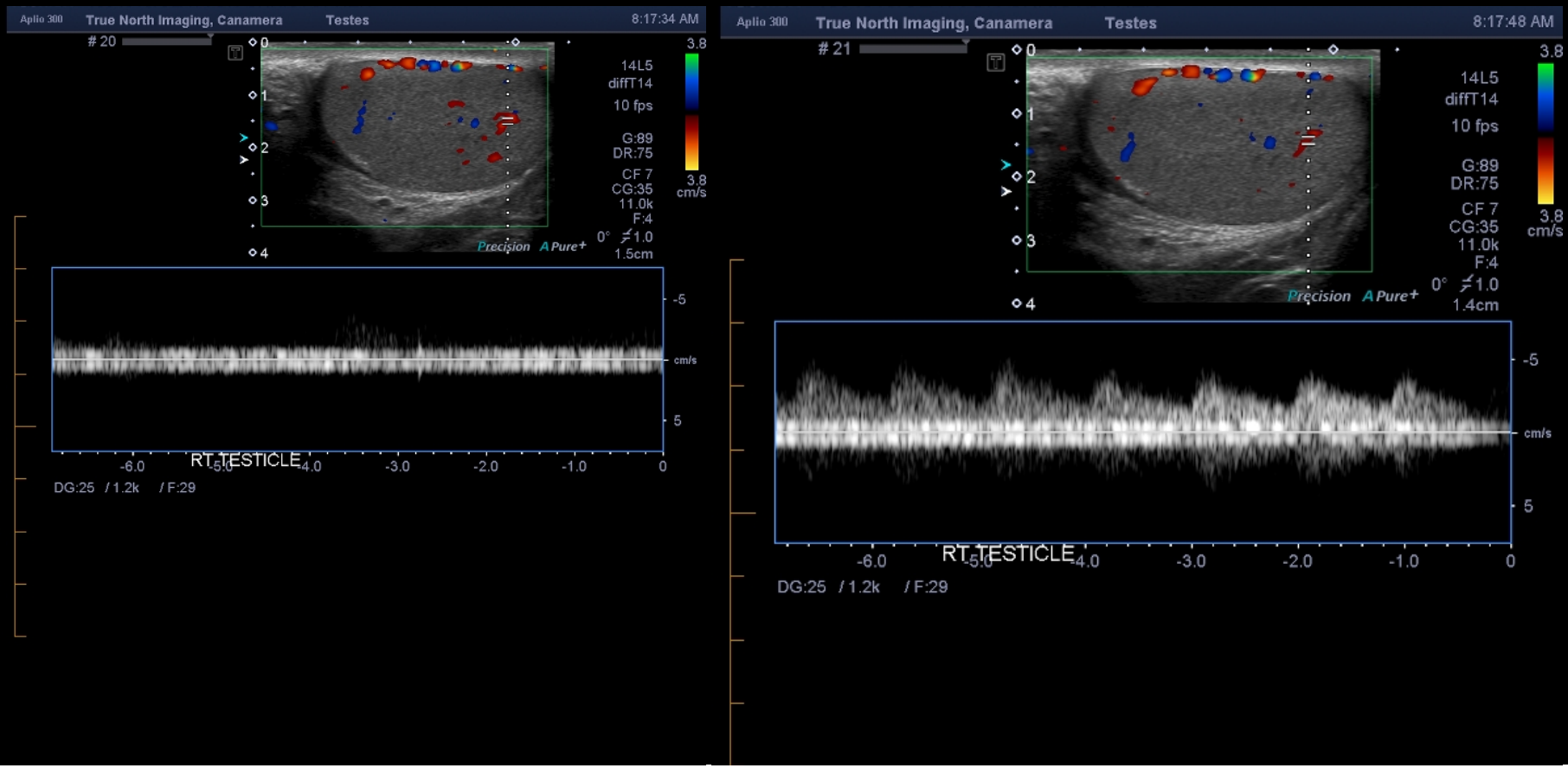




- Scan asymptomatic side first
- Measure each testicle L x W x H
- Show multiple images of testicles to document homogeneity in TRANS and SAG.
- Apply Doppler - Pulse and Colour <u>Doppler IN CENTRE of testicle</u>
  apply PULSE WAVE Doppler and get arterial and if possible venous tracing near CENTRE of testicle (not periphery)
- Show Epididymal Head, Body AND <u>Tail</u> – then apply doppler
- Document Hydrocele
- Document Varicocele, both without and With valsalva + doppler

Scrotal Ultrasound Technique

- Apply Doppler - Pulse and Colour IN CENTRE of testicle
  - apply PULSE WAVE Doppler and get ARTERIAL and if possible VENOUS tracing near CENTRAL testicle (not periphery)



Scrotal Masses

- MOST INTRATESTICULAR MASSES
  - ARE CANCER

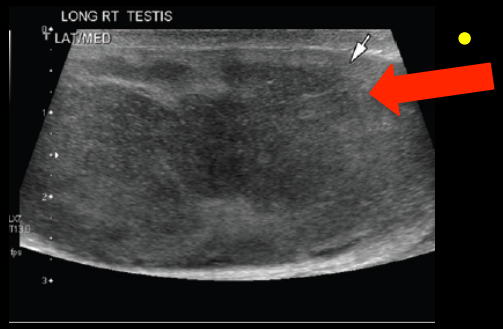
- MOST EXTRATESTICULAR MASSES
  - ARE BENIGN

AN INTRATESTICULAR MASS IS CANCER
UNTIL PROVEN OTHERWISE.
UROLOGY REFERRAL RECOMMENDED.

(unless hx and demographic suggests infection, infarct or other benign nature but AT MINIMUM WARRANTS SHORT-TERM FOLLOWUP ULTRASOUND FOR ANY INTRATESTICULAR SOLID LESION

Scrotal Masses

- TESTICULAR MALIGNANCIES:
  - 95% Germ cell Tumors - Young Men -most common ages 15-44 yo
    - » Seminomas – 55% of all testicular cancers
    - » Non-seminomatous tumors (Embryonal cell, Teratocarcinoma, Choriocarcinoma, Mixed)
  - 5% Other
    - » Sertoli-Leydig Tumors
    - » Metastases – Older

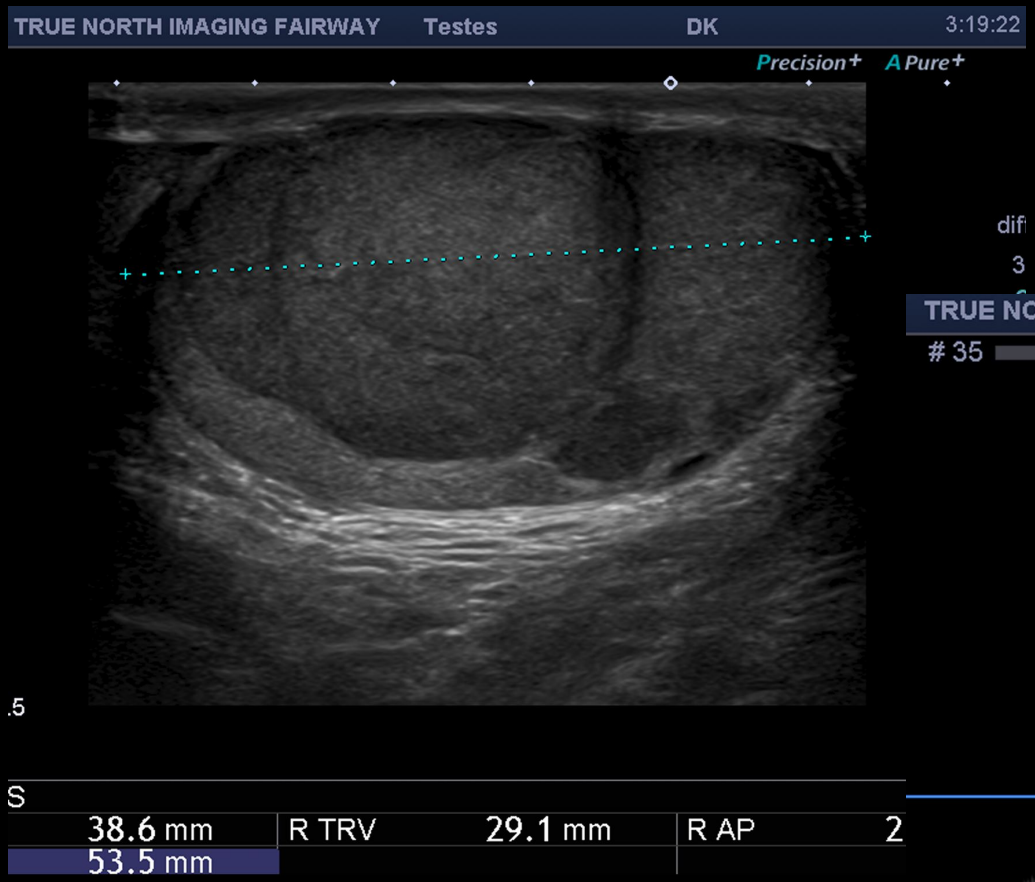


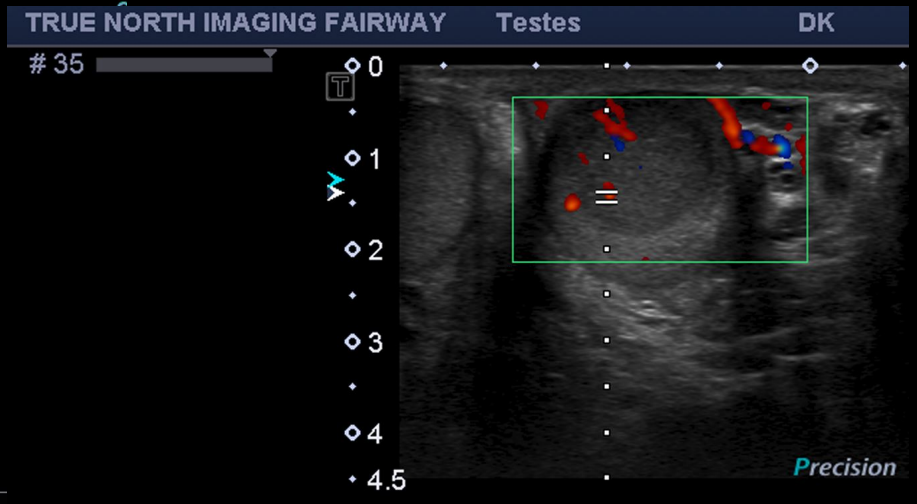
- eg. Lymphoma = *most common testicular tumor 60yo+*
  - Bilateral in 40%
- Leukemia
- Prostate

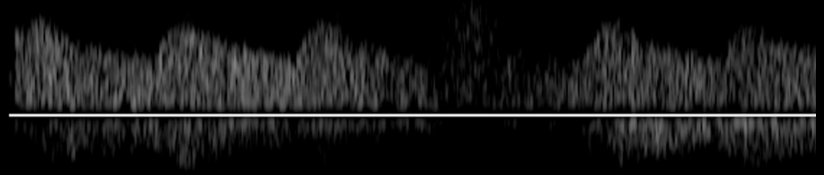
Don't let Clinical History distract from suspicious intratesticular mass!

- eg. "infertility workup"
- 15% of pts presenting with testicular cancer present with symptoms of epidymitis
- 10% have hx of trauma

23 yo M, hardness/stiffness at L testicle for a few months

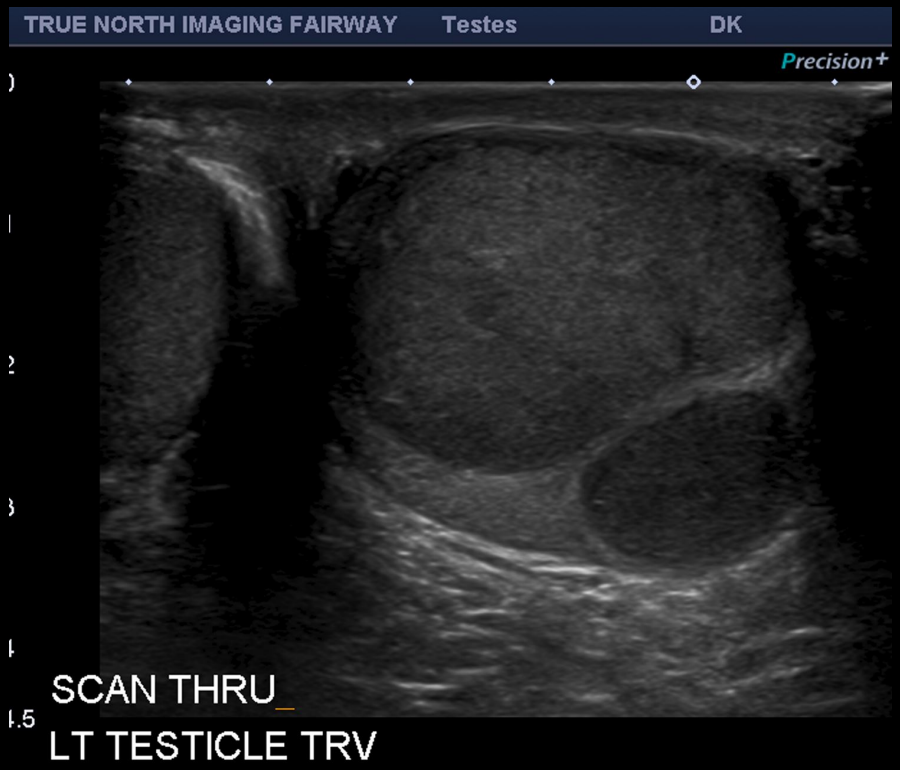






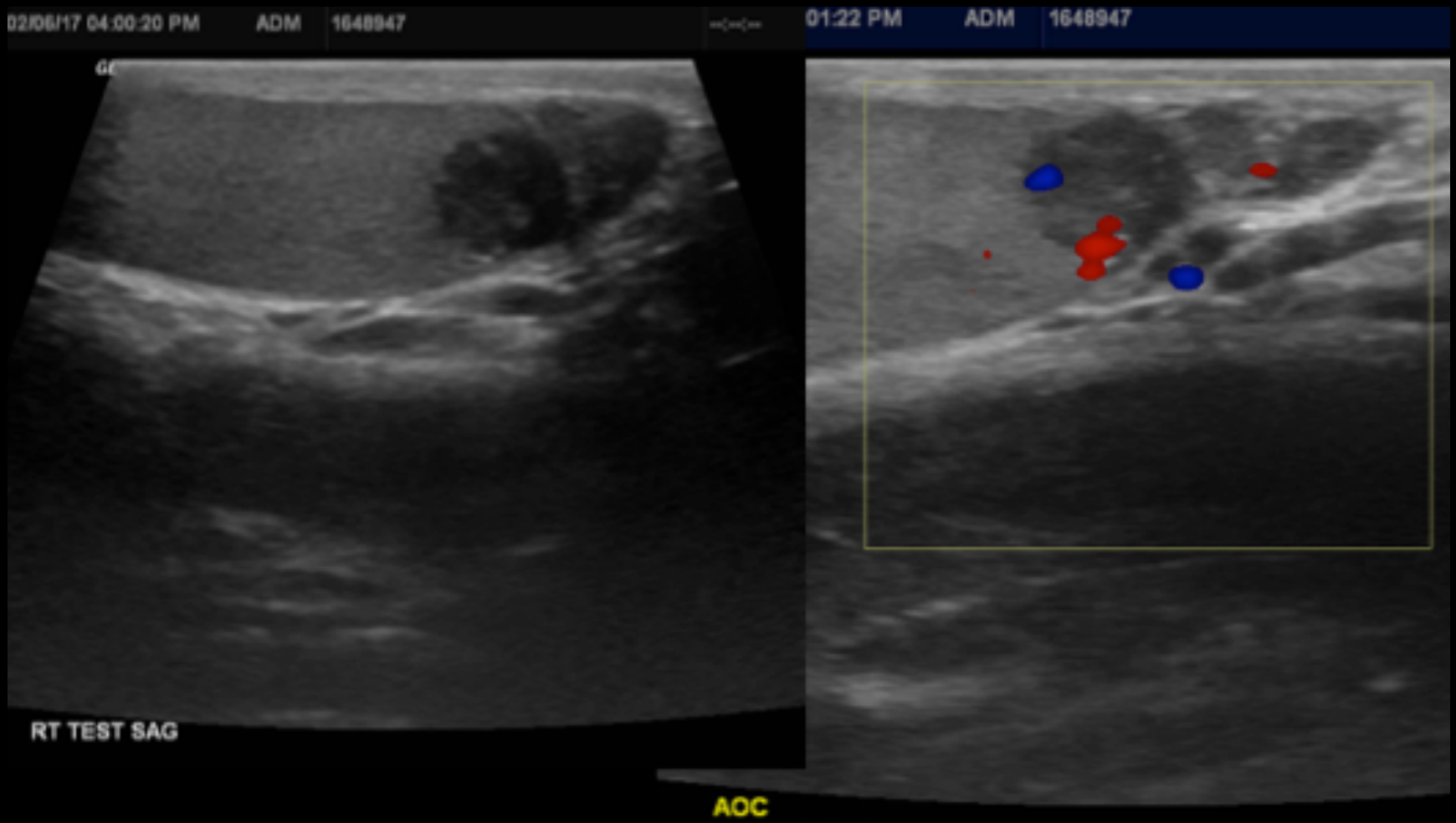
LT TESTICLE TRV

23 yo M, hardness/stiffness at L testicle for a few months

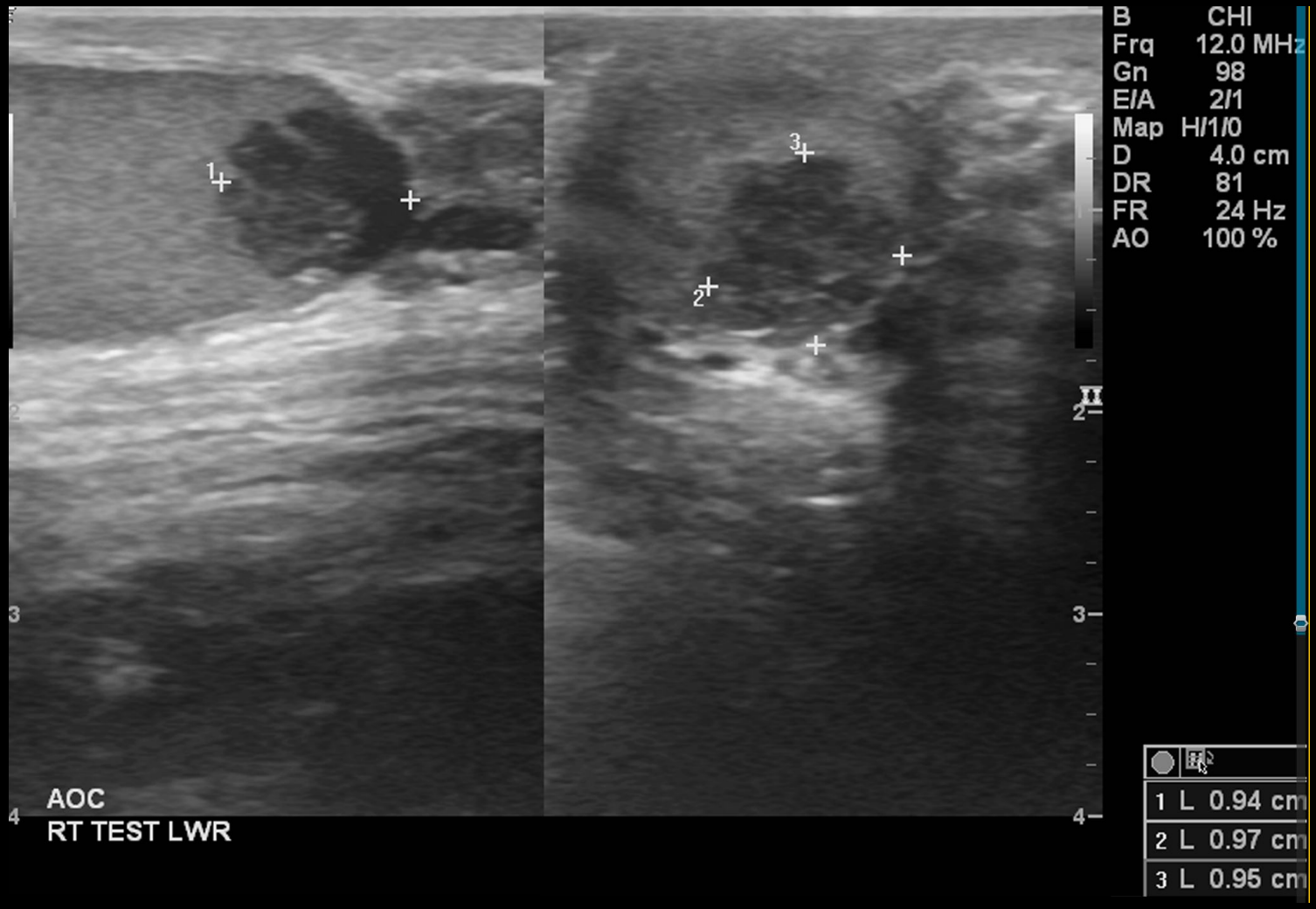


Multifocal Classic Seminoma, 4.8 cm, 3.0 cm, 2.0 cm,
Lymphovascular invasion negative, s/p L orchiectomy at SHSC 11 days after TNI US

33 yo M, noticed R testicular lump for a few days

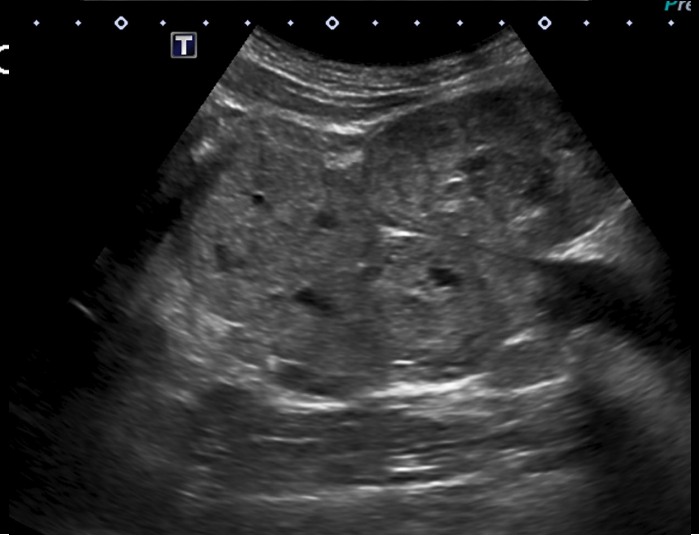


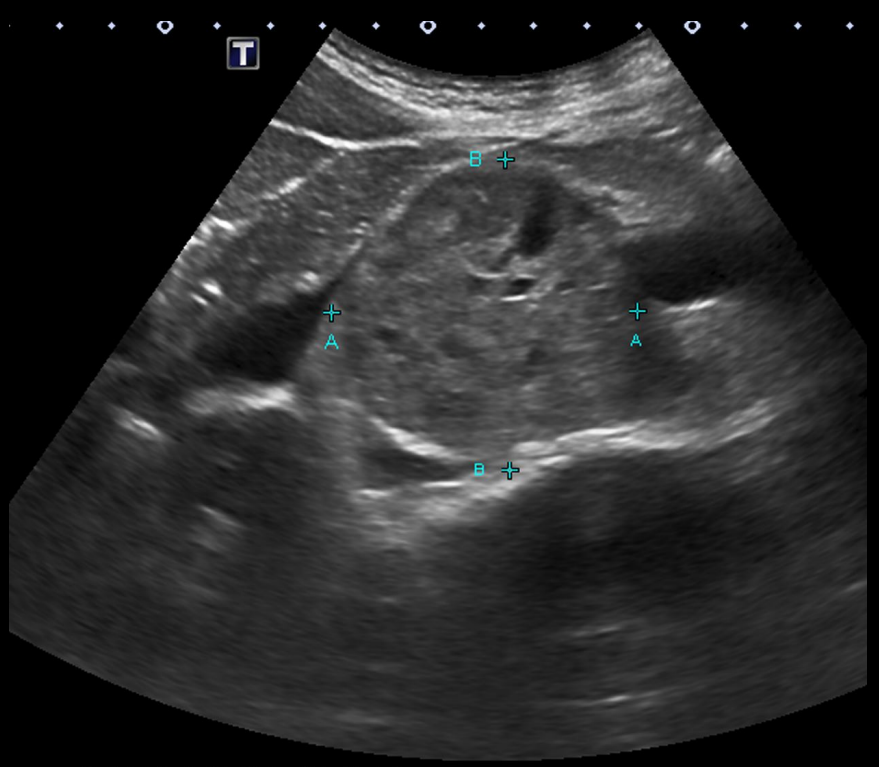
33 yo M, noticed R testicular lump for a few days



Right seminoma on Orchiectomy; CT abdo/pelvis negative for metastases

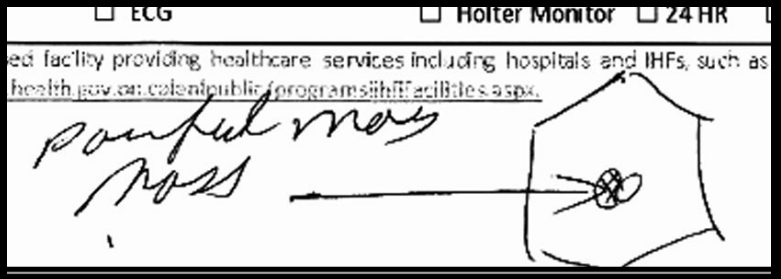
21 yo M, "Periumbilical mass, more obvious when lying than sitting"

