Scrotal Swellings

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Mode of Presentation

- Acute Pain
- Elective Non-acute Pain

Acute Painful Presentation

- Testicular Torsion
- Torsion of Testicular Appendage (Hydatid of Morgagni)
- Epididymo-Orchitis
- Acute Trauma
- Acute Idiopathic Scrotal Oedema
- Henoch-Schonlein Purpura

Non-Acute Pain

- Hydrocele
- Inguinal Hernia
- Epididymal cyst
- Varicocele
- Scrotal skin lesions
- Testicular tumour

Red, Swollen Testes

Red, Swollen Testes

Epididymo-Orchitis

Testicular Torsion

Acute Idiopathic Scrotal Oedema

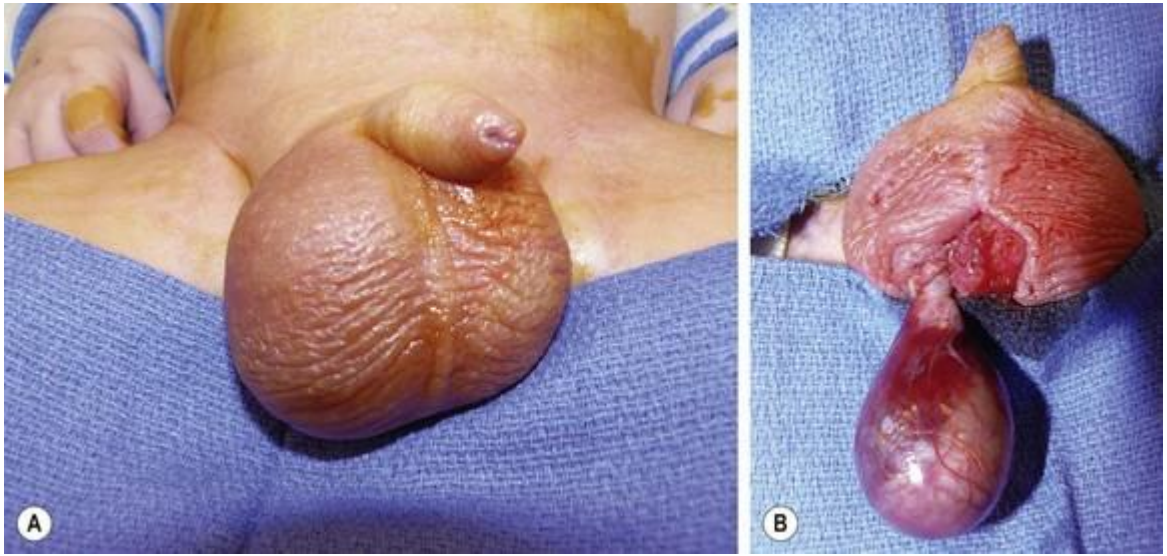
Henoch-Schonlein Purpura

Torsion of Hydatid of Morgagni

Fournier’s Gangrene

Testicular Torsion

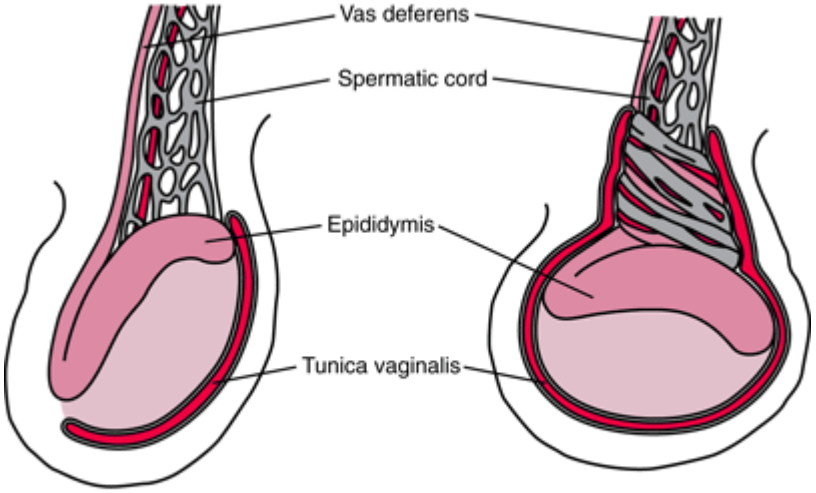
Torsion



Testicular Torsion

- Peak incidence 12-14 yrs
- 1 per 25,000 males under age 25 yrs
- Rare after aged 30 yrs
- History of previous minor episodes important