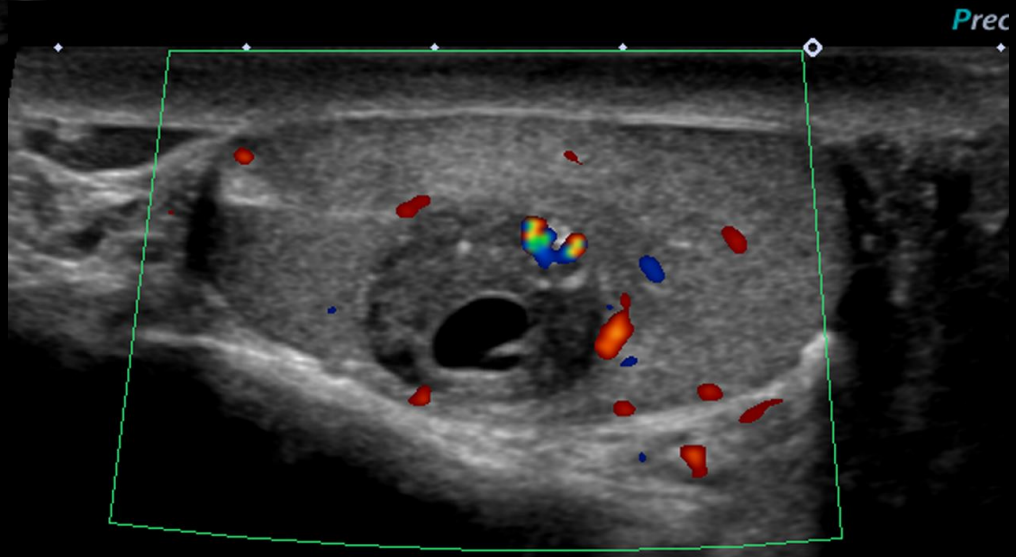




→ Asked sonographer to image the scrotum

21 yo M, "Periumbilical mass, more obvious when lying than sitting"



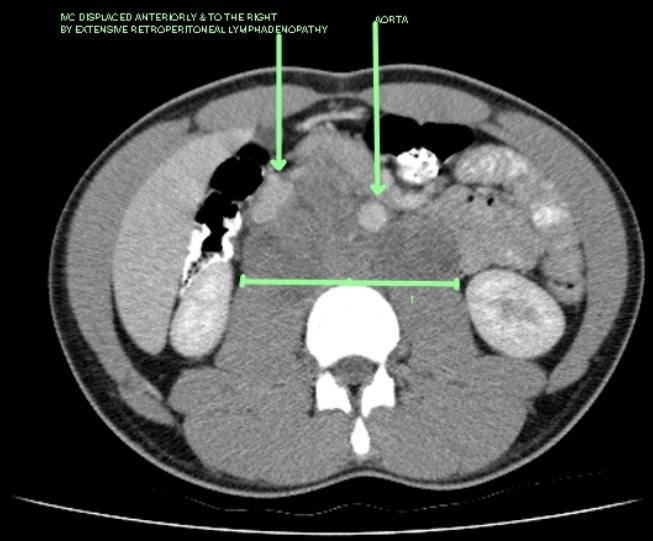


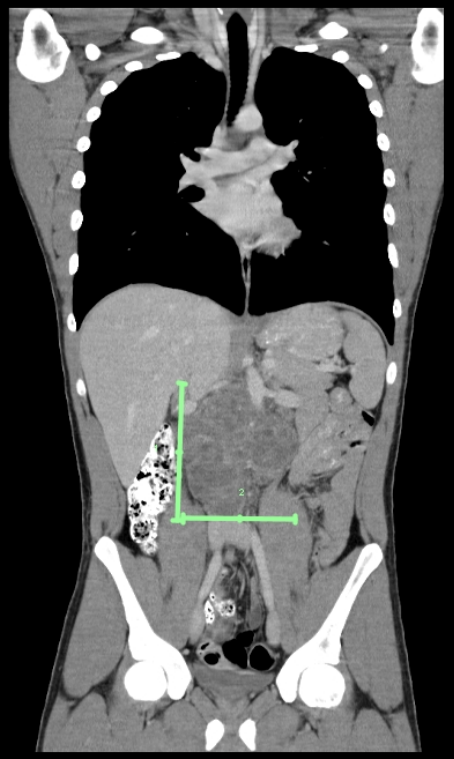
R testicular heteregeneous mass with calcifications and extensive retroperitoneal lymphadenopathy suspicious for testicular cancer with metastases

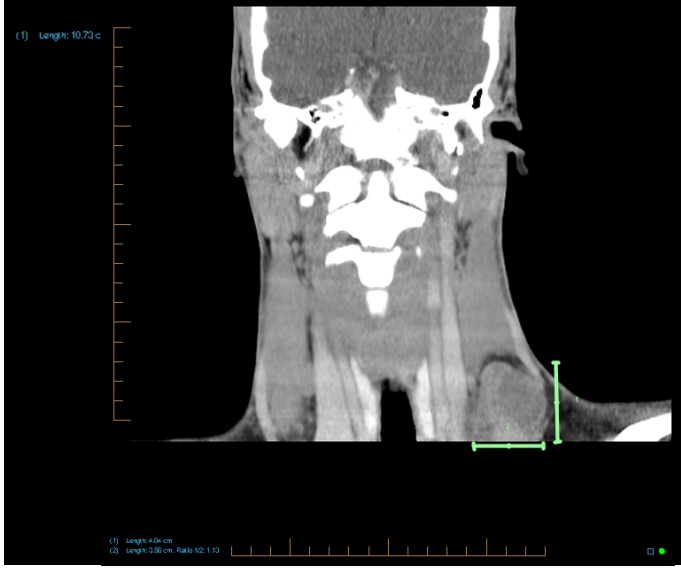
→ recommend urgent urology referral

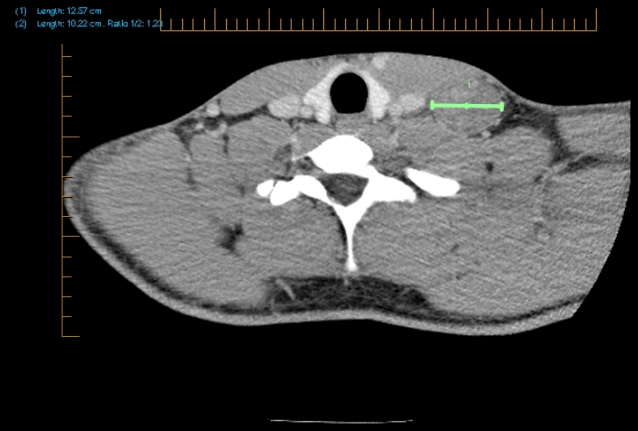
RT TESTICLE

21 yo M, "Periumbilical mass, more obvious when lying than sitting"



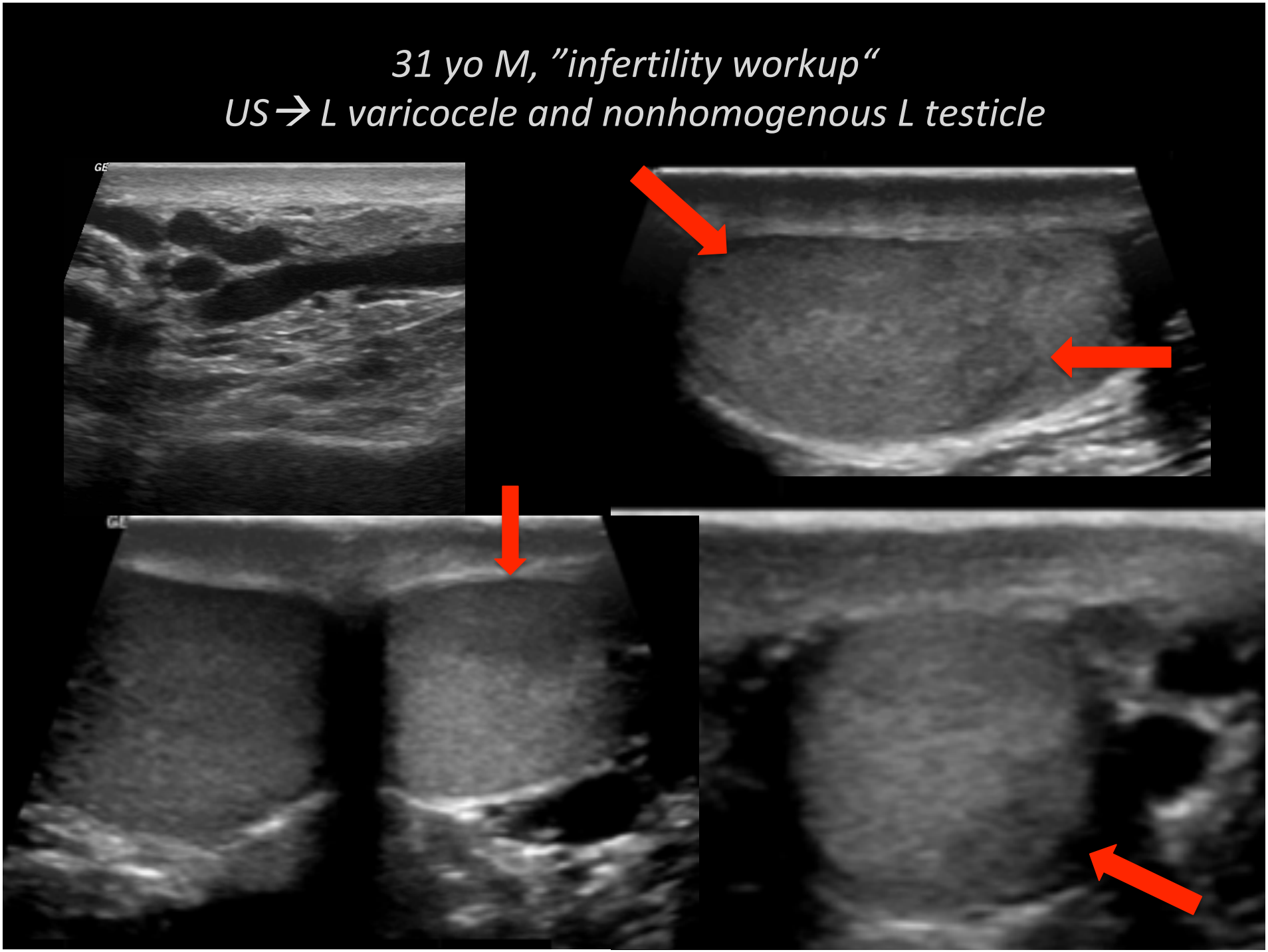




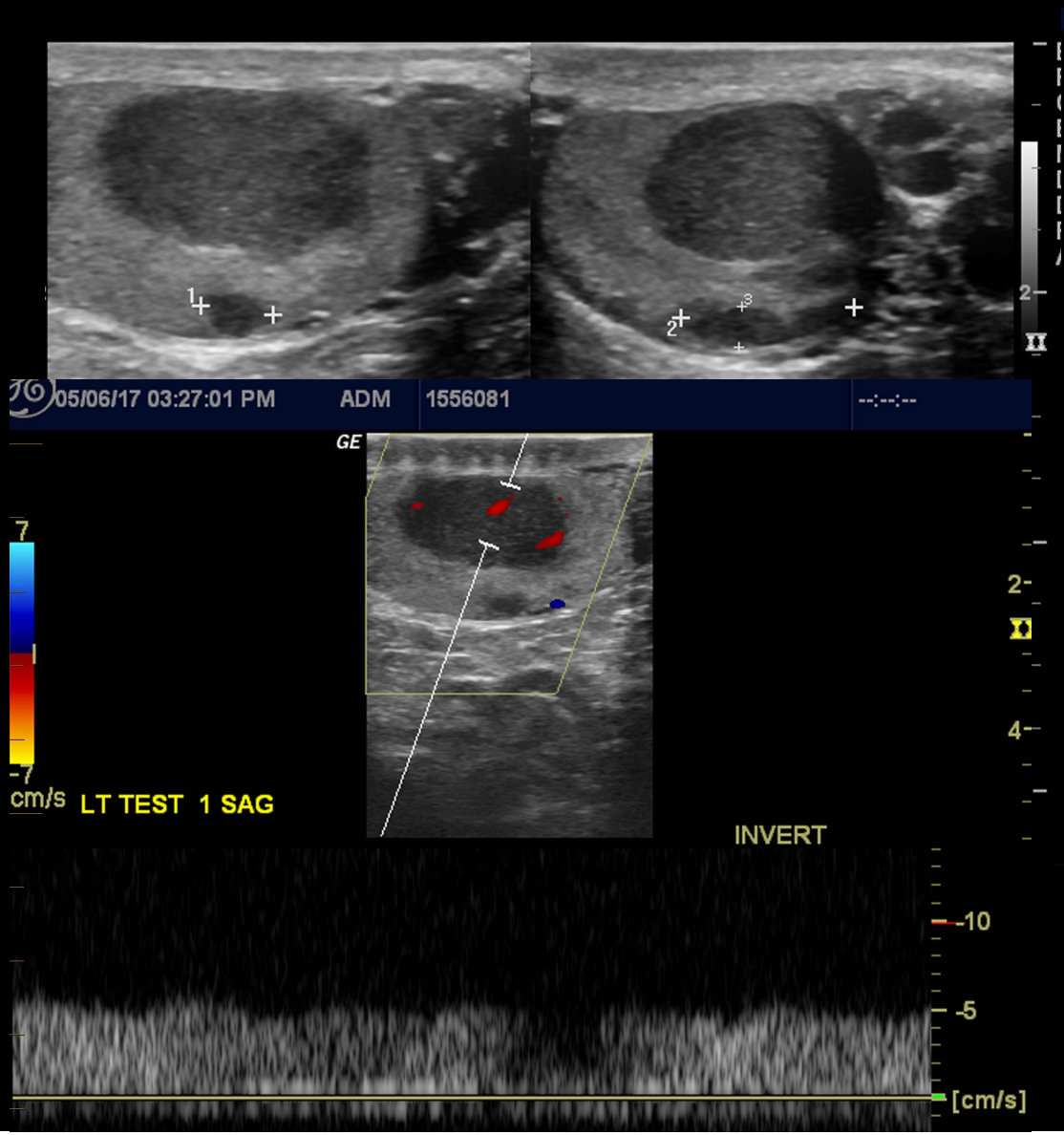


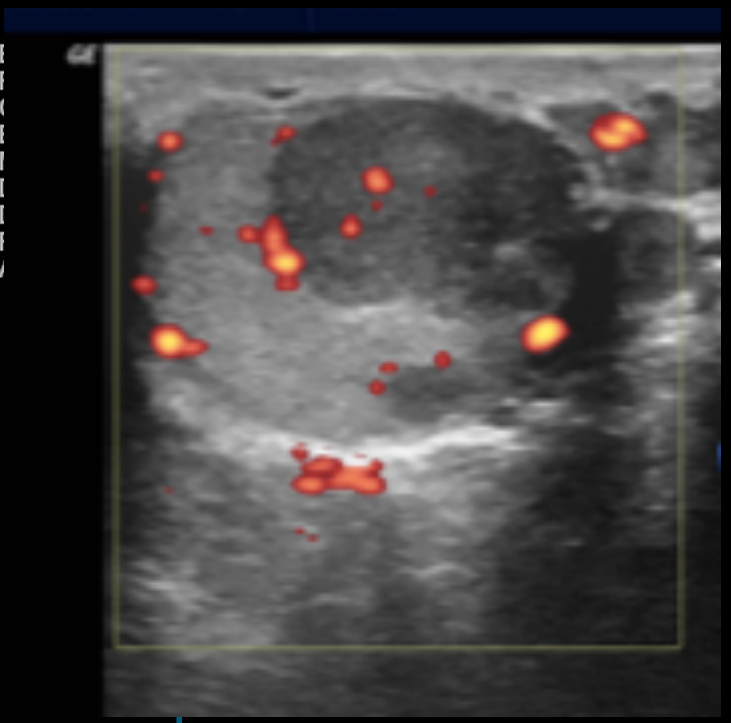
Non-seminomatous Germ cell tumor with extensive Retroperitoneal Lymphadenopathy + L supraclavicular Lymph node (Virchow's node)

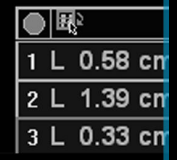
31 yo M, ”infertility workup“
US → L varicocele and nonhomogenous L testicle



31 yo M, ”infertility workup“
Comes back for followup imaging 1 year later

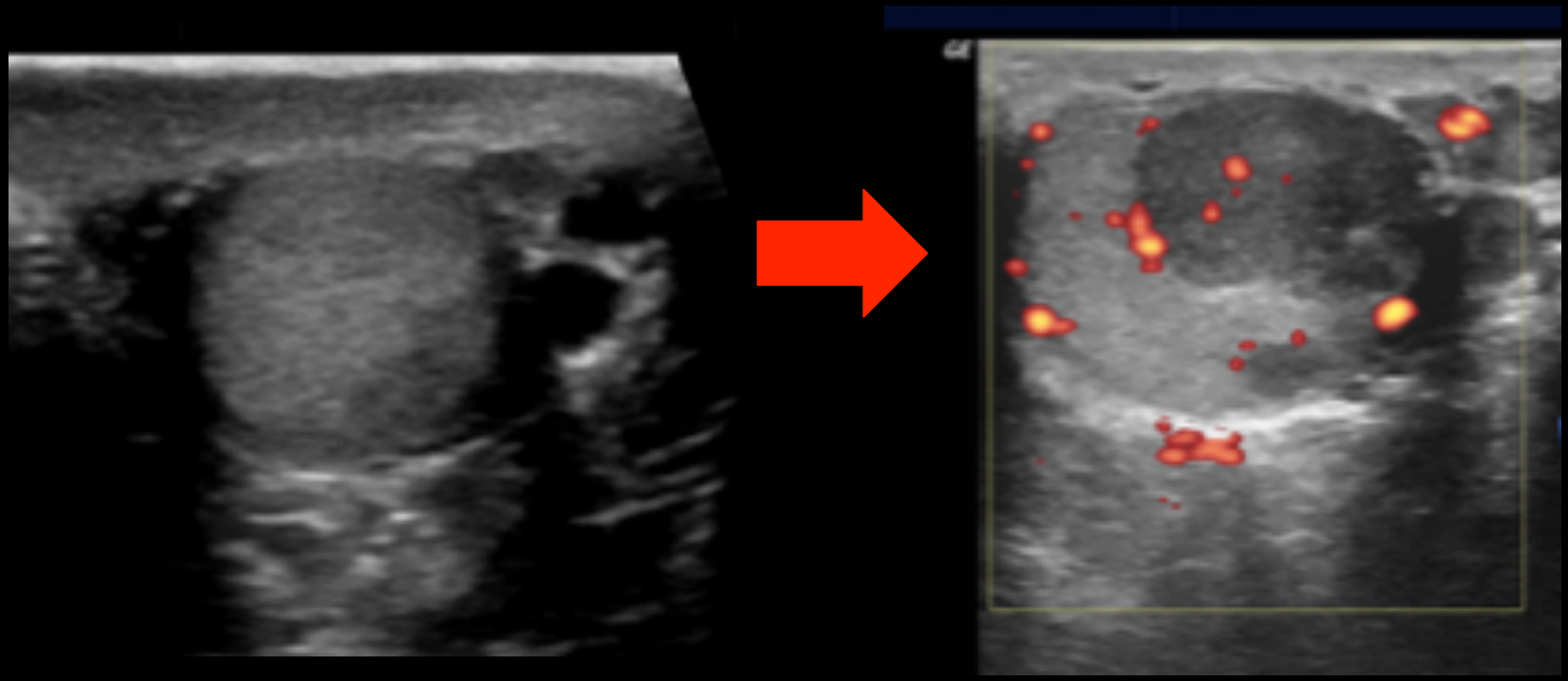




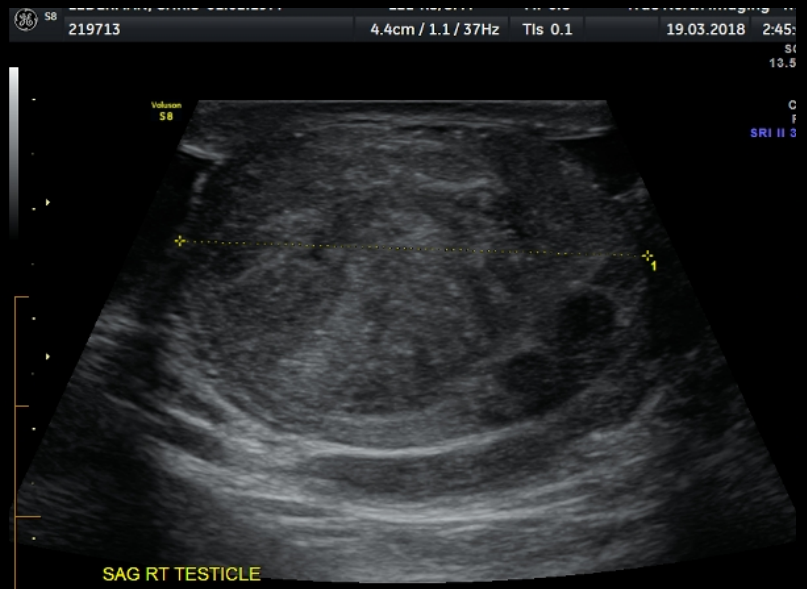


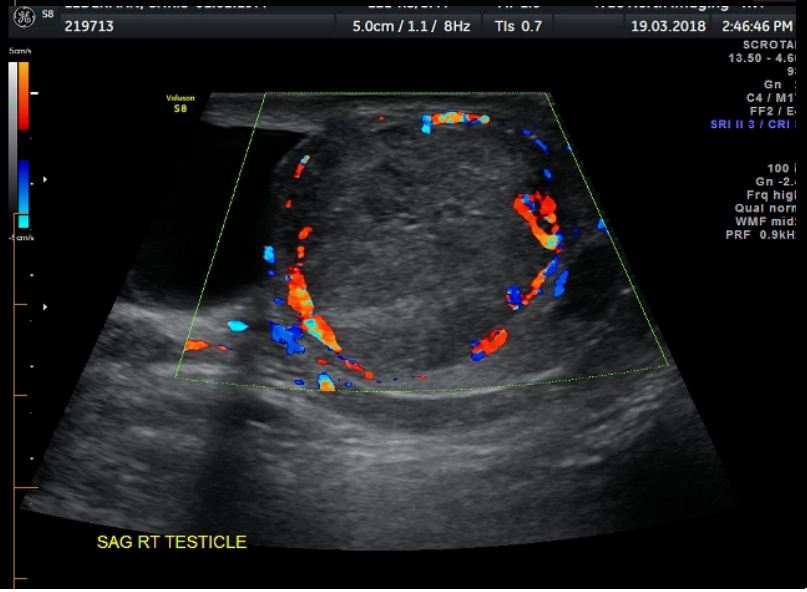
Multifocal seminoma without metastases

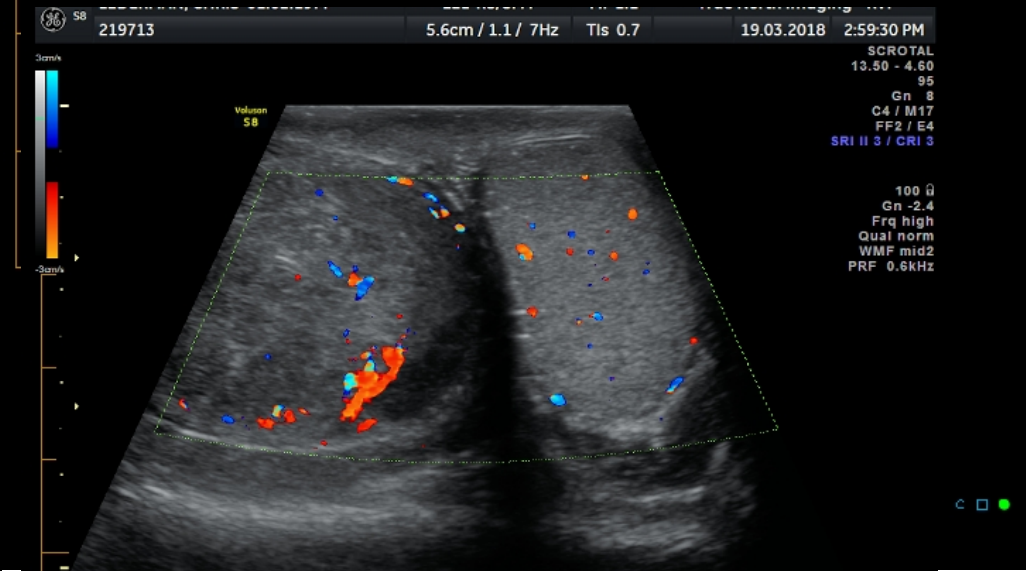
This is why we follow INTRAtesticular solid abnormalities /heterogeneity/striation, or recommend urology referral



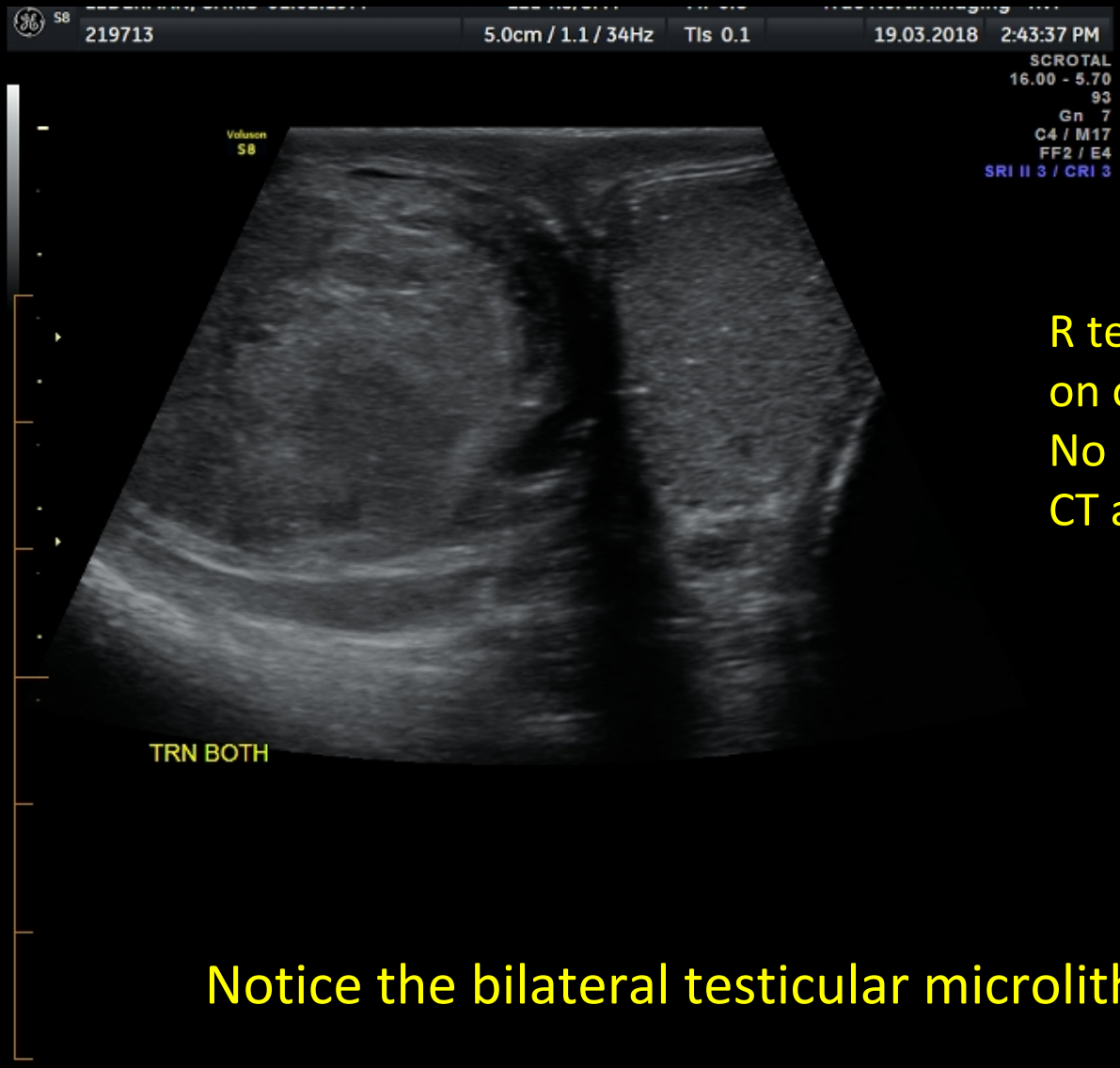
41 yo M, "recent R scrotal swelling"







41 yo M, "recent R scrotal swelling"



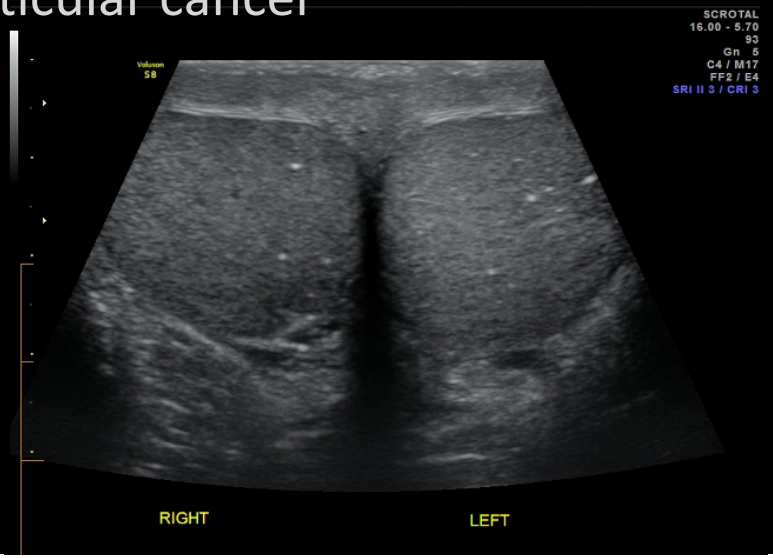
R testicular cancer
on orchiectomy,
No metastases on
CT abdo/pelvis or CXR

Notice the bilateral testicular microlithiasis?

Testicular Microlithiasis (TML)

- Tiny microcalcifications, 5 /hpf (i.e. per high powered field; 5 microliths in a single image)
- calcium deposits within seminiferous tubules
- Fairly High prevalence 2-9% of general population

- Early studies described TML as possible risk factor for testicular cancer
  - But controversial topic as more studies showed TML not a strong risk factor for testicular cancer



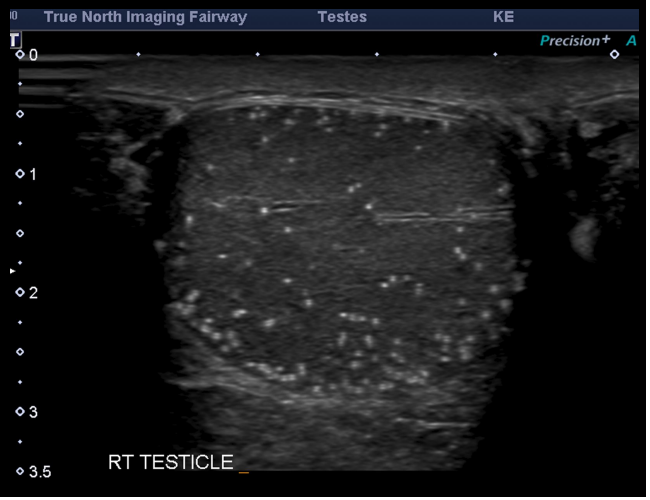
Testicular Microlithiasis (TML)

- More recent **consensus guidelines** have been issued 2015 by ESUR:
  (European Society of Urogenital Radiology)

Isolated testicular microlithiasis in the absence of risk factors (*) for testicular cancer does not require ultrasound or biochemical followup. Recommend only monthly self-exams.

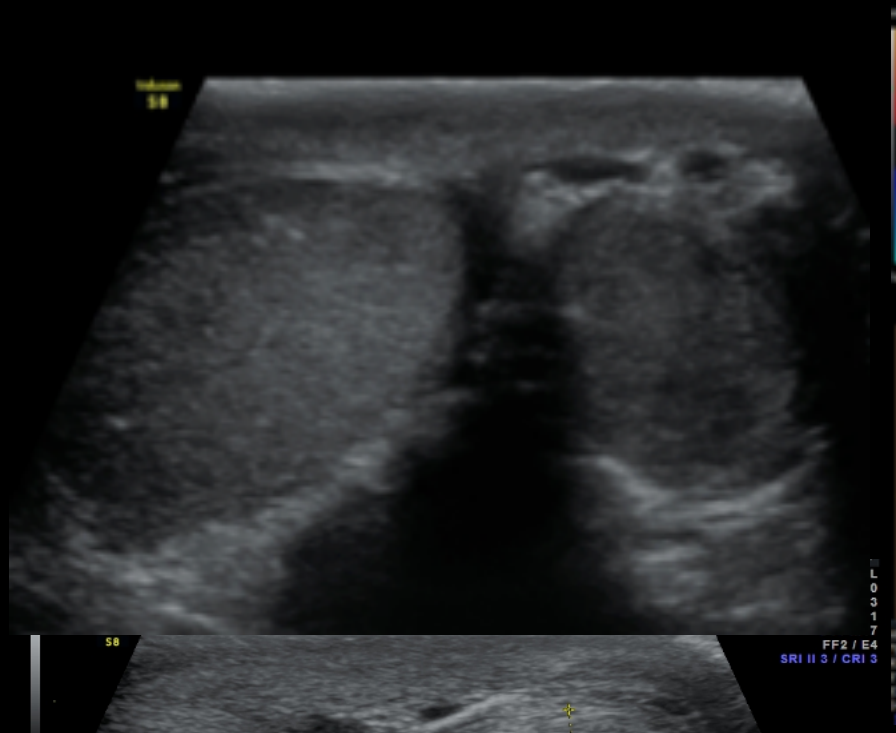
However, if patient has risk factors for testicular cancer, recommend annual US until age 55 & consider urologist referral to further discuss.

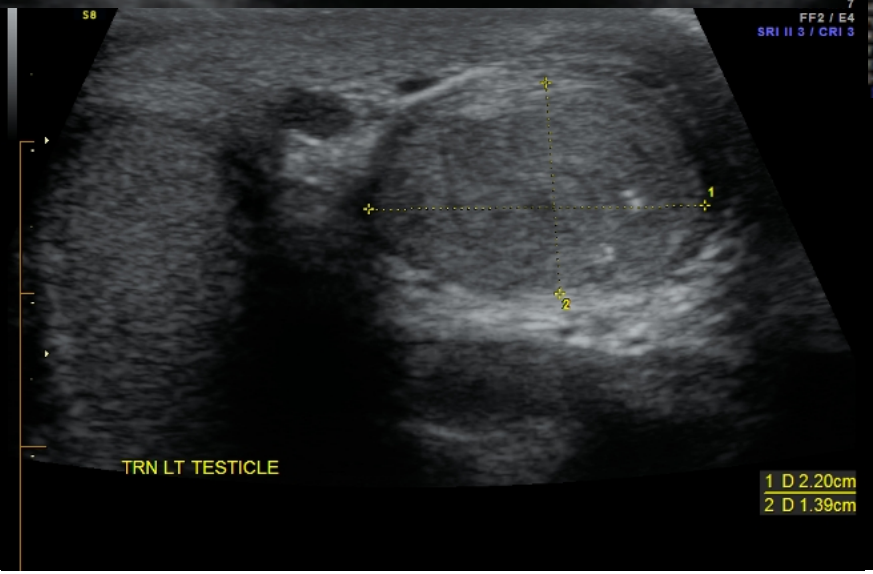
- Risk Factors for Testicular cancer*:
  - Hx of undescended testes
  - Orchipexy
    - (still at elevated risk despite correction of cryptorchidism)
  - Testicular atrophy < 12 cc
  - Personal or Family hx of testicular tumor GCT
  - Klinefelter's disease XXY



Testicular Microlithiasis

23 yo M, hx of undescended testis, orchipexy as infant





MICROLITHIASIS + Risk factors:

-Undescended testes + orchipexy

-atrophic testicle

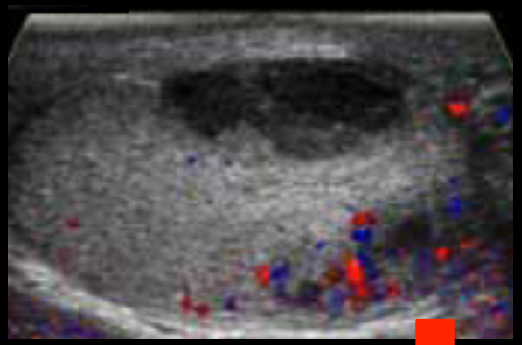
→ HE NEEDS ANNUAL US SURVEILLANCE!

Scrotal Masses

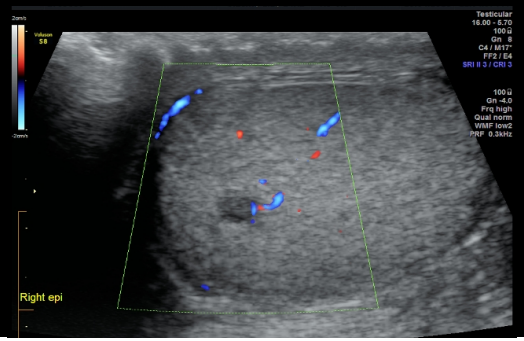
- 95% INTRATESTICULAR **masses**
  - ARE CANCER

- 5% are benign (eg. epidermoid, dermoid, Leydig cell tumor)

- Other benign INTRAtesticular Masses:
  - Sequelae of Infection, Inflammation
    - granulomatous disease such as TB or sarcoidosis is often chronic, often mimics maligancies
  - Sequelae of Trauma or Infarct (old hematoma, segmental infarct)
  - Adrenal rests
  - Intratesticular cysts



Segmental infarct
9 months later



Sarcoid

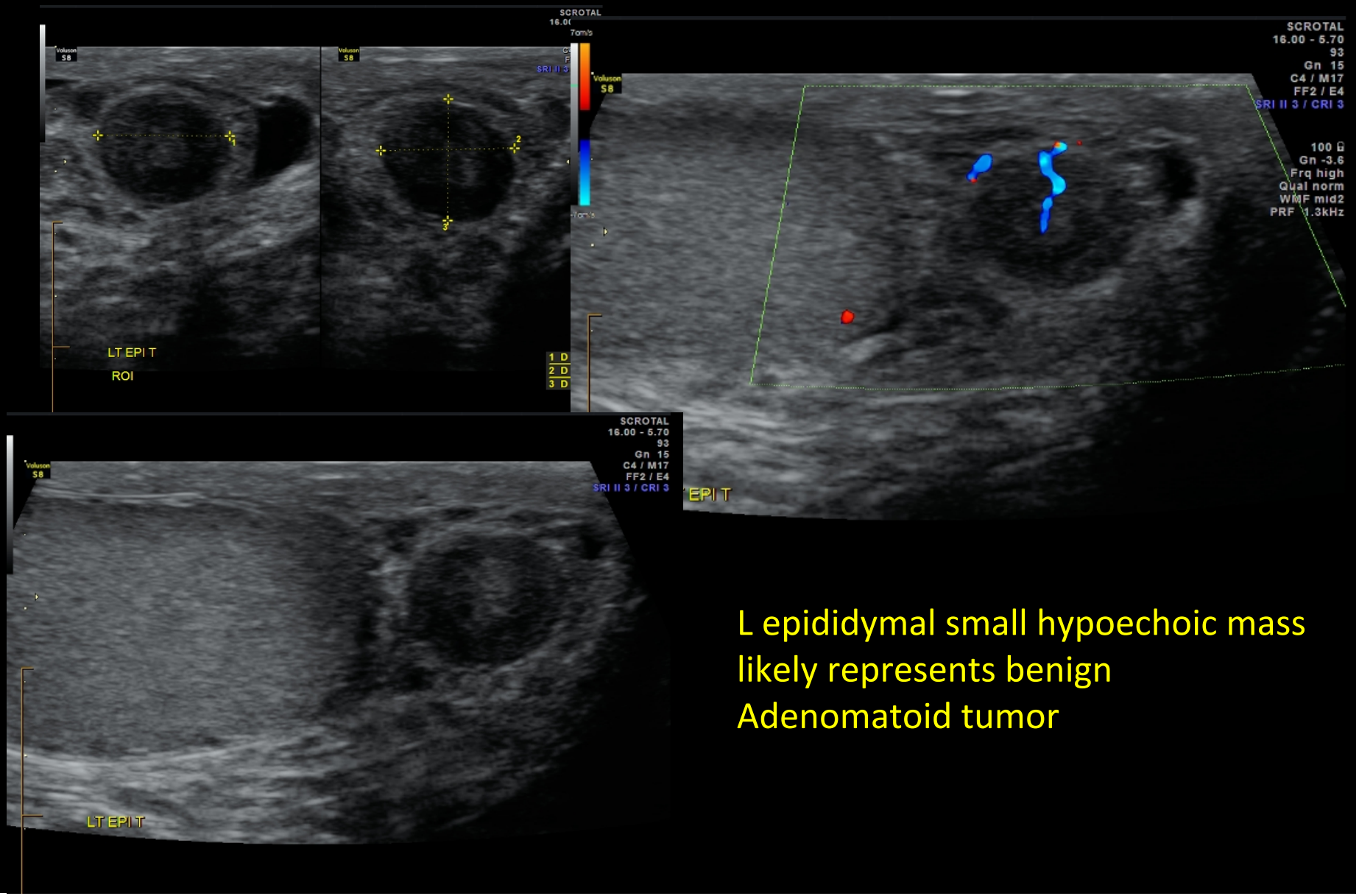
Scrotal Masses

- MOST EXTRATESTICULAR MASSES
  - ARE BENIGN

  - Most common extratesticular tumors (Top 3 are benign):
    #1 Lipoma (eg. of the spermatic cord) – if not classic-appearing, recommend MRI
    #2 Adenomatoid tumor of the epididymis esp tail – hamartoma, oval or round, iso-to-hyperechoic to testis, ages 20-40 yo
    #3 Fibrous Pseudotumor – arises from tunica, not a true tumor, mass of fibrous tissue proliferation, hypoechoic shadowing, may be multifocal, 50% with associated hydrocele, 30% with hx of epididymitis-orchitis

    Sperm granuloma –well-circumscribed, hypoechoic In epididymis, in up to 40% of post-vasectomy pts, foreign body reaction granuloma
- Less Common – Extratesticular Cancers
  - Peds –Rhabdomyosarcoma
  - Older - Lipomyosarcoma , mets

“L testicular pea-sized nontender lump for over a year”

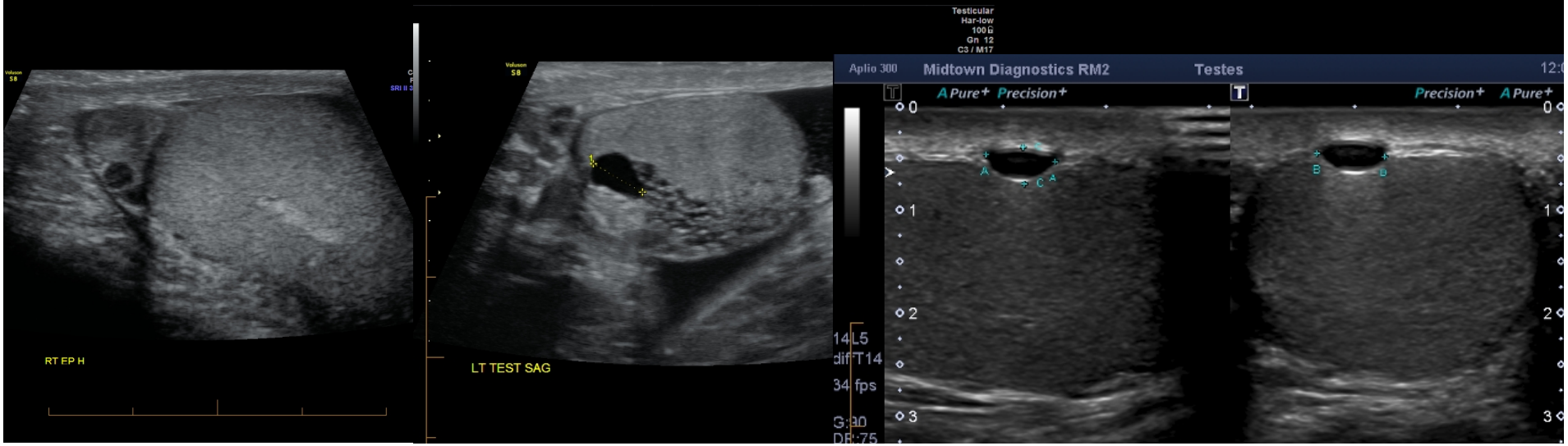


L epididymal small hypoechoic mass likely represents benign Adenomatoid tumor

Scrotal Masses

- Cysts
  - Epididymal Cysts
  - Intratesticular Cysts
  - Cystic dilatation/Tubular Ectasia of the rete Testis
  - Tunica Albuginea Cysts
  - Tubular Ectasia of the Epididymis (post-vasectomy pts)

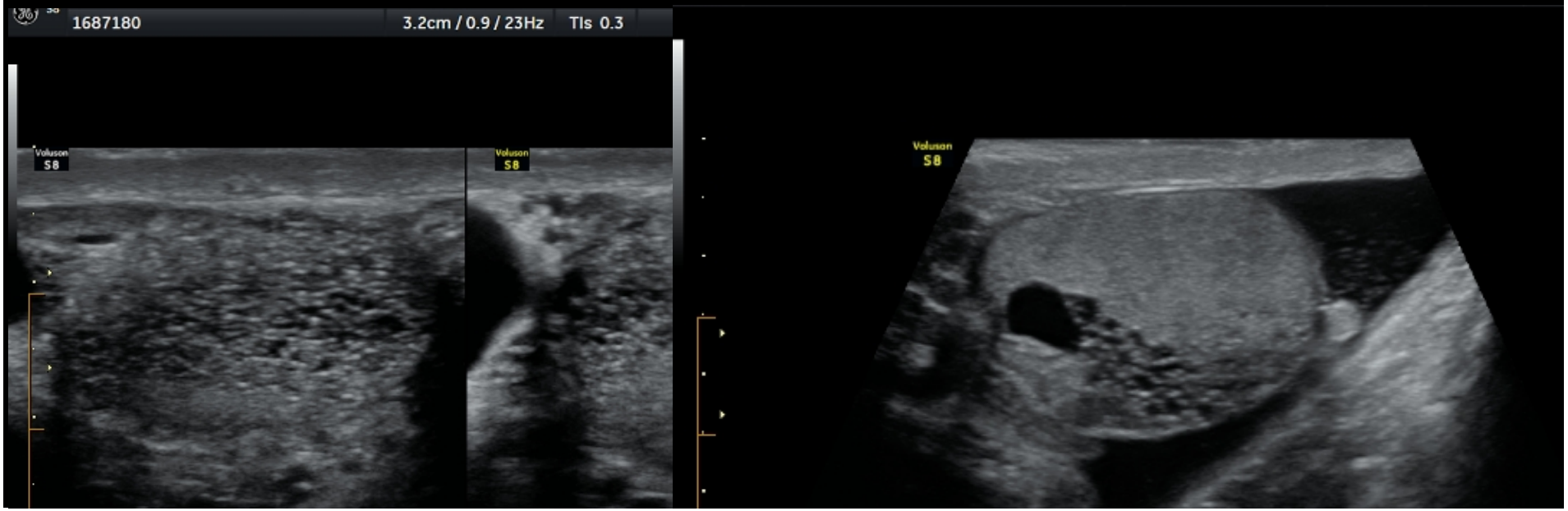
CYSTS ARE OF NO CLINICAL SIGNIFICANCE (IN OR OUT OF THE TESTICLE), BUT MAY BE ASSOCIATED WITH PALPABLE LUMP



Tubular Ectasia of the Rete Testis

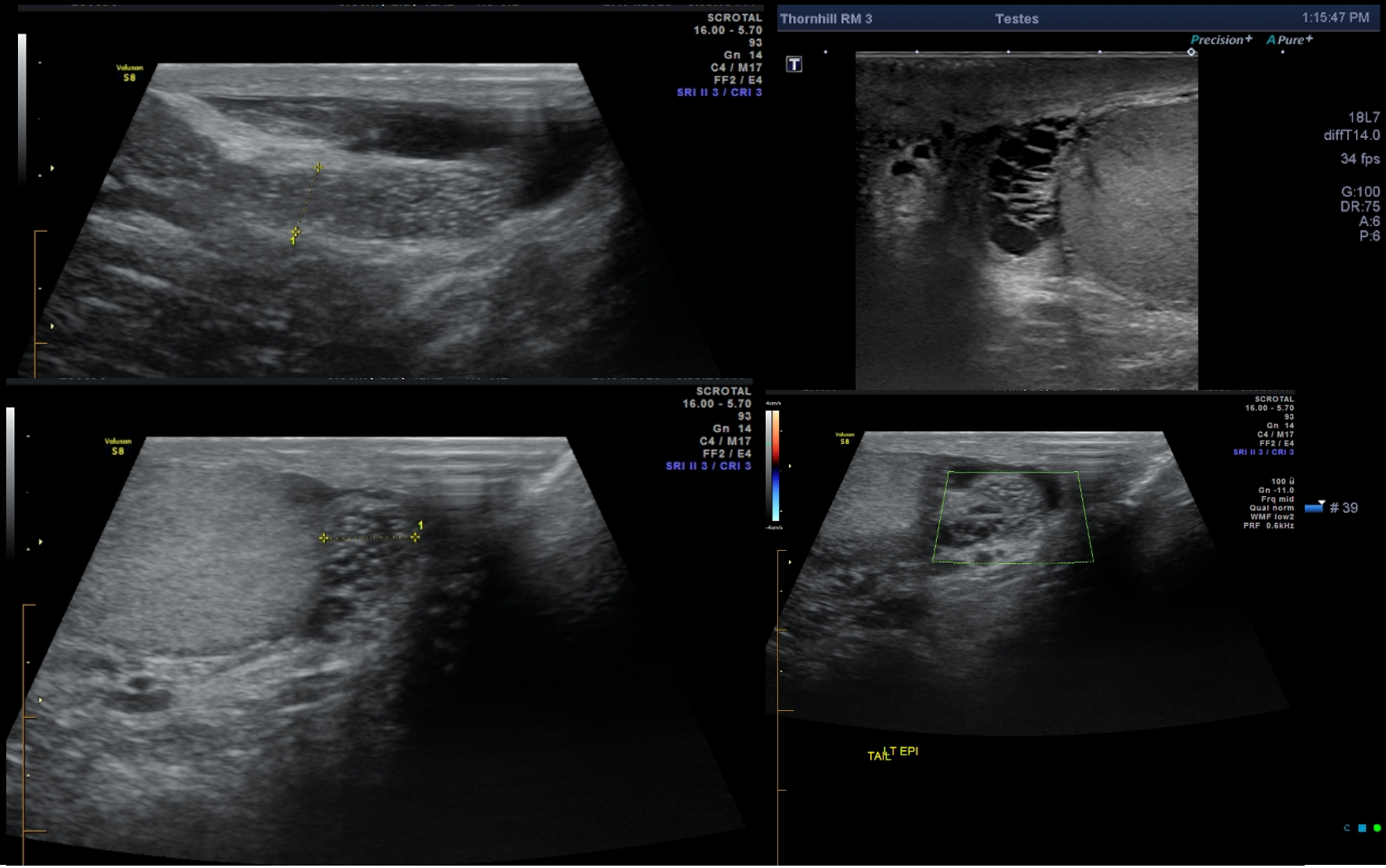
- Middle-aged to older
- Obstruction to efferents ducts
  - eg. hx epididymitis, post-vasectomy

- Along the mediastinum testis
- Tends to have associated intratesticular cysts and epididymal cysts

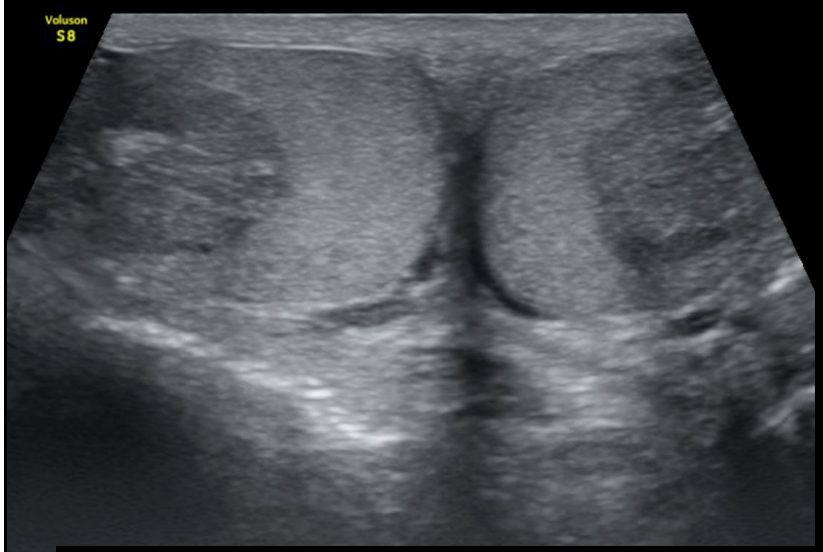


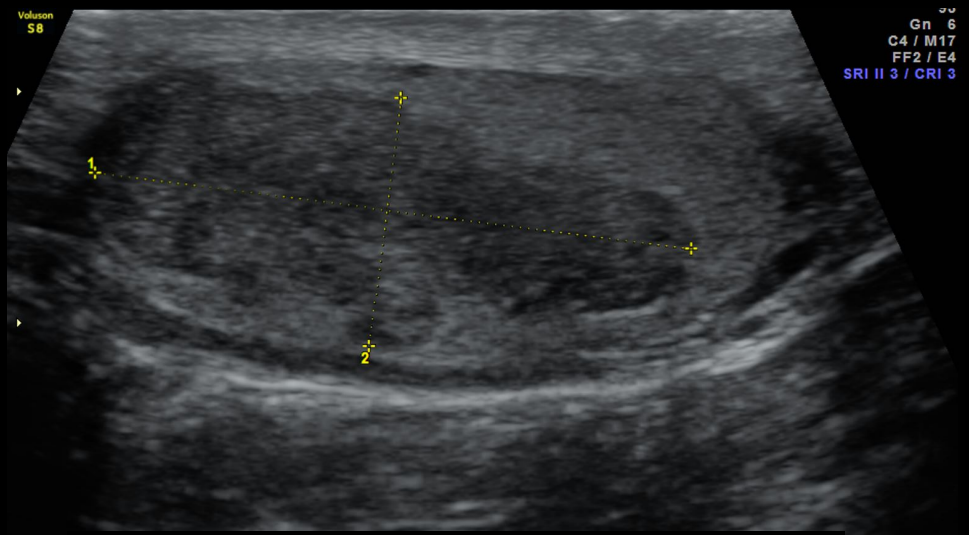
Tubular Ectasia of the Epididymis

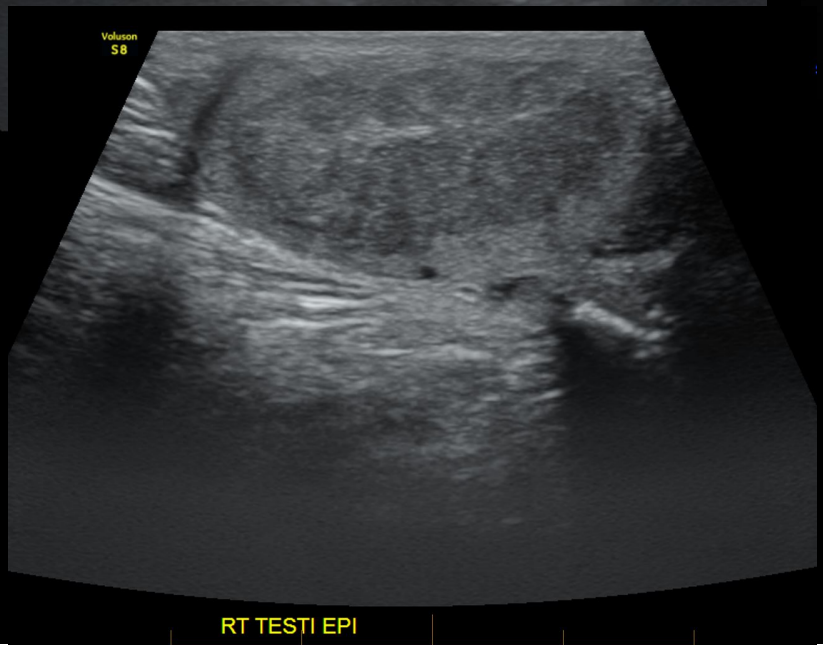
- Esp in post-vasectomy patients, due to epididymal obstruction

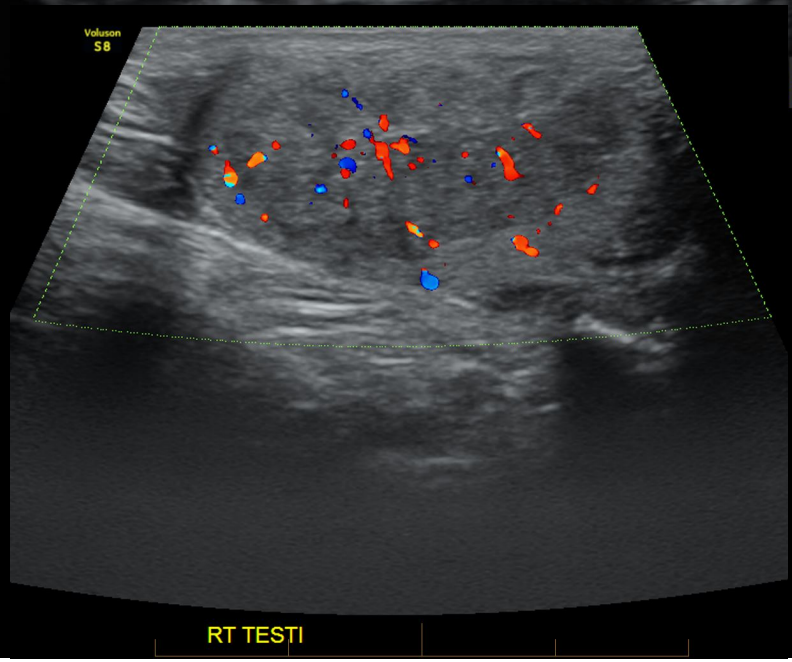


“Congenital Adrenal Hypoplasia, rule out tumor”







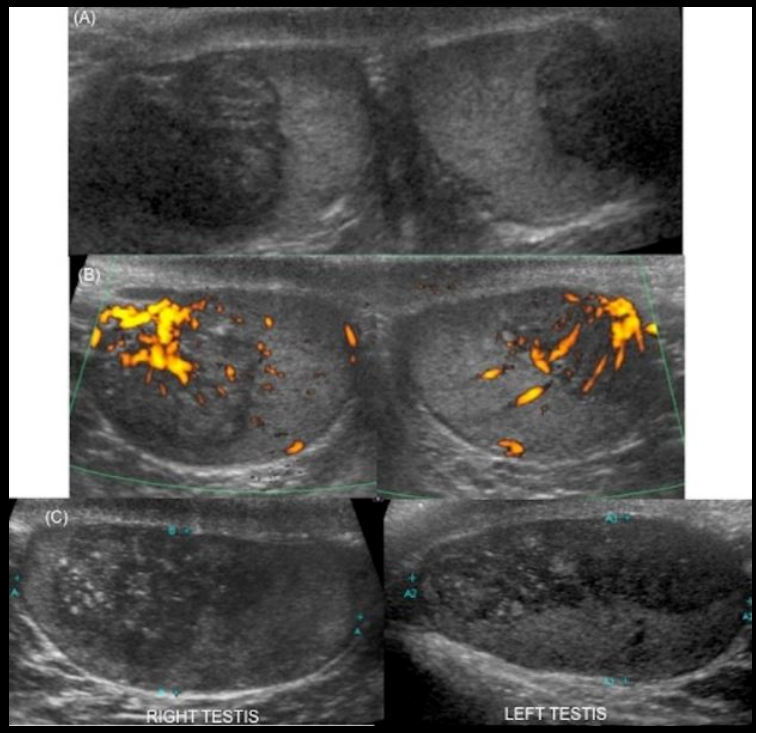


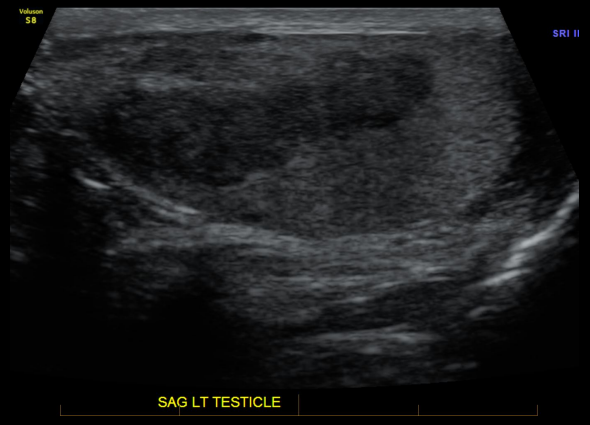
Adrenal rests

- Adrenal Rests in pts with Congenital Adrenal Hypoplasia (CAH) – autosomal recessive condition
  - Aka 'Adrenal Rest Tumors' (benign)

- Have excessive corticotropin causing hypertrophy of ectopic adrenal cells in testis
- Usually bilateral (unlike seminoma)
- Often improves with treatment of excess corticotropin

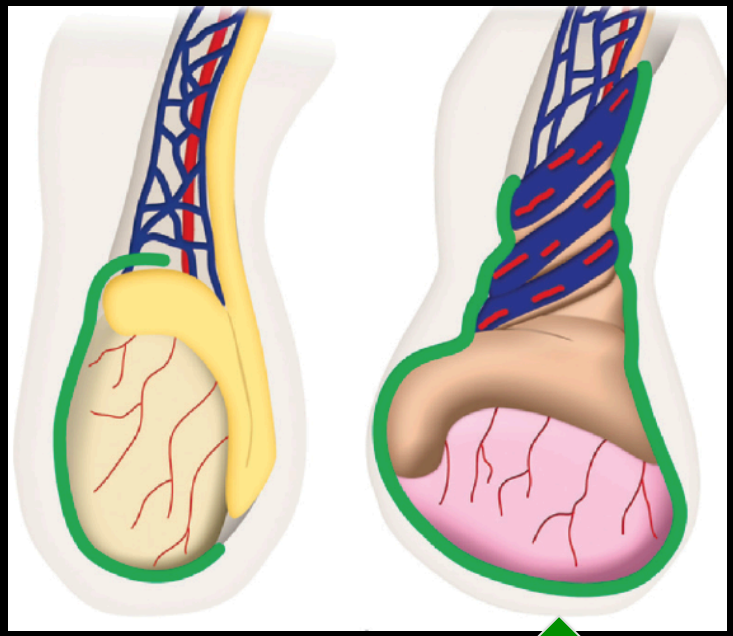
- US → key is history of CAH and noticing usually very elongated shape, growing along mediastinum/ rete testes





Testicular Torsion

- Due to congenital "Bell-Clapper deformity"
  - Anatomic variant − tunica vaginalis envelops testes, epididymis & distal spermatic cord (not just portion of testis like normal), with testis free to rotate,
    Bell-Clapper = usually bilateral
- Scrotal Pain, Nausea, Vomiting, Anorexia
  - Pain can be intermittent if torsion-detorsion
- Usually ages 12 − 18 yo
  (slightly older than torsion of appendix testis 7-12 yo)

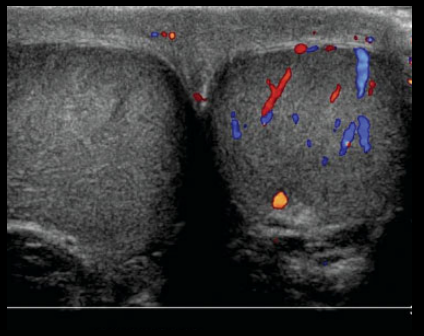


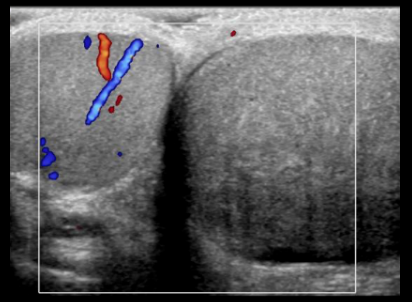
normal

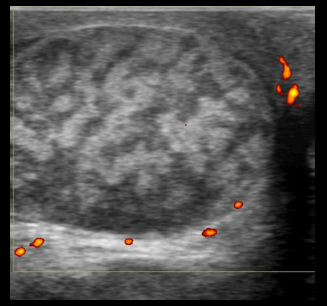
Bell-Clapper deformity

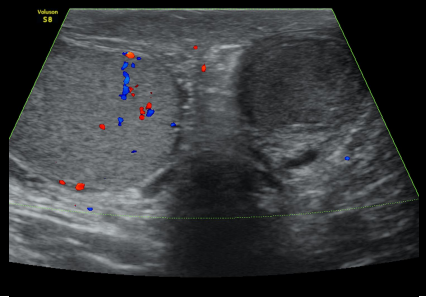
Testicular Torsion

- *If taken to surgery for de-torsion:*
  - Within 6h→ good prognosis, 80-100% salvage rate
    - Absent flow in Testicle on doppler,
    - Gray-scale may still look normal
  - 6-12h→ 70% testicle salvage rate
    - Absent flow in Testicle on doppler,
    - Swollen, Hypoechoic testicle
      +/-epididymal thickening, hydrocele
      » Hypoechoic since testicle is infarcting
  - >12h→Poor prognosis, 20%
    - Still take to surgery, since testicle necrotic
    - Absent flow in Testicle on doppler,
    - Heterogeneous, Hypoechoic & echogenic areas in testicle +/- epididymal thickening, hydrocele
    - Scrotal wall thickening & reactive hyperemia
      » Heterogeneous -Testicular infarct + hemorrhage
  - If chronic infarct→ atrophic, hypoechoic, heterogeneous testicle







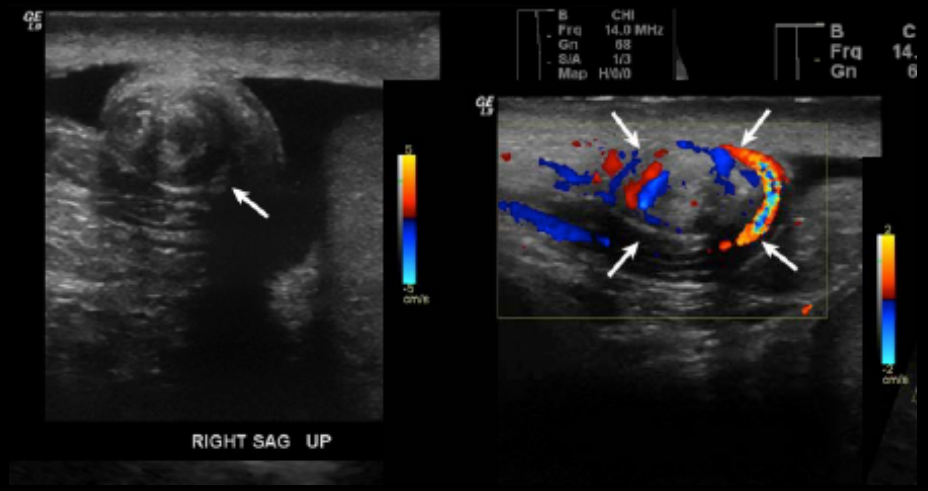


Testicular Torsion

- Torsion can be transient or partial
  - So look for DIFFERENCE IN DOPPLER between the 2 testicles
  - Often some doppler still present if partial torsion
    eg. 180 degrees → Look for loss of Venous flow or
    Reversed diastolic flow of artery

  - Image BOTH testicles together same screen without and with doppler, small colour box, low PRF

  - Always image the spermatic cord when ruling out torsion
    - Look for 'whirlpool sign'

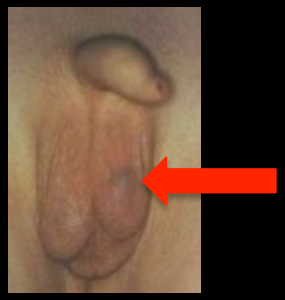


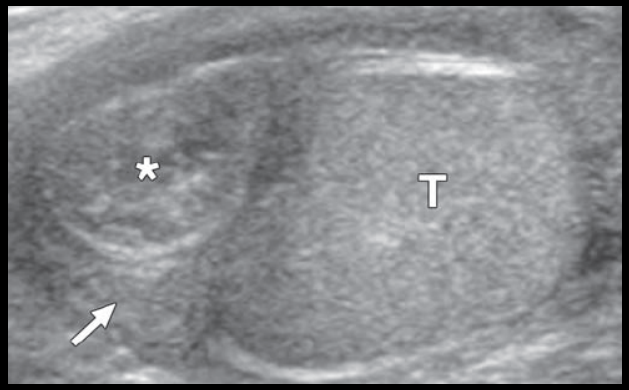
Torsion of the Appendix Testis

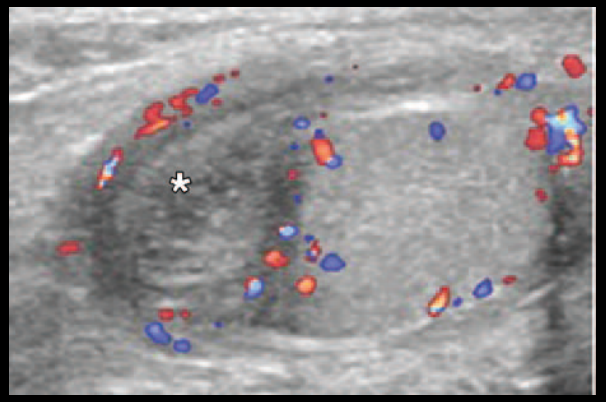
- #1 cause of acute pain in boys ages 7-14 yo
  (appendix testis is much more common than appendix epididymis)

- Appendix testis becomes swollen, hypoechoic or heterogeneous without doppler or with peripheral hyperemia
  - Usually small hydrocele

- Pain usually resolves in 2-3 days, no Tx necessary
- Blue Dot sign – palpable nodule at superior scrotum with blue discoloration





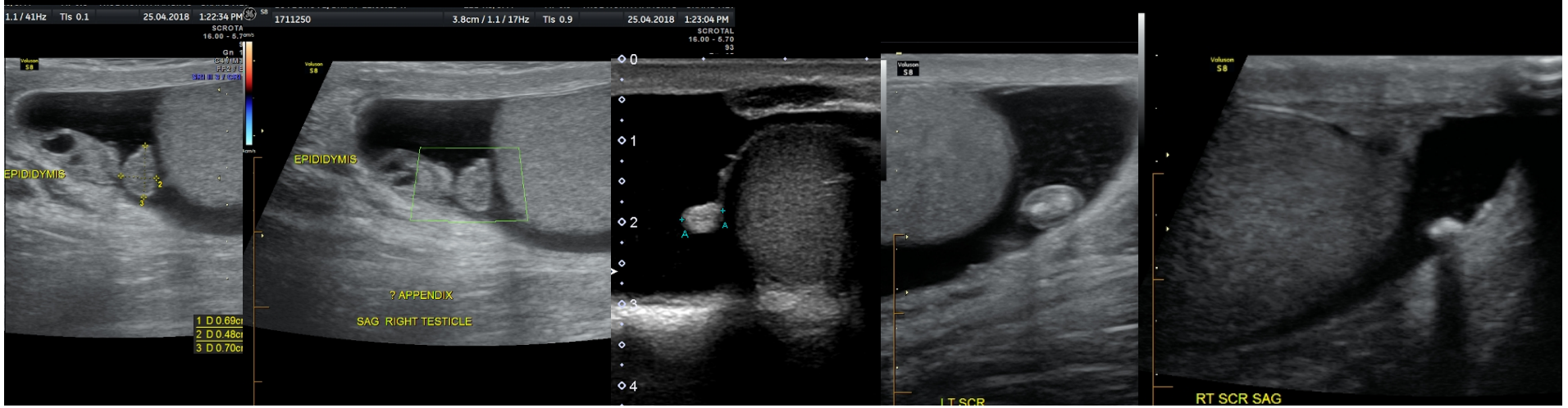


Appendix Testis and Scrotal Pearls

- Appendix testis, usually medial to epididymis, superior to testis, in groove between epididymis & testis, round or oval

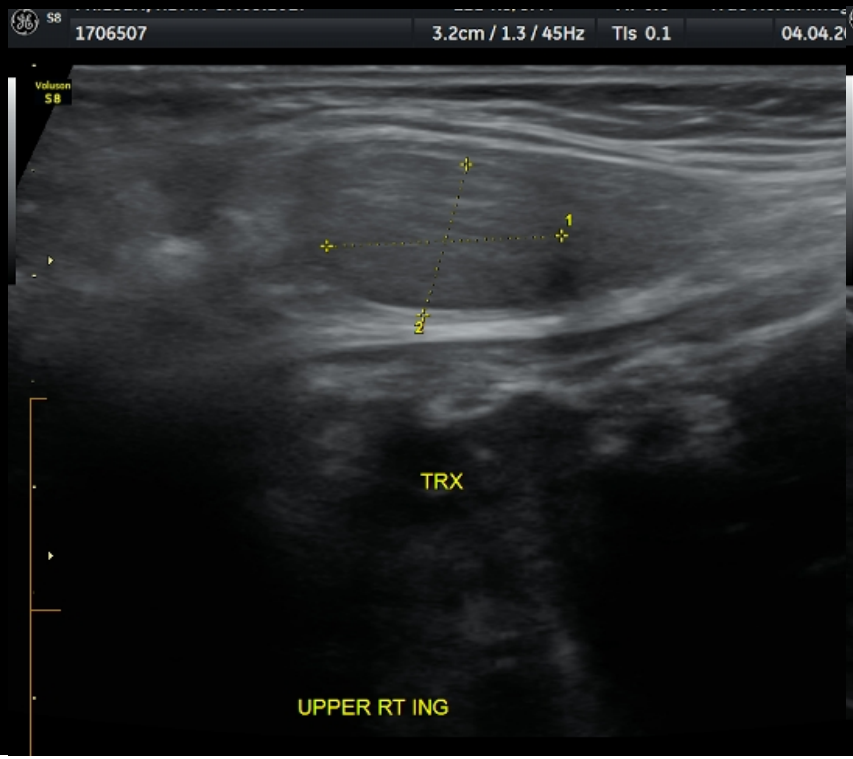
- Appendix testis is much more common than appendix epididymis. Neither clinically significant, but can present with appendix torsion (mimicking testicular torsion), esp in boys/peds

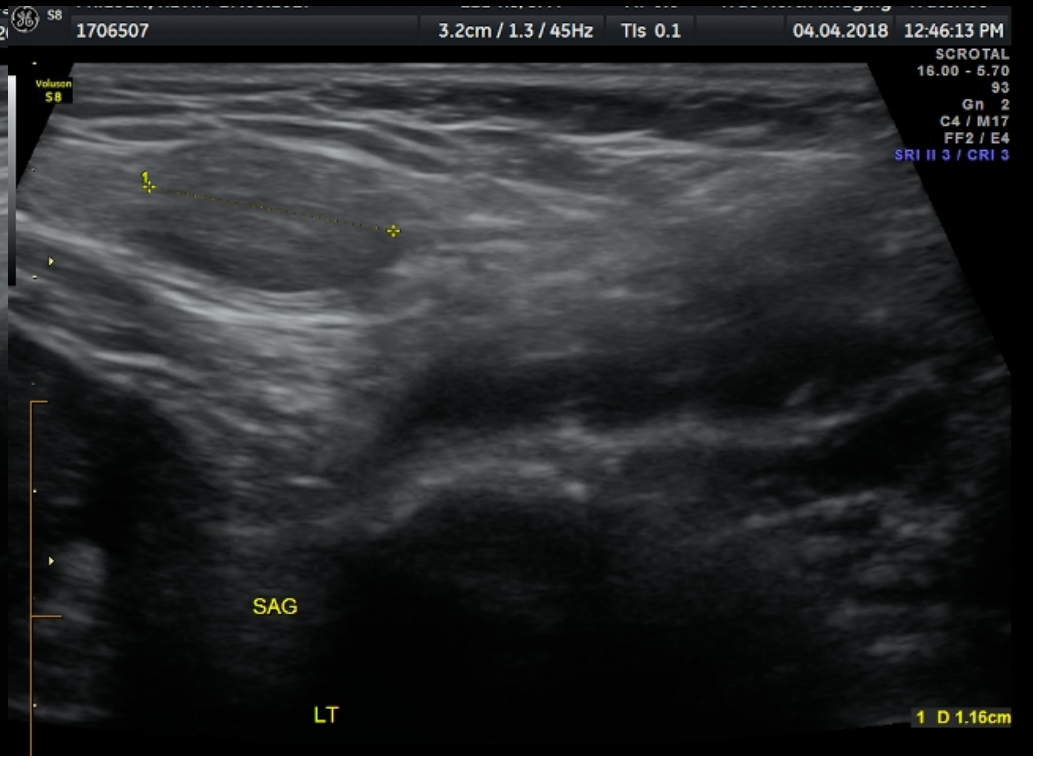
- "Scrotal pearl" −extratesticular calcification (aka scrotal calculi) − often mobile, also of *no clinical significance*. Usually sequelae of previous torsed appendix or old epididymitis



Pediatric Scrotal Ultrasound

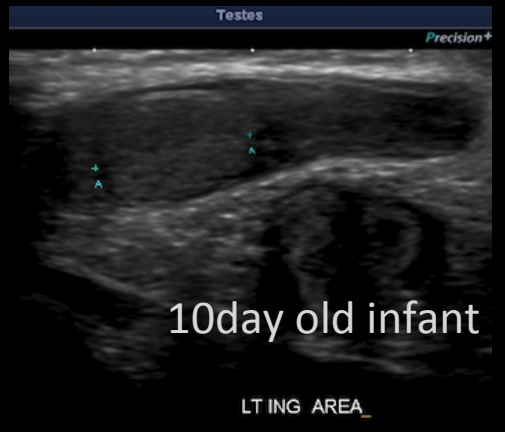
- Infant testes are more hypoechoic than adults
- Infants and toddlers are often uncooperative. Instruct parents that they will have to significantly help and/or distract pt during exam





Cryptorchidism

- Undescended testes – up to 5% of neonates at birth, but decreases to 2% by age 3 months (unlikely to spontaneously descend after 1 yo)

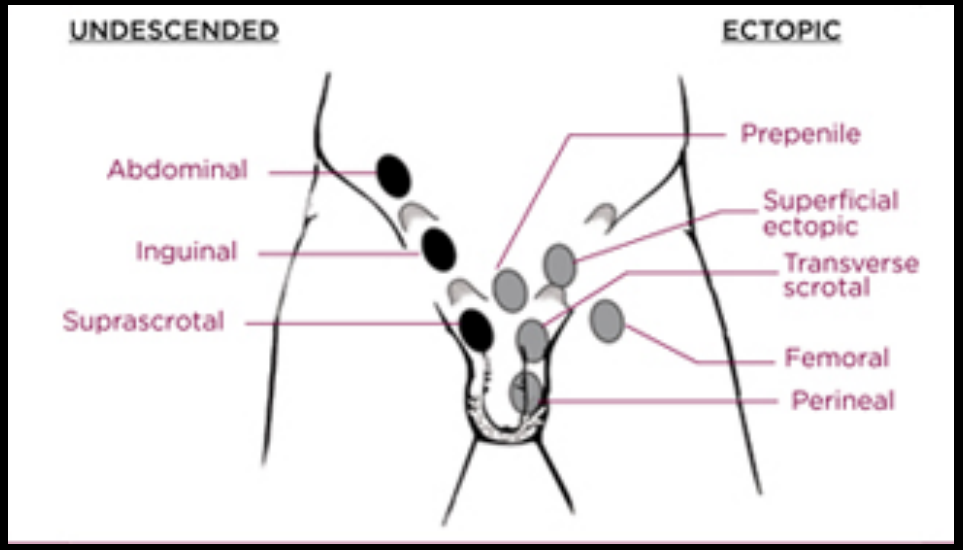


10day old infant

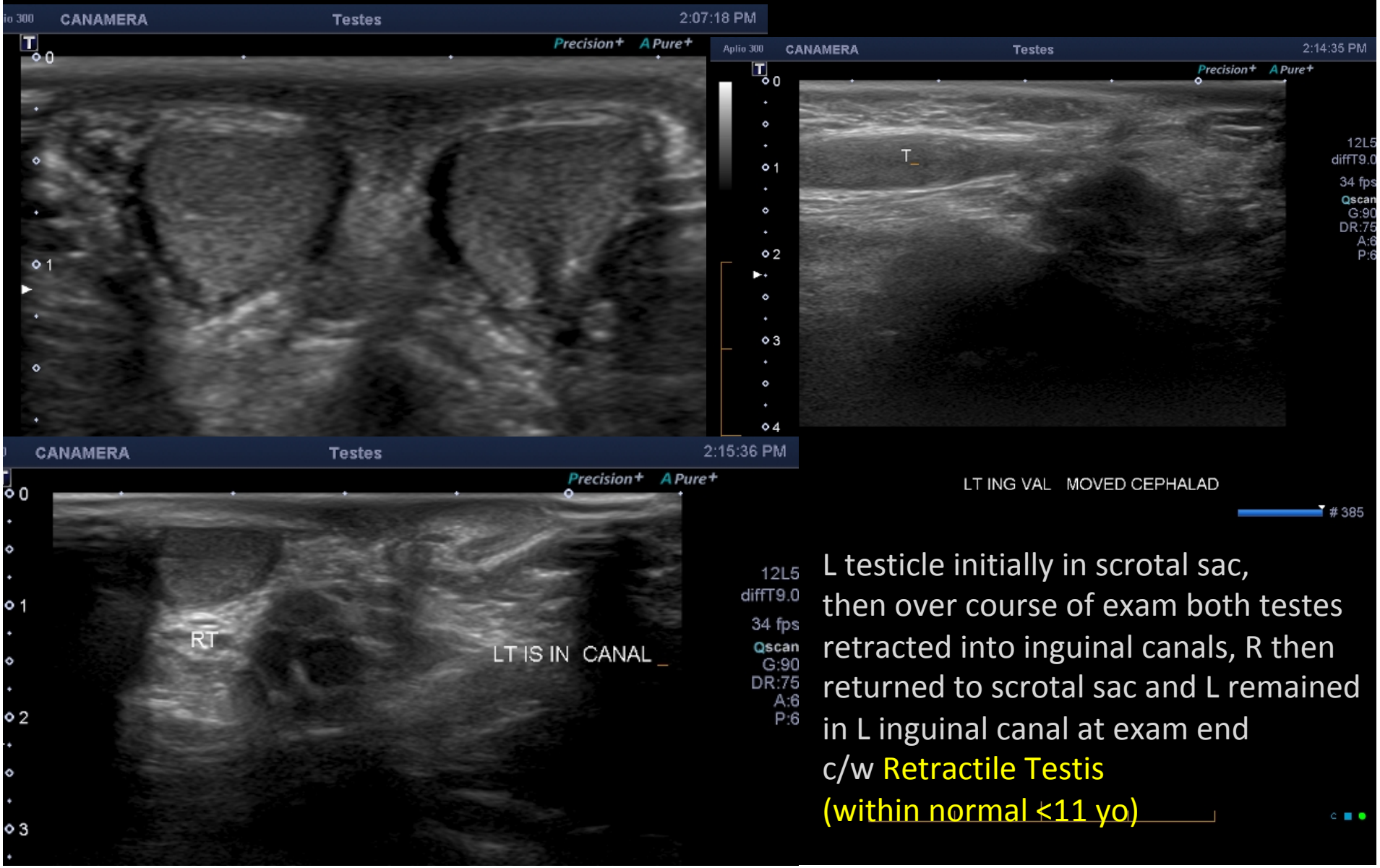
- 90% unilateral
- 80% of undescended testes in inguinal canal,
  20% suprascrotal, 8% abdominal
- 2-8x risk of developing testicular cancer in that undescended testes, even after orchipexy

vs. at least 1 "retractile" testis is seen in 50% of boys <11 yo

- Eg. in inguinal canal
- Retractile testis can be palpated back into scrotal sac



10 yo M, "undescended testes & groin pain"



L testicle initially in scrotal sac, then over course of exam both testes retracted into inguinal canals, R then returned to scrotal sac and L remained in L inguinal canal at exam end
c/w Retractile Testis
(within normal ≤11 yo)

Epididymitis - Orchitis

→ Infection begins in Lower Urinary Tract

→Spreads to the scrotum, beginning in the epididymis

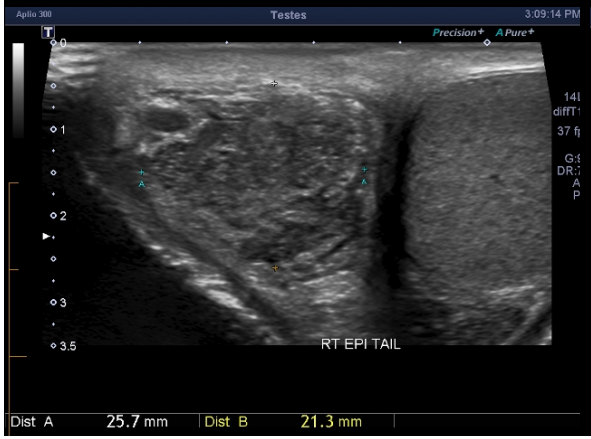
→retrograde from epididymal TAIL → Body→ Head +/- Orchitis

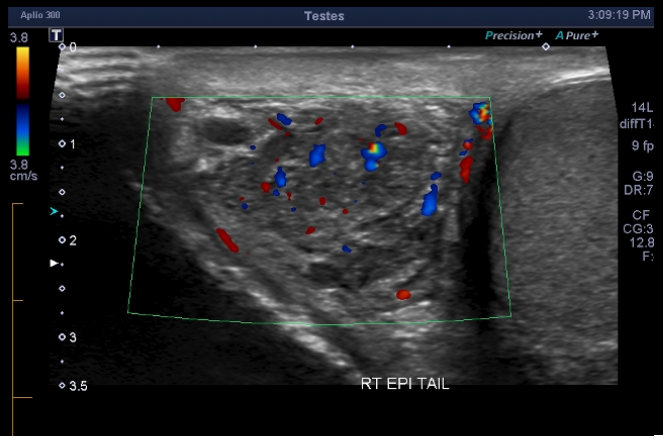
→EPIDIDYMITIS - Increased doppler flow, thickened and/or heterogeneous epididymis (compare to opposite site)

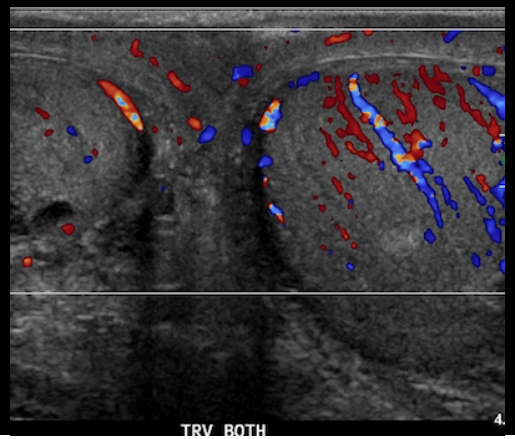
→+/- hydrocele, spermatic cord thickening/heterogeneity

- in 20% of epididymitis, only sign is Increased doppler flow

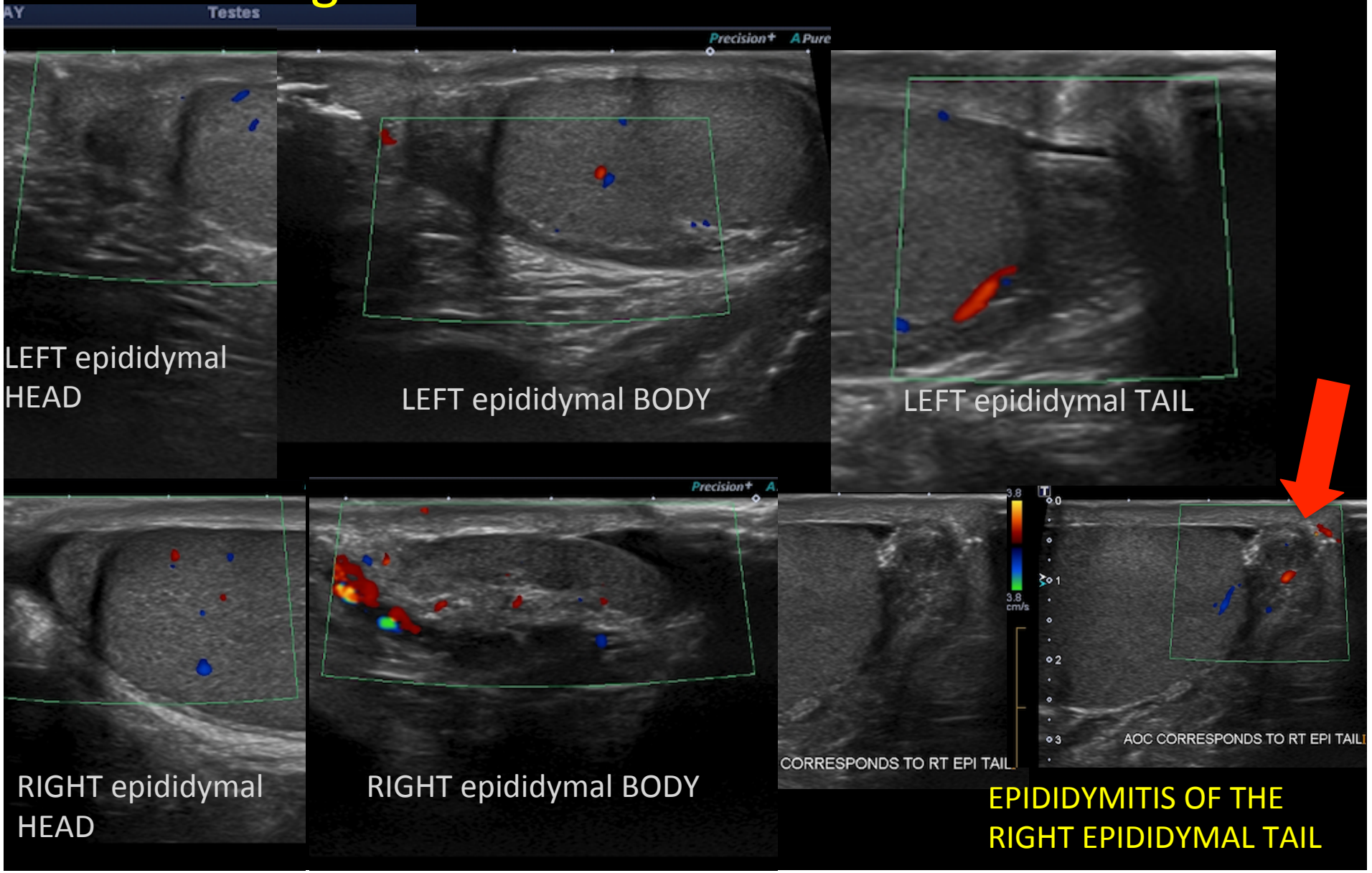
→ORCHITIS complicates 20-40% of epididymitis− Increased doppler flow, hypoechoic, heterogeneous testicle

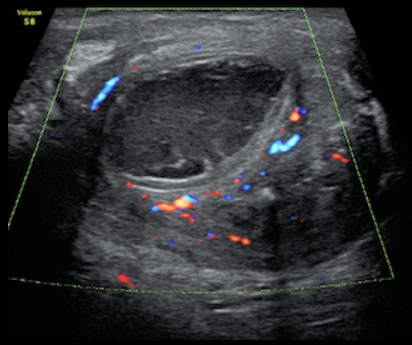




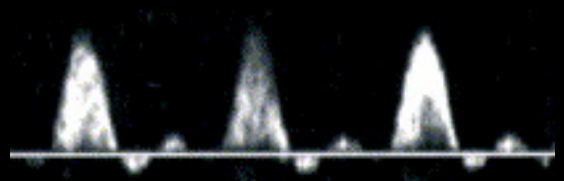


Epididymitis – Orchitis
Image the TAIL and contralateral side



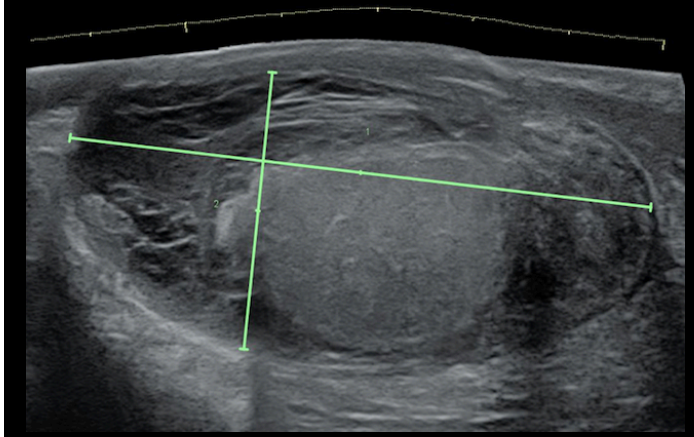


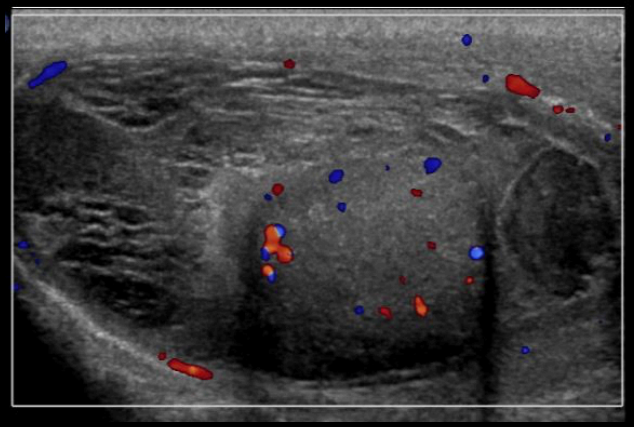
Epididymitis – Orchitis Complications

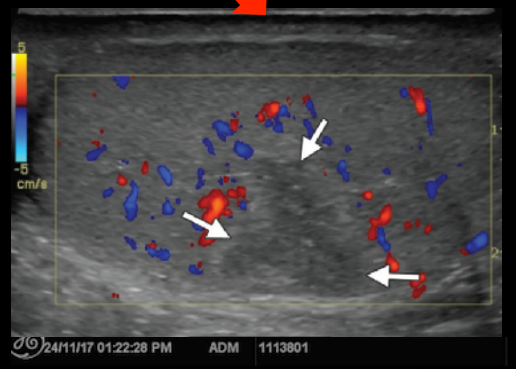


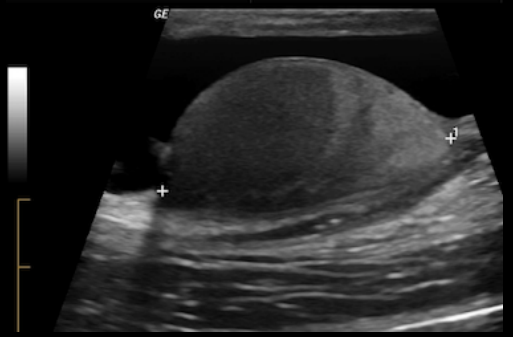
- Doppler the testicle→ If absent diastolic flow of artery or can't find venous flow, suspicious for Segmental Venous Infarction
  (absent or reversed diastolic flow also in torsion)

- Intratesticular abscess
- Scrotal extratesticular abscess/Pyocele
- Infertility, Chronic pain

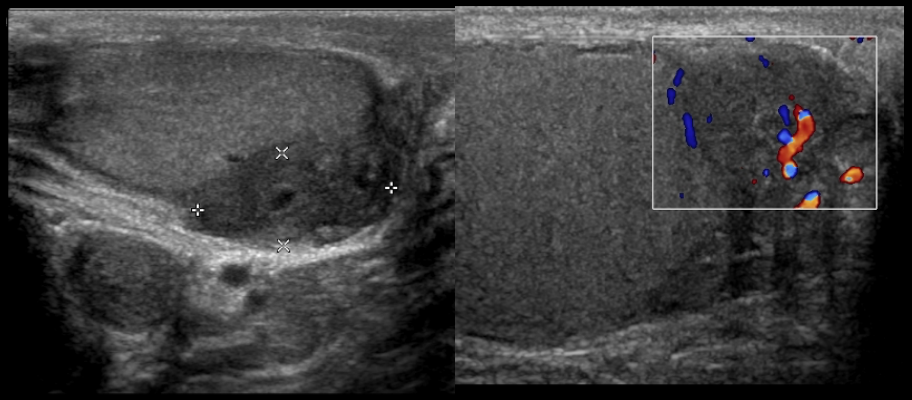




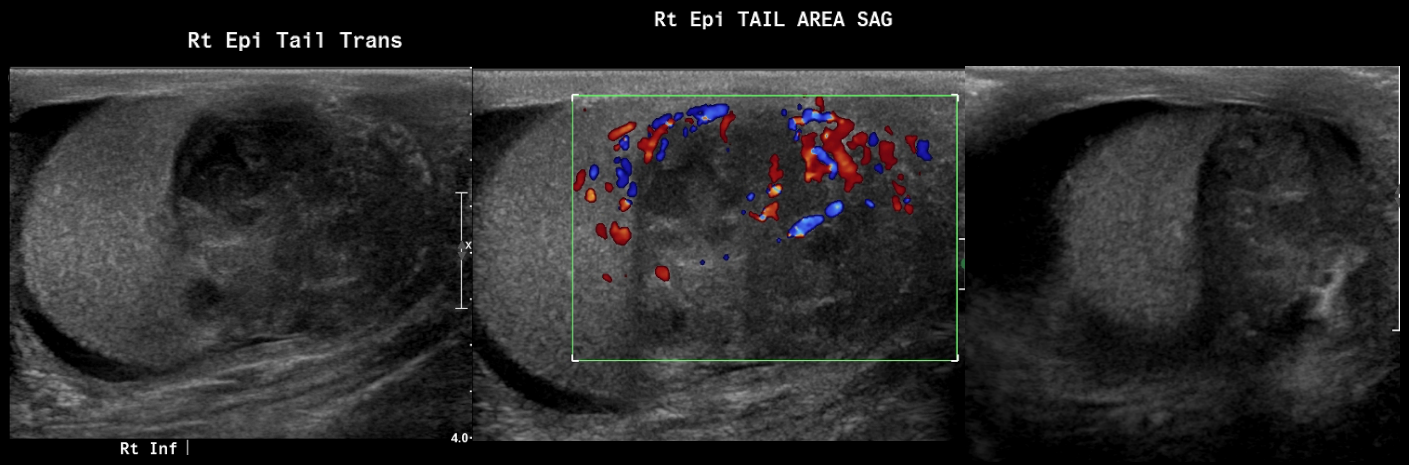




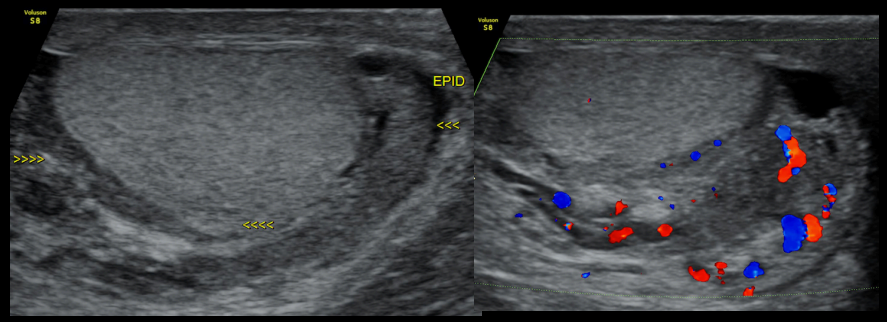
81 yo M, hx of TCC bladder cancer



Mar 2014 – R epididymitis of the tail

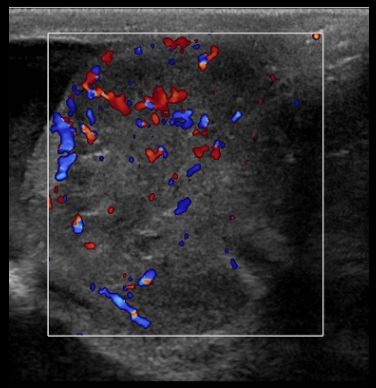


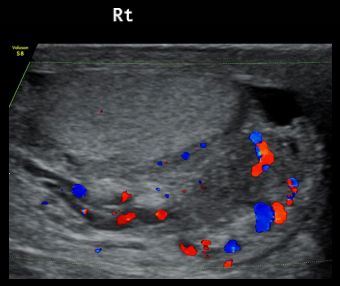
Nov 2014
Large 3.6 cm R Intratesticular (?) Heterogeneous vascular mass



Jan 2018 – L scrotal pain
- L extratesticular mass separate from epididymis + L epididymitis
- R large scrotal mass has resolved WITHOUT surgery or chemotx

TB or Sarcoid
Granulomatous Epididymitis-Orchitis



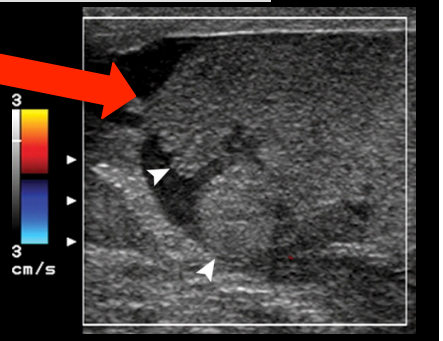


81 yo M, hx of TCC bladder cancer
BCG *intravesicular bladder cancer chemotx in 2012*
→ *Fluctuation of TB granulomatous epididymitis-orchitis 2014 - 2018*

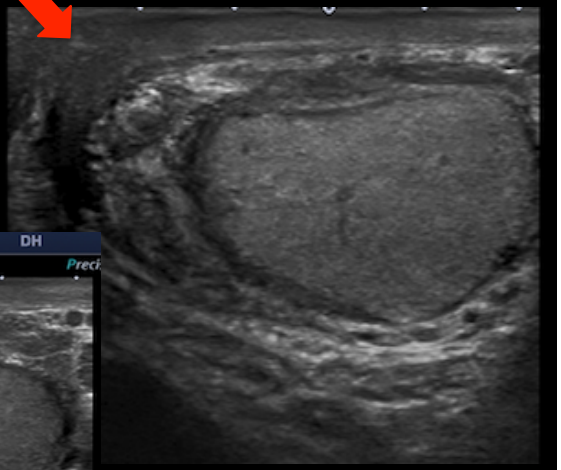
- TB or Sarcoid can mimic testicular malignancy (when intratesticular, but usually have some extratesticular involvement also)
- Heterogeneous +/- Calcifications
- Deformed testis or deformed epididymis
- Thickened scrotal wall

Testicular Trauma

- Like torsion, check for doppler flow within testicle
- Check entire periphery of testicle for intact tunica albuginea to exclude Testicular Rupture→ EMERGENCY!



- Most common ultrasound abnormality in Trauma
  = extratesticular hematoma aka hematocele
- Hematomas – acutely iso-to-hyperechoic,
  chronic-hypoechoic
- Contusion→ hypoechoic areas

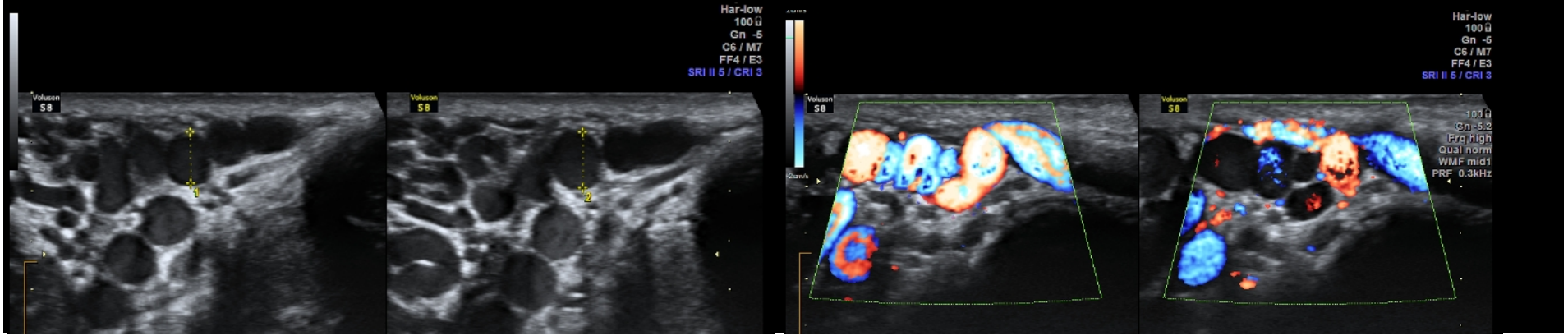


- Testicular fracture
  → discontinuity within testicle

Infertility Work-Up & Varicoceles

- Varicoceles in 15% of general male population
  - In 40% of men with primary infertility
  - In 81% of men with secondary infertility
  - Most common correctable cause of male infertility
  - Symptoms - dull pain, discomfort
  - 85% are on the Left*
  - 15% bilateral

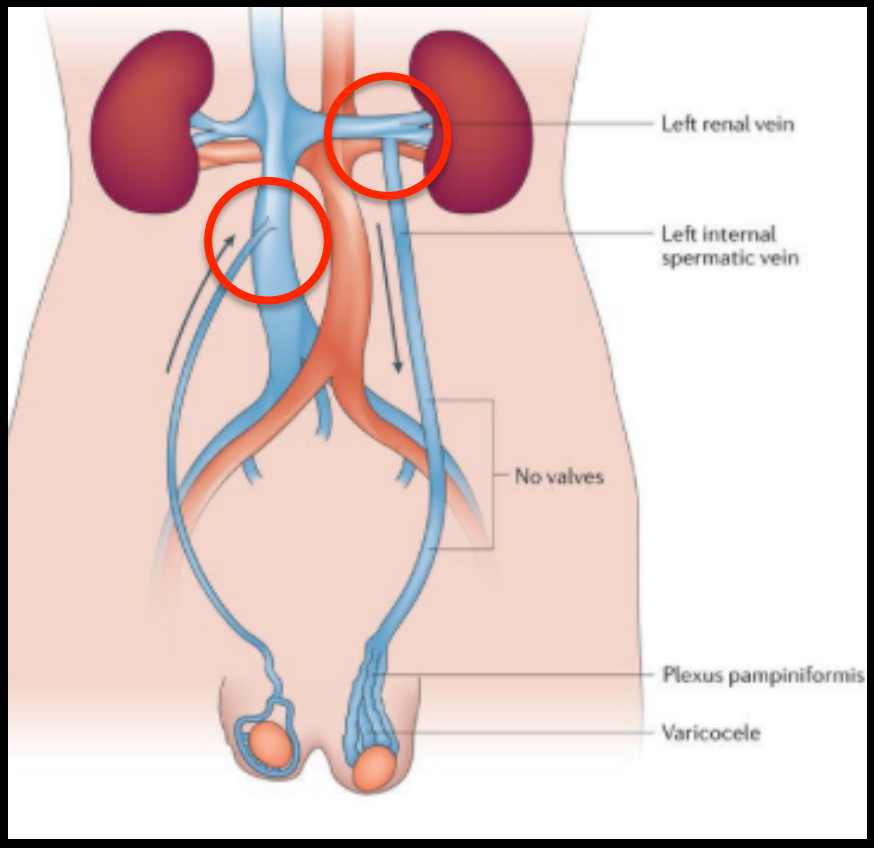
  - Ultrasound – dilatation of veins of the pampiniform plexus by **>=3 mm without or with valsalva or on standing**



Varicoceles

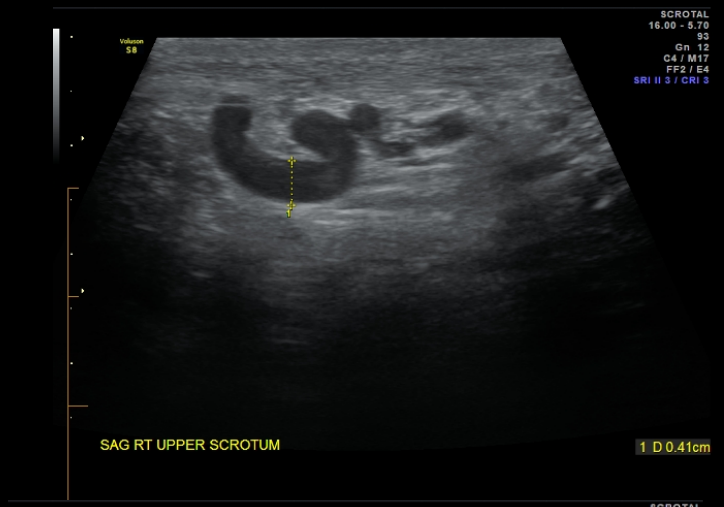
85% are on the Left, 15% bilateral

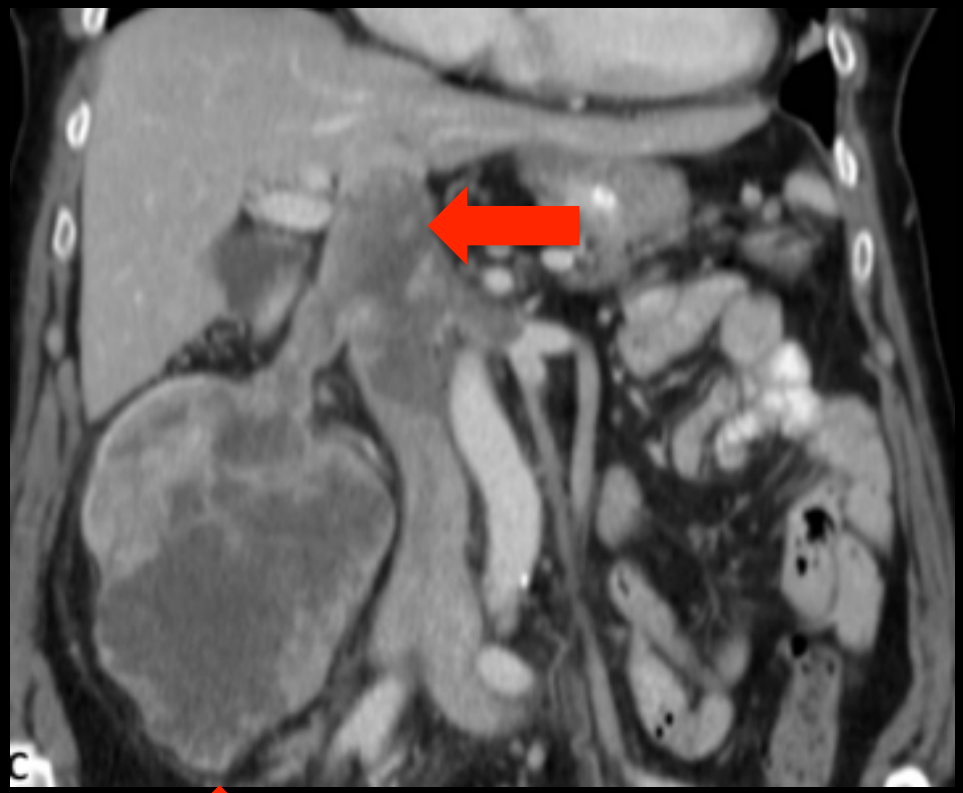
Why? Because LEFT testicular vein is longer than the Right and drains into higher resistance Left renal vein at a 90 degree angle (as opposed to Right testicular vein draining into IVC),
So L is more prone to venous reflux



BEWARE the RIGHT varicocele!
- Check to see if can compress R varicocele with probe pressure
- Always check IVC (for any internal clot such as from RCC or HCC) or for Retroperitoneal mass (eg. lymphadenopathy) compressing IVC

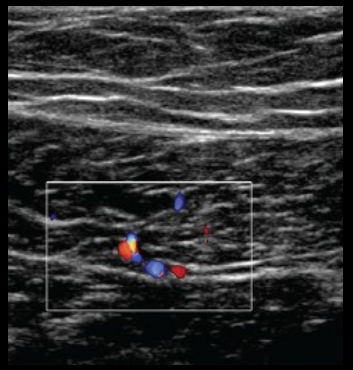
Check the IVC when you see a R varicocele (or large L varicocele)





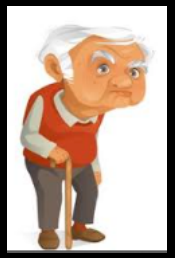
Huge RCC w/ IVC clot

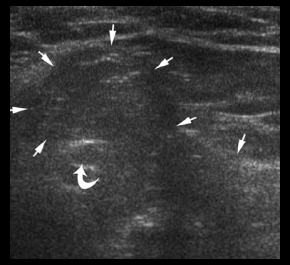
Hernias



- Inguinal hernias - ♂ >>> ♀
- Indirect >> direct inguinal hernias 2:1
- Femoral hernias - ♀ > ♂
  - BUT still inguinal hernias >> femoral hernias in ♀
- Colour doppler to identify inferior epigastric vessels

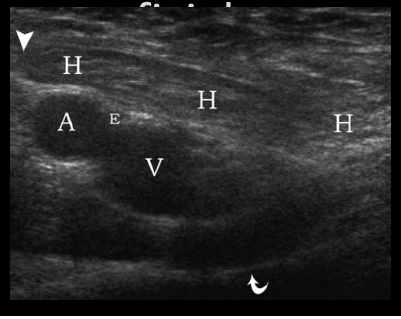
  IEVs: 2 veins + 1 artery





- INGUINAL HERNIAS
- DIRECT – medial to IEVs
  - Abdominal contents herniate directly anteriorly (i.e. not along inguinal canal)
  - Typically more wide hernial neck (so tends not to strangulate)
  - More common in older men

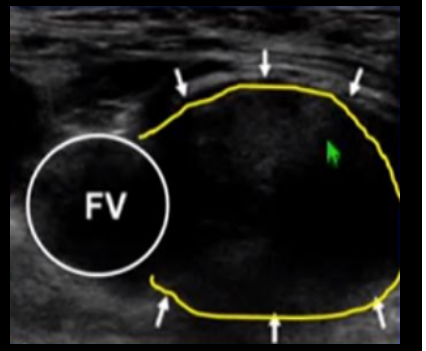
- INDIRECT - lateral to IEVs (Indirect >> Direct)
  - The herniates down the inguinal canal from deep to ring (look along inguinal ligament from ASIS to PS)
  - Usually narrow neck (so more likely to strangulate)
  - Congenital - all ages, most peds hernias
  - Anterior to spermatic cord vessels



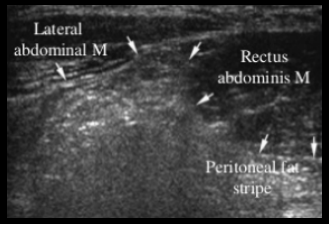
Hernias

- Strangulated – means ischemic (can't tell this)
  - *We can infer possibly strangulated by bowel wall thickening or fluid in hernial sac, or fat in hernia hyperechogenic/ heterogeneous/inflamed-looking*
- Incarcerated – non-reducible (we CAN tell this)
  - Eg. self-reducible when stops valsalva; reducible with probe pressure

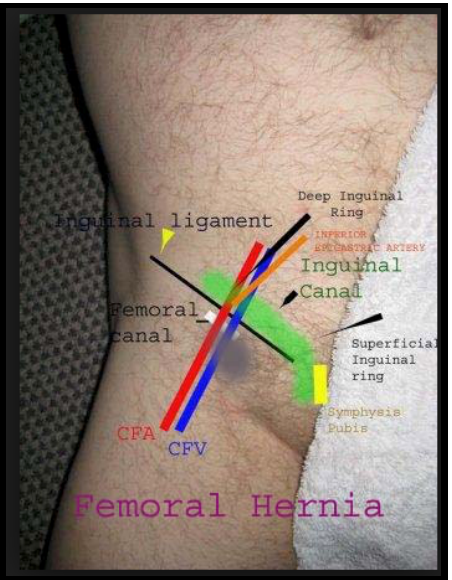
- FEMORAL HERNIA – medial to femoral vein, just superior to where Greater Saphenous Vein merges into femoral vein
  - 20% of all hernias in females, 5% in males
  - Narrow neck, so tends to strangulate



- SPIGELIAN HERNIA – at linea semilunaris, no strangulation



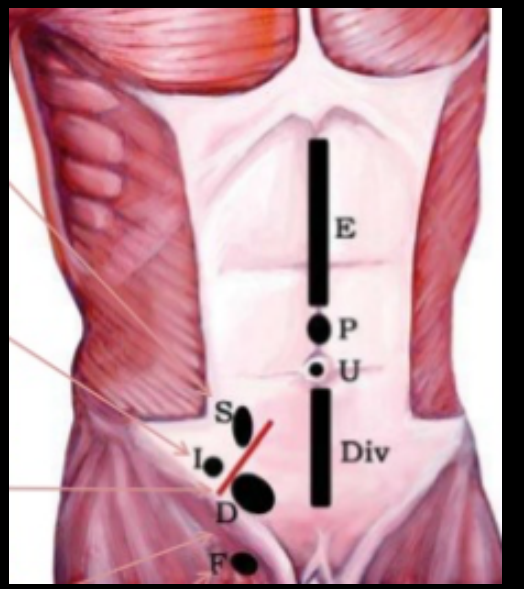
Hernia Scanning Protocol



1. Look for FEMORAL HERNIA
   Find femoral vein inferior to inguinal ligament, just medial-superior to where GSV meets FV, then look medial to FV

2. Look for INDIRECT INGUINAL HERNIA, start at pubic symphasis just above base of penis and follow spermatic cord superior-and-lateral along inguinal, check scanning in both TRANS and SAG to inguinal canal

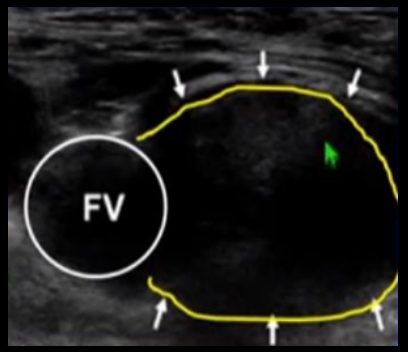
3. Look for DIRECT INGUINAL HERNIA
   medial to IEVs (Inferior epigastric vessels, 2 veins + 1 artery), and superior to inguinal canal

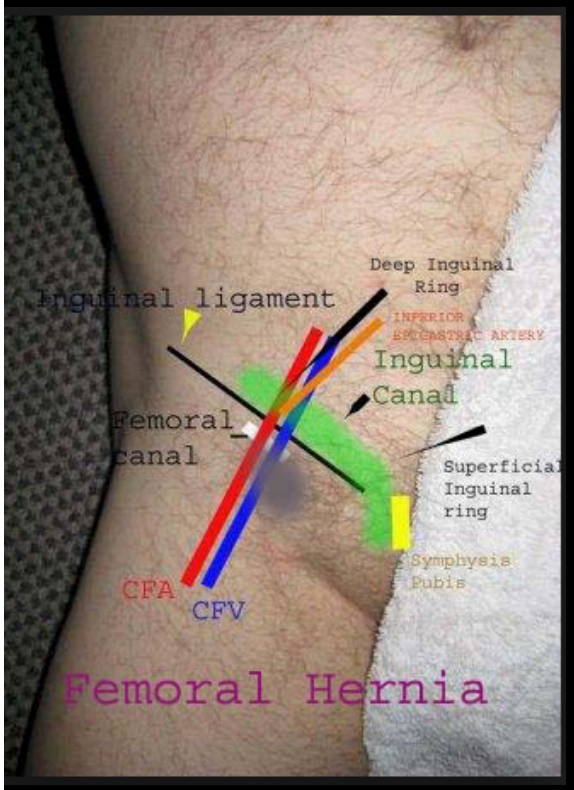


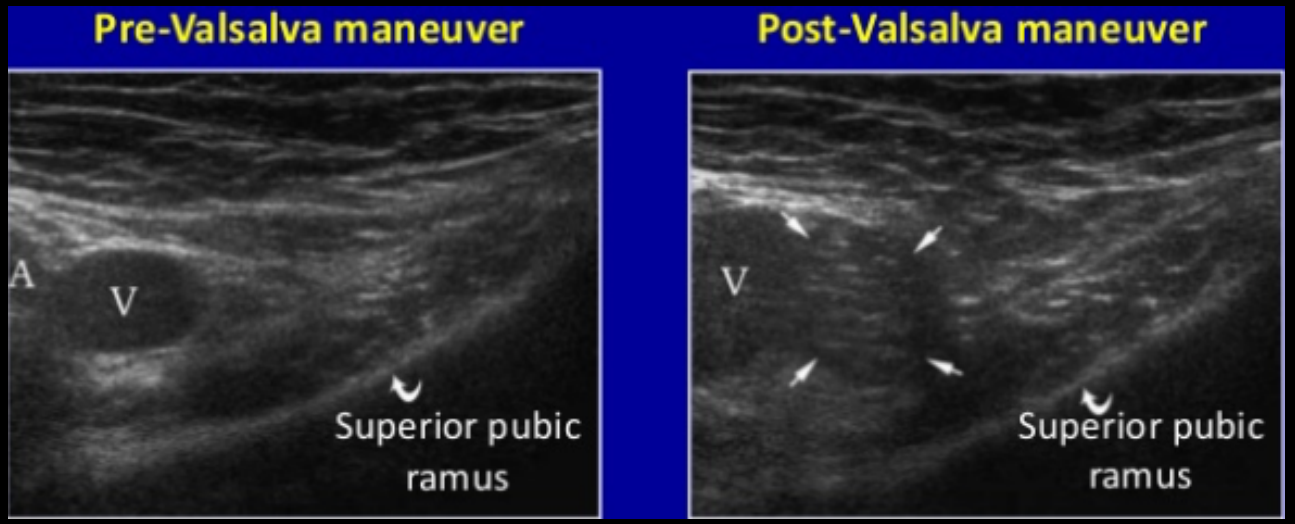
4. Look for SPIGELIAN HERNIA superiorly along lateral edge of rectus abdominus muscle

Hernia Scanning Protocol

1. Look for FEMORAL HERNIA
   Find femoral vein inferior to inguinal ligament, just medial-superior to where GSV meets FV,
   then look medial to FV

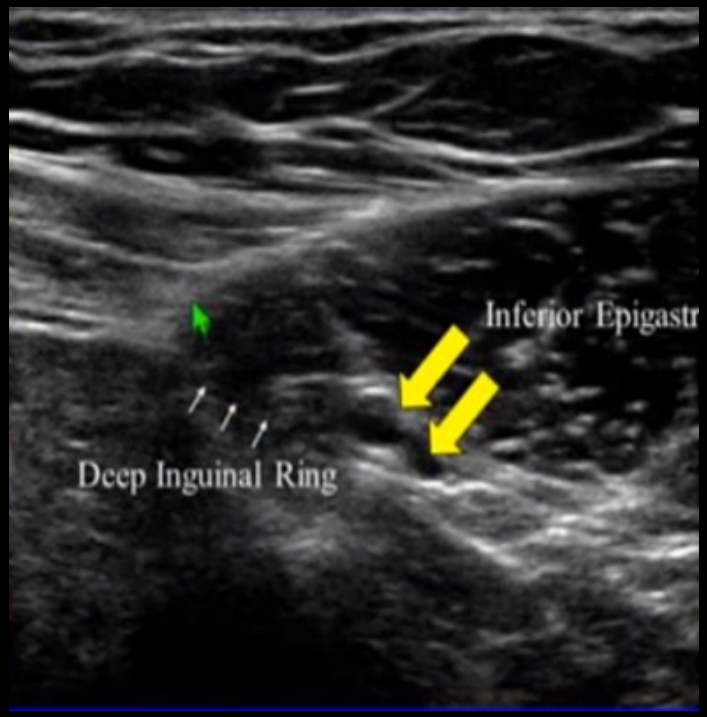






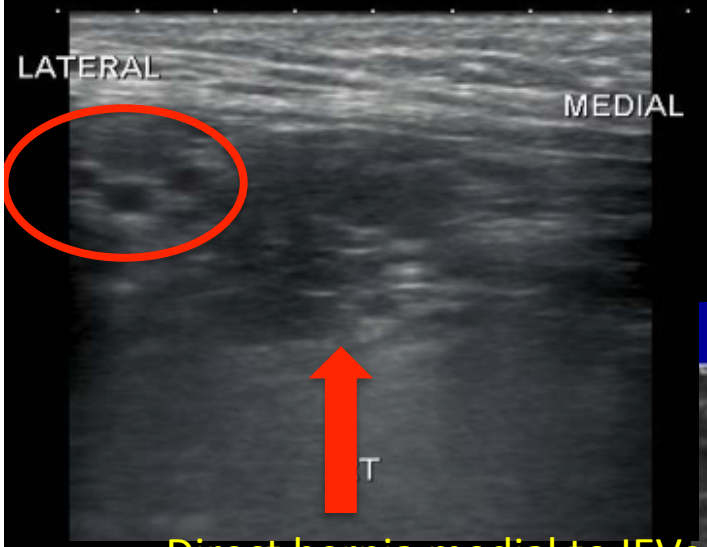
Hernia Scanning Protocol

2. Look for INDIRECT INGUINAL HERNIA (lateral to IEVs) down inguinal canal, start at pubic symphasis just above base of penis and follow spermatic cord superior-and-lateral along inguinal, check scanning in both TRANS and SAG to inguinal canal

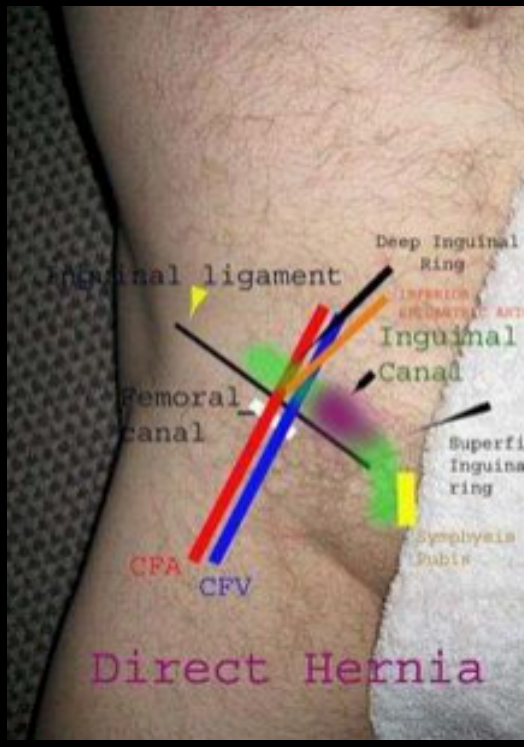


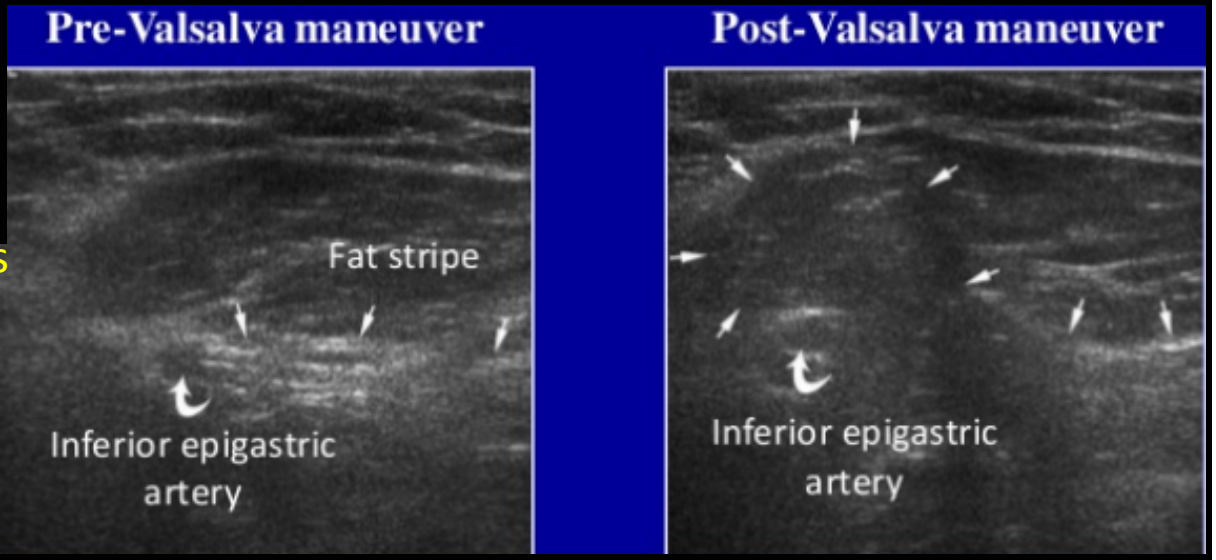
Hernia Scanning Protocol

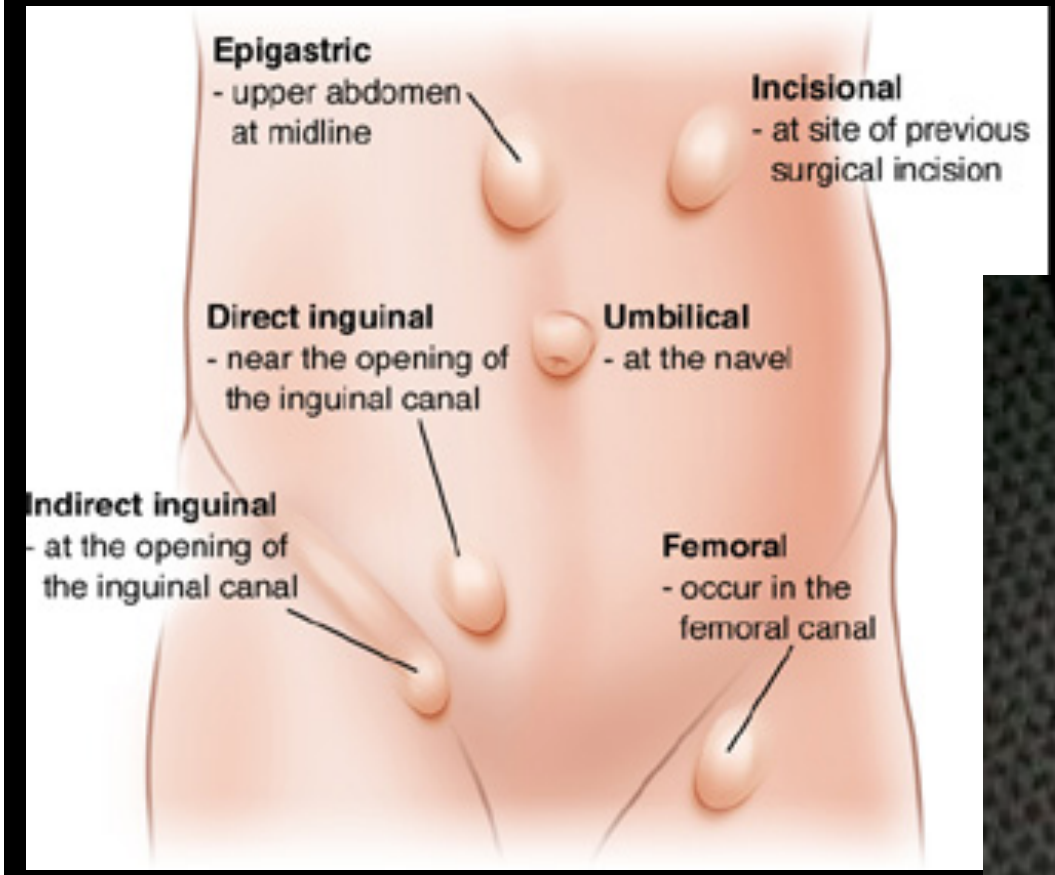
3. Look for DIRECT INGUINAL HERNIA (medial to IEVs) superior to inguinal canal

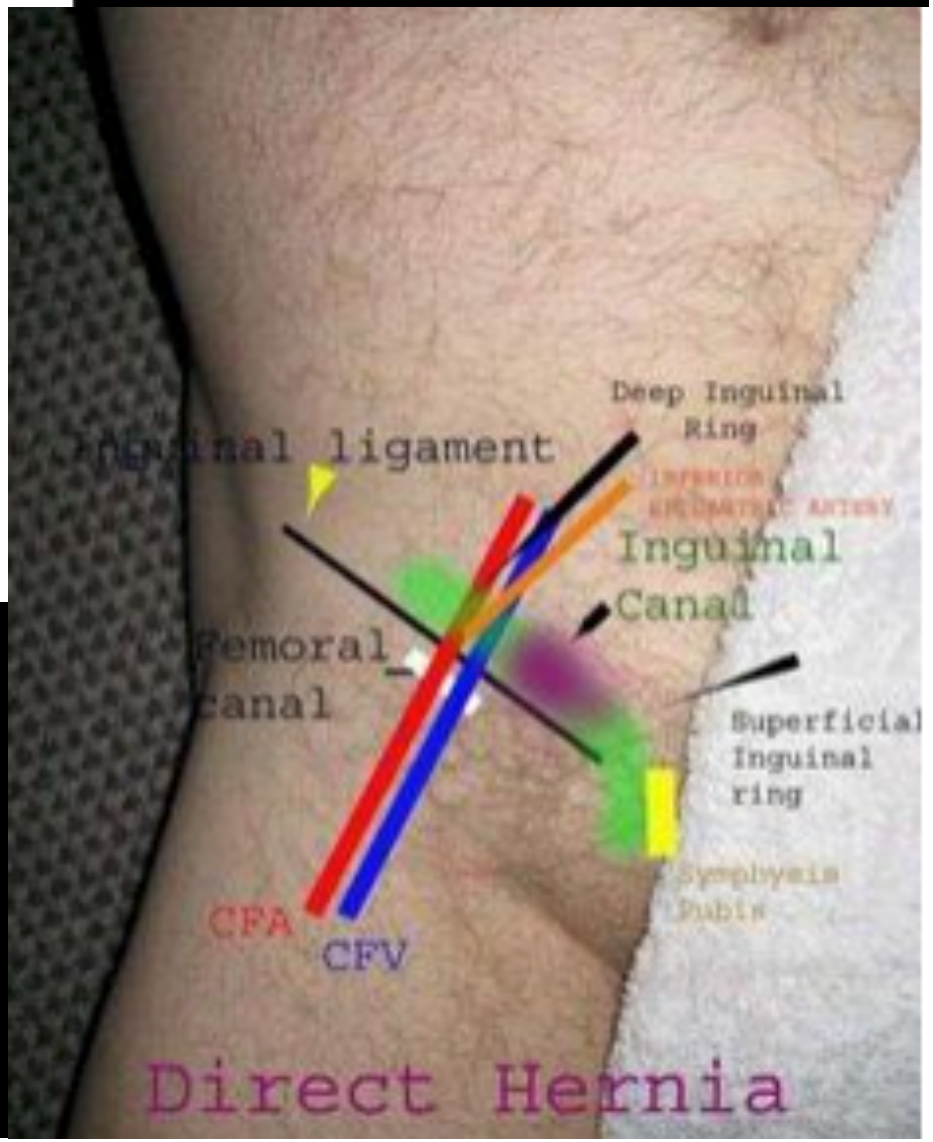


Direct hernia medial to IEVs





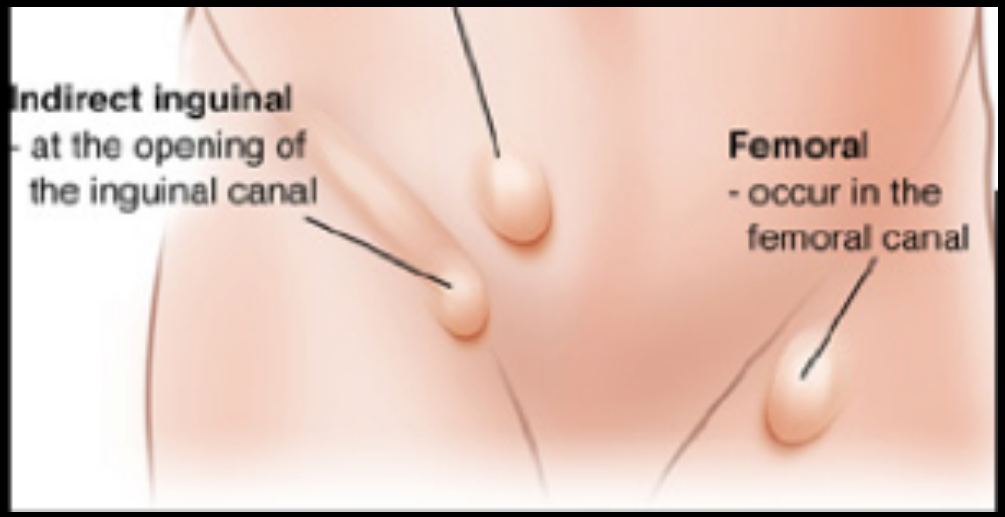

Epigastric
- upper abdomen at midline
Incisional
- at site of previous surgical incision
Direct inguinal
- near the opening of the inguinal canal
Umbilical
- at the navel
Indirect inguinal
- at the opening of the inguinal canal
Femoral
- occur in the femoral canal


Deep Inguinal Ring
Inguinal ligament
Inguinal Canal
Femoral canal
Superficial Inguinal ring
CFA
CFV
Direct Hernia

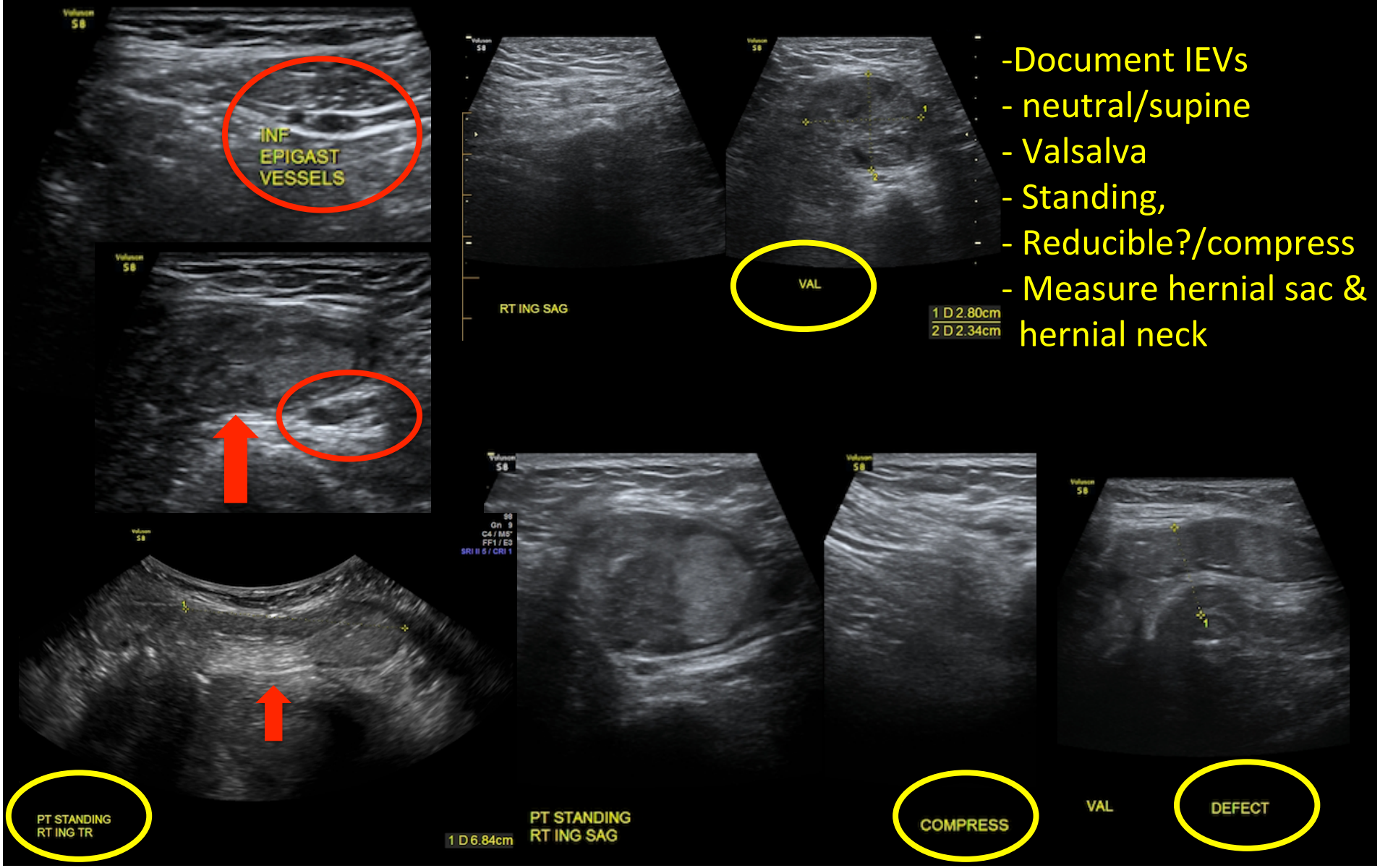
Hernia Scanning Protocol

- Scan for Indirect, Direct & Femoral hernias in both neutral position and with valsalva manoeuvre ("Puff your cheeks out")

THEN STAND THEM UP AND SCAN THOSE LOCATIONS AGAIN

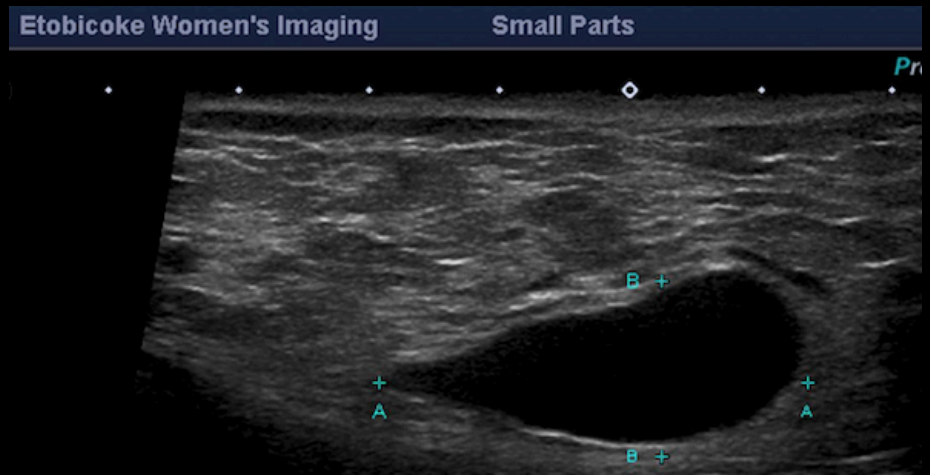


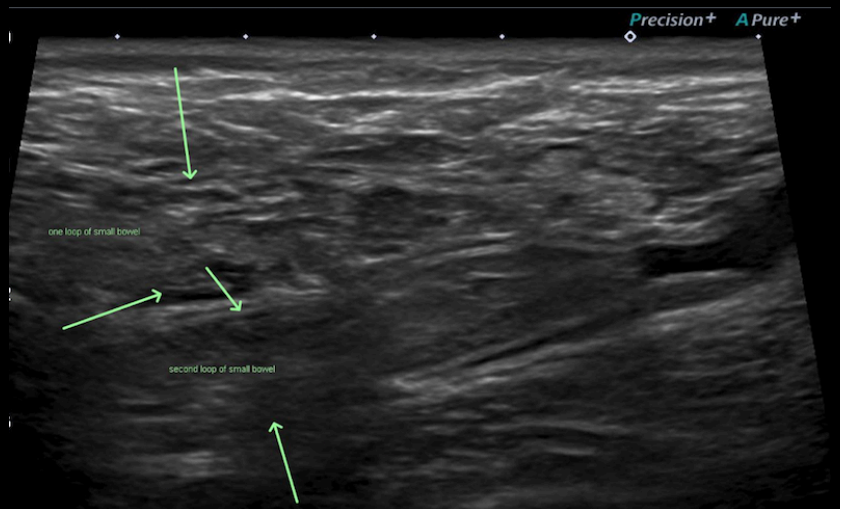
74 yo Male, R groin & scrotal discomfort x few weeks



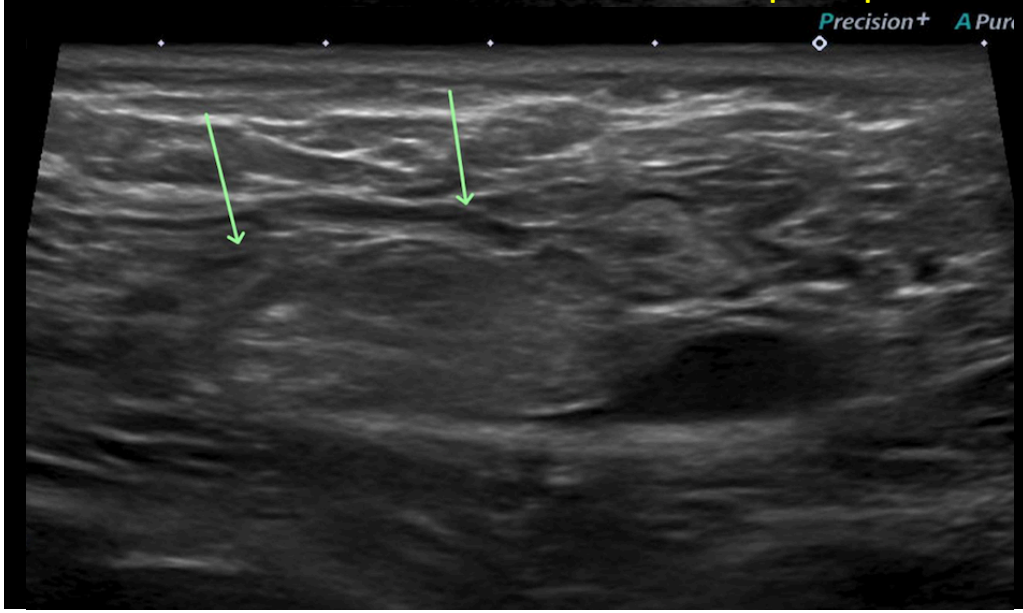
-Document IEVs
- neutral/supine
- Valsalva
- Standing,
- Reducible?/compress
- Measure hernial sac & hernial neck

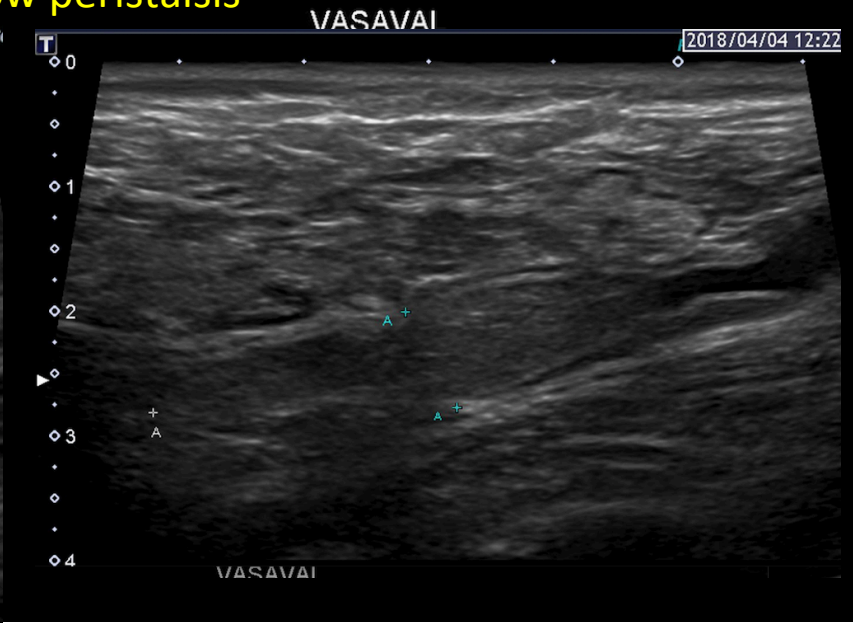
69 yo Male, L inguinal discomfort



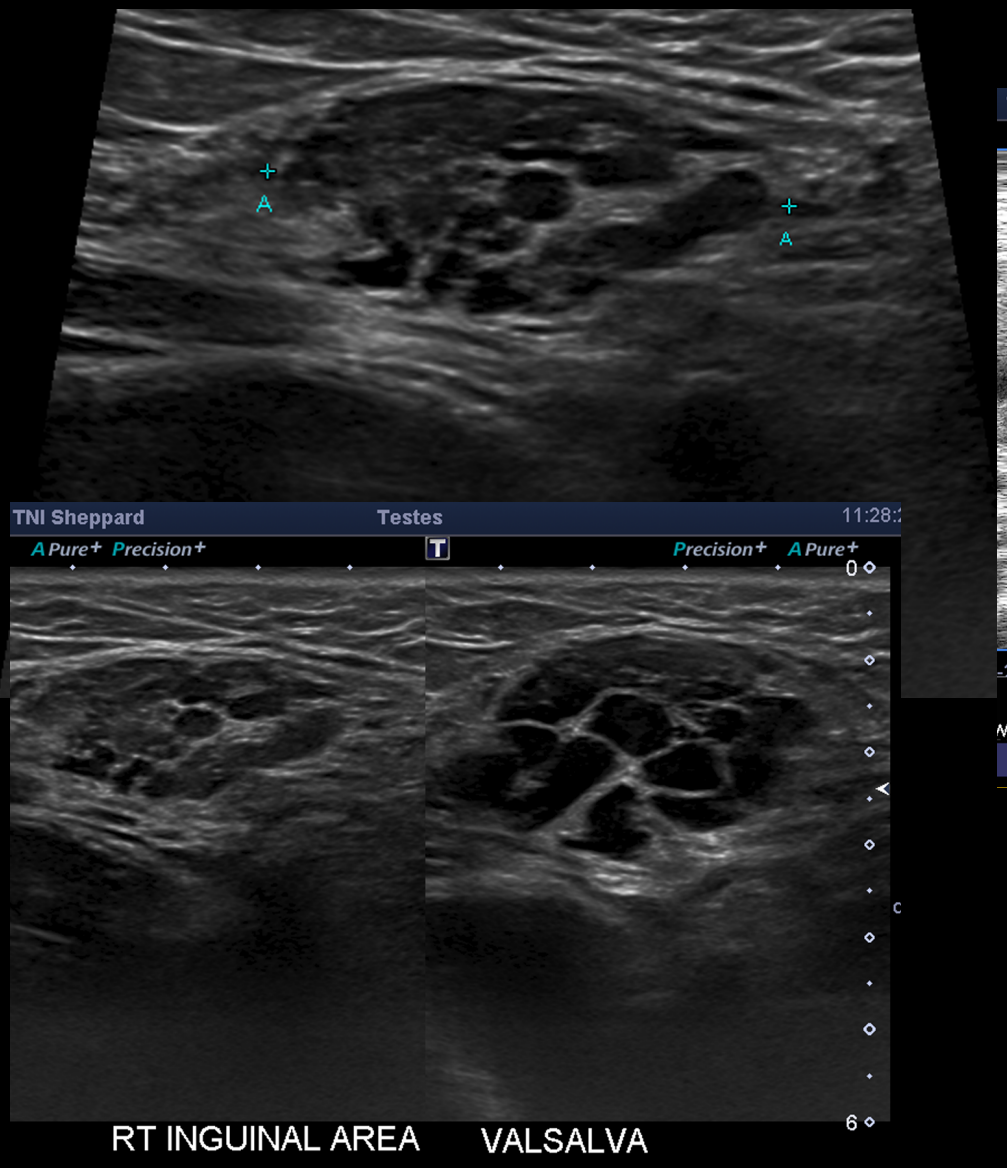


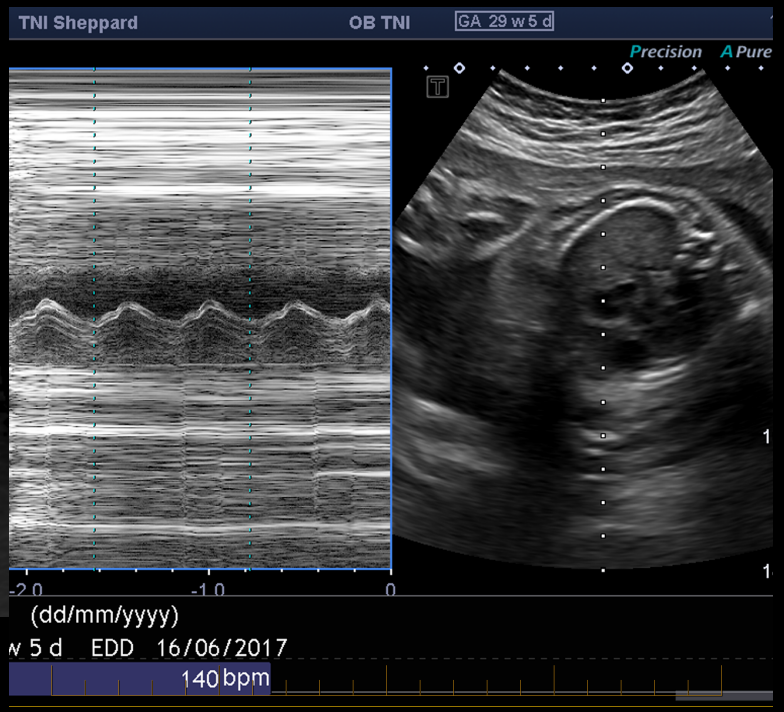
L indirect inguinal hernia containing 2 adjacent loops of small bowel
→ CINE clip helped show peristalsis

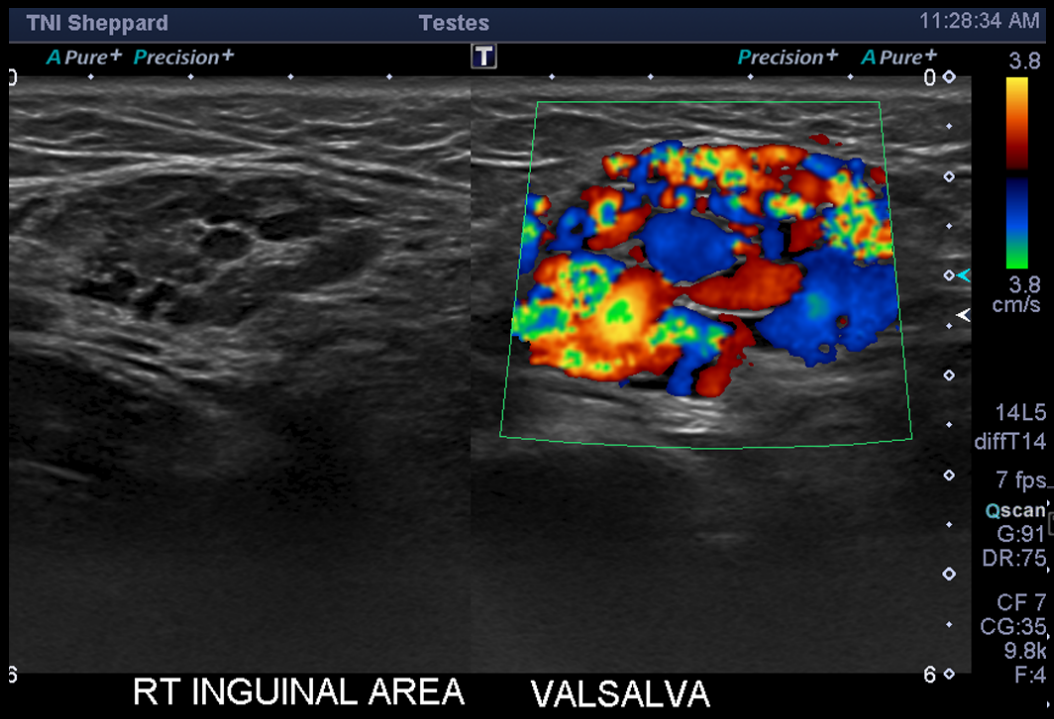


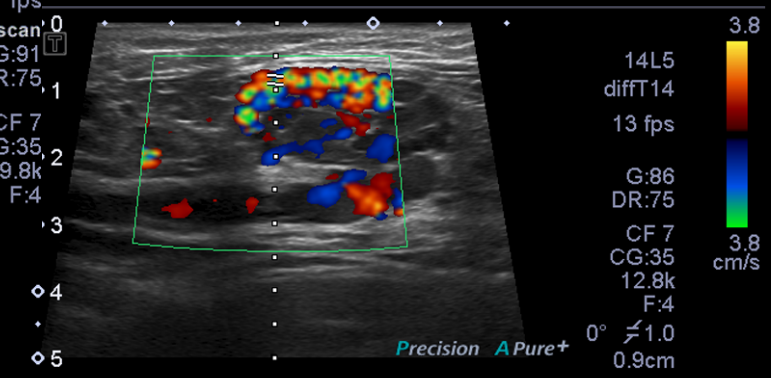


25 yo F, 29w 5d pregnant, Requisition: "right inguinal reducible hernia"; pt mentions "can get as big as a golf ball"






TNI Sheppard
Testes
11:28:34 AM
A Pure+ Precision+
Precision+ A Pure+
3.8
3.8
cm/s
14L5
diffT14
7 fps
Qscan
G:91
DR:75
CF 7
CG:35
9.8k
F:4
RT INGUINAL AREA
VALSALVA


14L5
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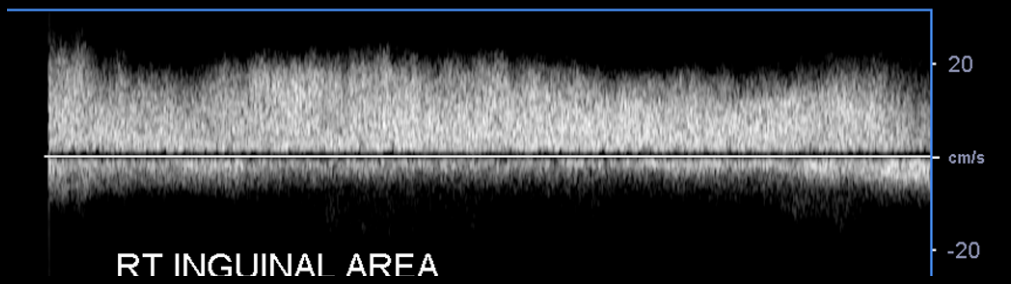

20
cm/s
-20
RT INGUINAL AREA

Round Ligament Varices (RLV) - Pregnant

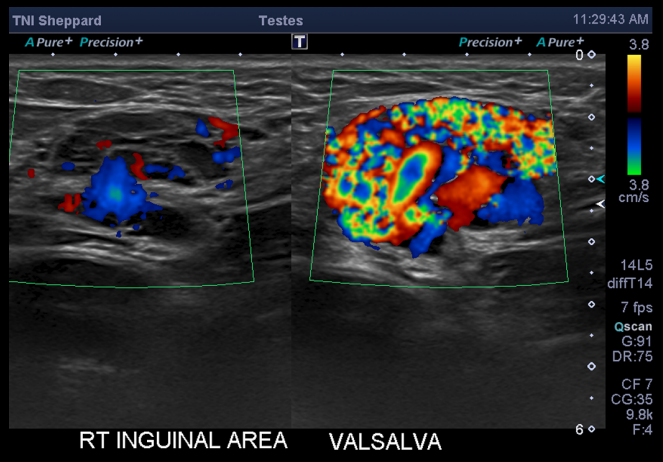
- Groin mass in pregnant pt?
  - More likely to be RLV than inguinal or femoral hernia
  - Hx –groin bulge with discomfort, can increase with coughing & valsalva, often presening in 2nd trimester

- Round ligament extends from lateral uterus to labia majora
- RLV = varicosities within the ligament, usually self-resolve post-pregnancy

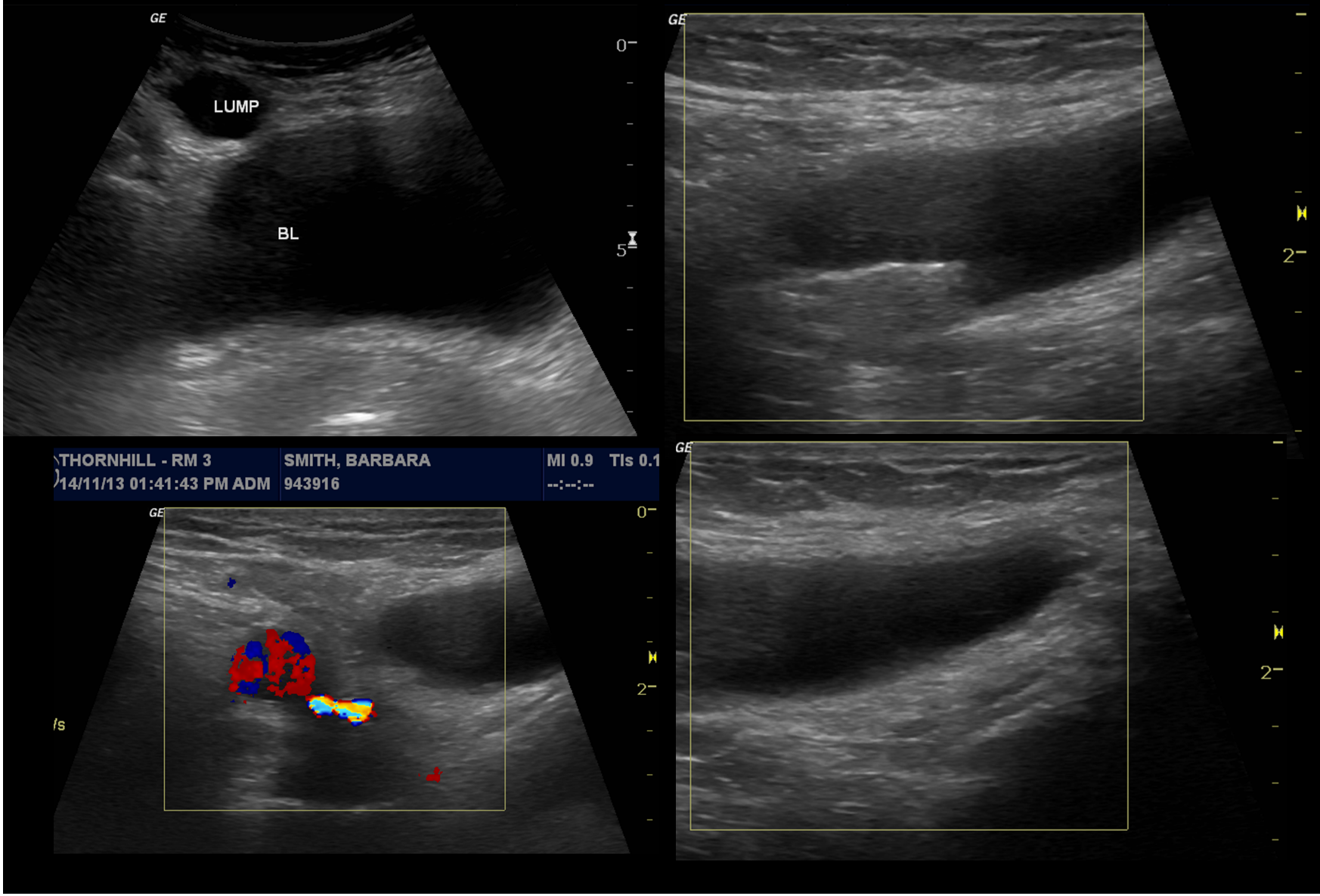
- Apply colour doppler and ask pt to valsalva,
  "bag of worms" tangle of vessels

Complication – RLV thrombosis

-look for internal blood clot/
intraluminal focal echoes,
vein noncompressibility

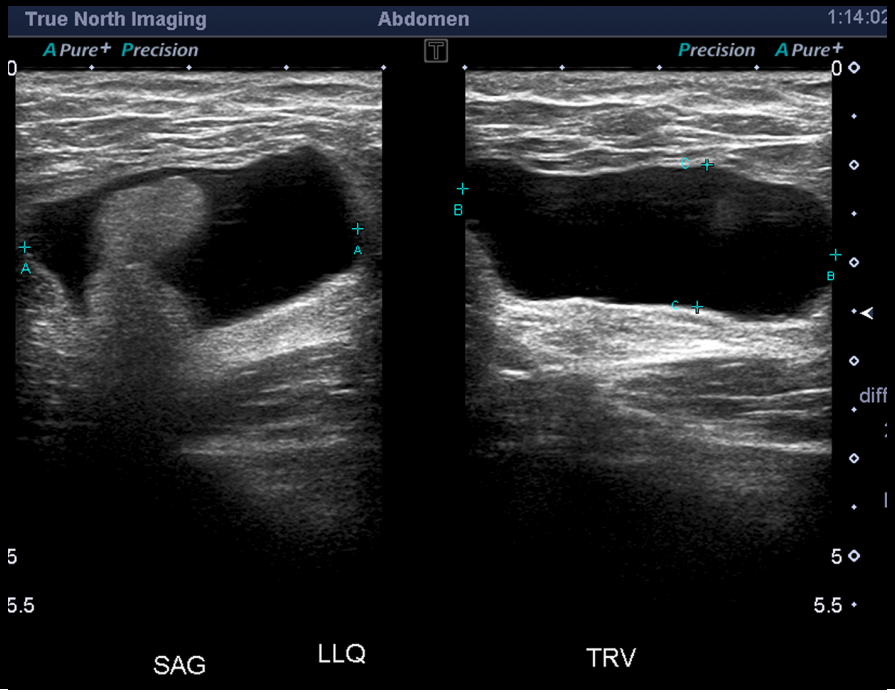


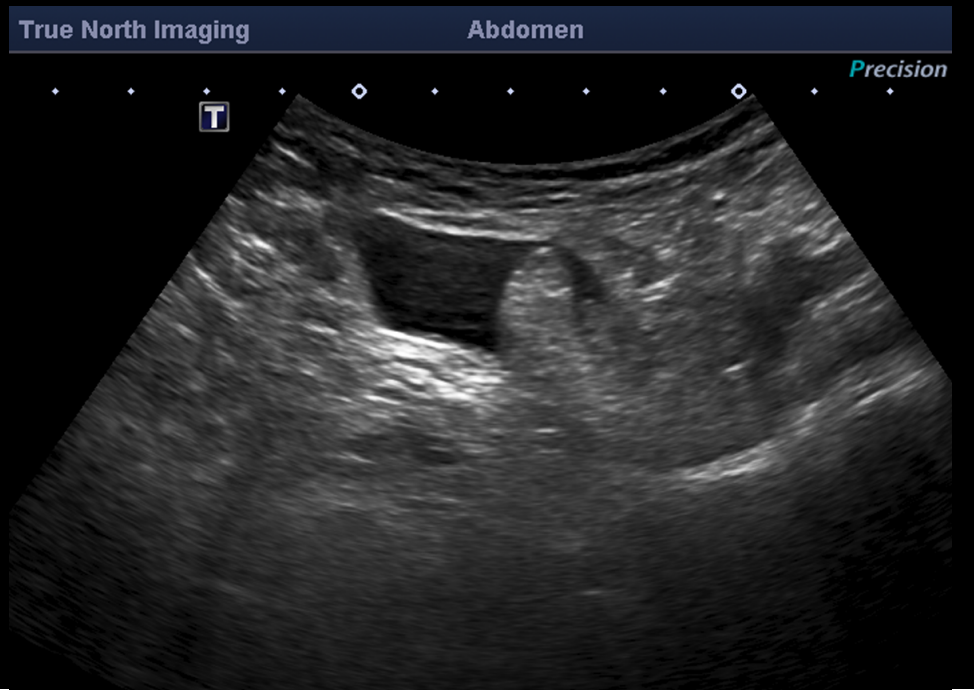
49 yo F, marathon runner, R tender groin lump x 1 wk



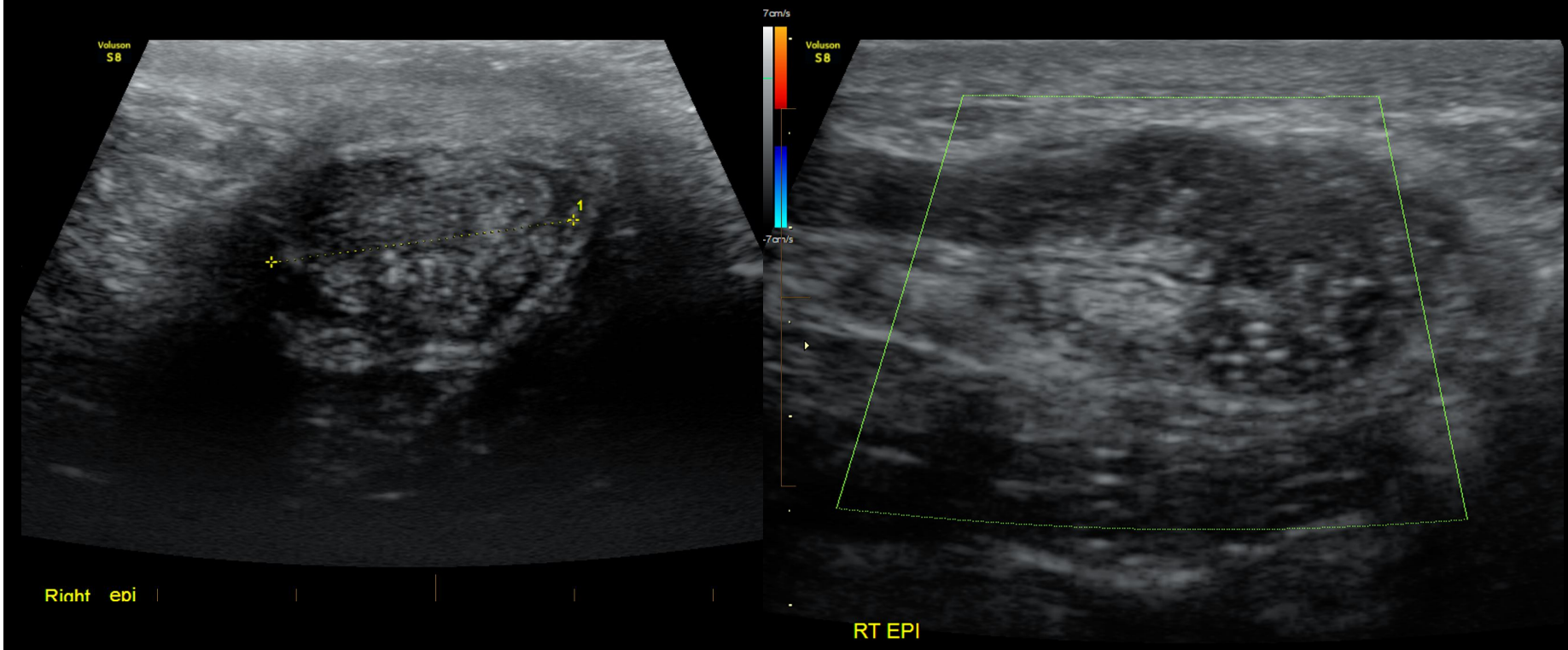
Cyst of the Canal of Nuck

- Female equivalent of a male patent processus vaginalis
  - aka hydrocele of the Canal of Nuck of the round ligament from lateral uterus to labia majora
  - If large, allowing abdominal organs to protrude through canal (eg. bowel, omental fat; Not just fluid), then called indirect inguinal hernia



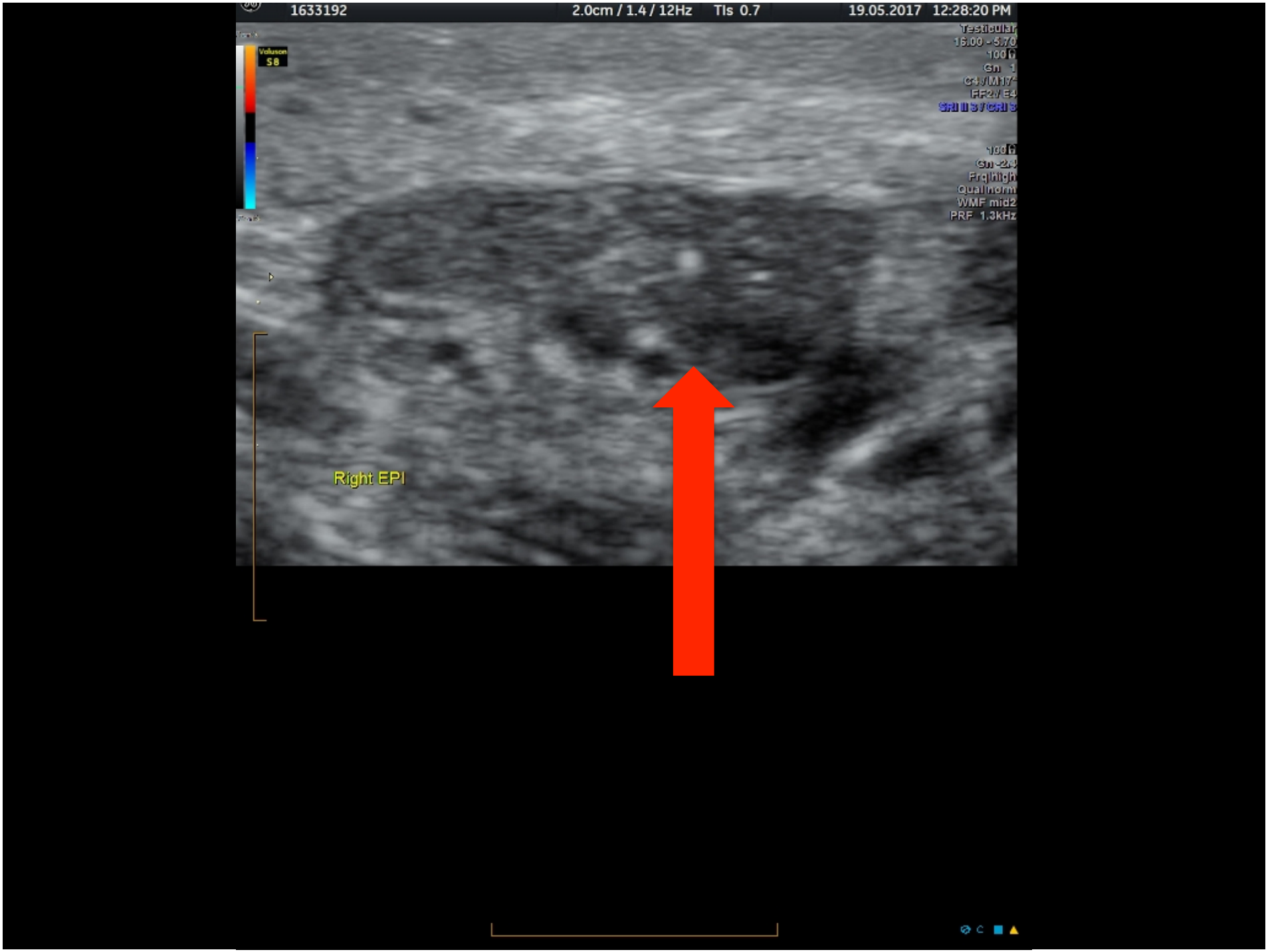


Bonus Case



DDX:
Chronic Epididymitis? (thick, heterogeneous epididymis but no hyperemia)
Tubular ectasia of the Epididymis in post-vasectomy pt?

- *Something looks like it's moving in the epididymis …*
  - *Pardon?*
  - *Please take a cine clip …*


1633192
2.0cm / 1.4 / 12Hz
TIs 0.7
19.05.2017 12:28:20 PM
Right EPI

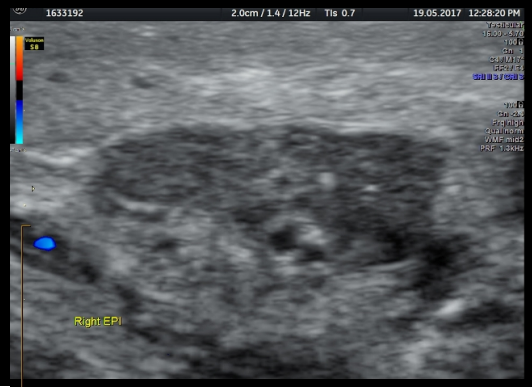
Scrotal Filiariasis

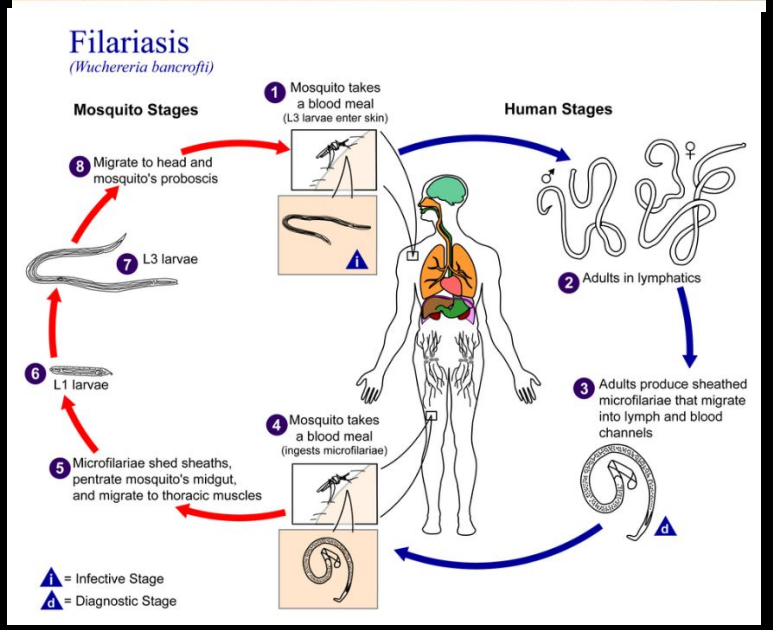
- Parasitic nematode worm, tropics (travel history) esp Africa, Asia & Western Pacific

Scrotal Involvement

On US: dilated lymphatic channels (6 mm) with curvilinear undulating Structures (worms! = microfiliariae)

"Filarial dance sign"





Summary – Take Home Points

1. INTRAtesticular mass is
   TESTICULAR CANCER UNTIL PROVEN OTHERWISE

2. ALL INTRAtesticular solid-appearing abnormalities MUST get a follow-up US if no surgical intervention performed
   eg. orchitis, testicular infarct, inflammation, trauma

3. Testicular Microlithiasis does NOT require US surveillance if incidental without risk factors (just monthly self-exams)
   However, annual US followup if TML + risk factors
   (eg. undescended testes, atrophic testicle, FHx testicular ca)

4. Always:
   - Doppler in the CENTRE of the testicle
   - IMAGE BOTH TESTICLES SAME SCREEN WITHOUT AND WITH DOPPLER
   - Image Epididymal TAIL (in addition to body and head)

5. Right varicocele?
   - Check IVC and retroperitoneum for mass

6. Hernias
   - Neutral, Valsalva, then STAND THEM UP!

Thanks!

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