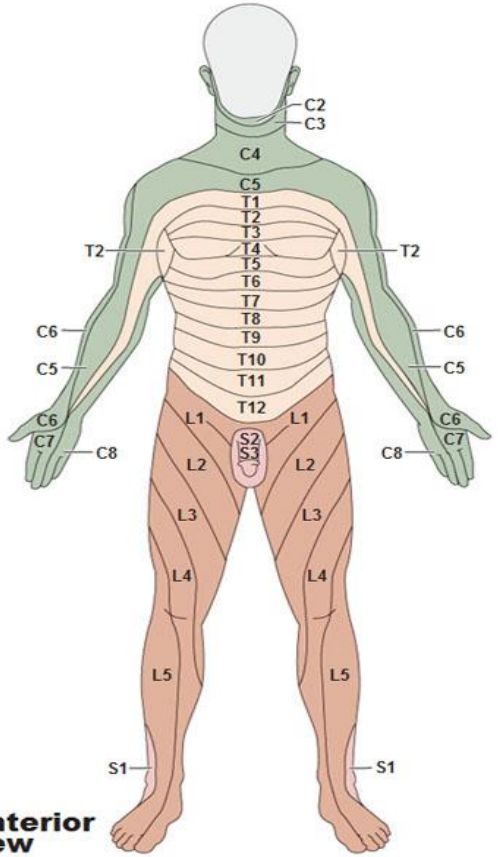
Predisposing Factor- Bell-clapper Testis



Testes have same embryological derivation as kidneys- common level of innervation
T10-L1

Pain

- Rapid onset
- Scrotal
- Severe
- +/- nausea, vomiting
- +/- umbilical - see dermatomes

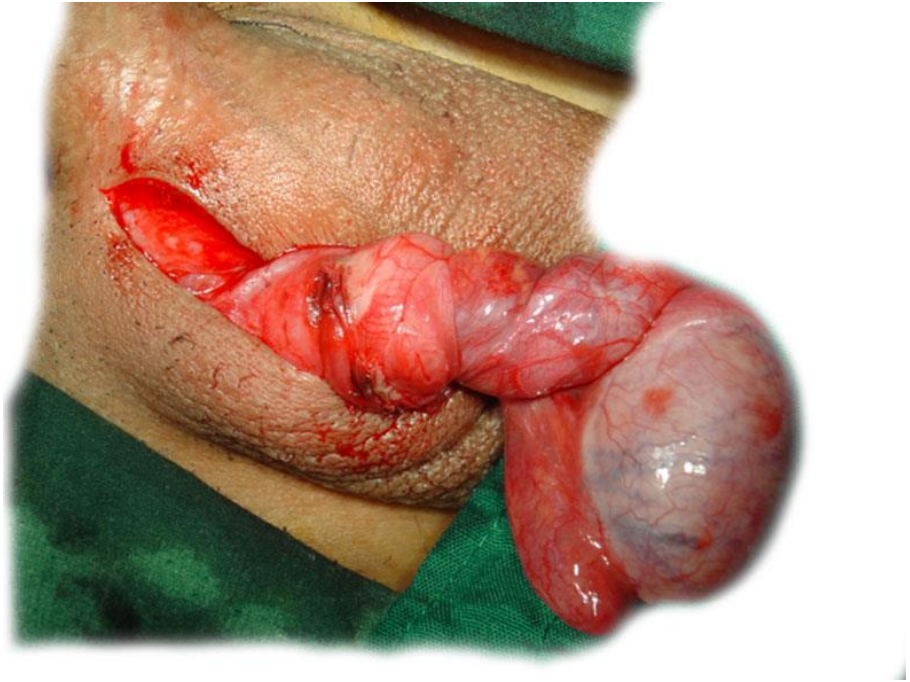


Scrotal Pain is Testicular Torsion until proved otherwise

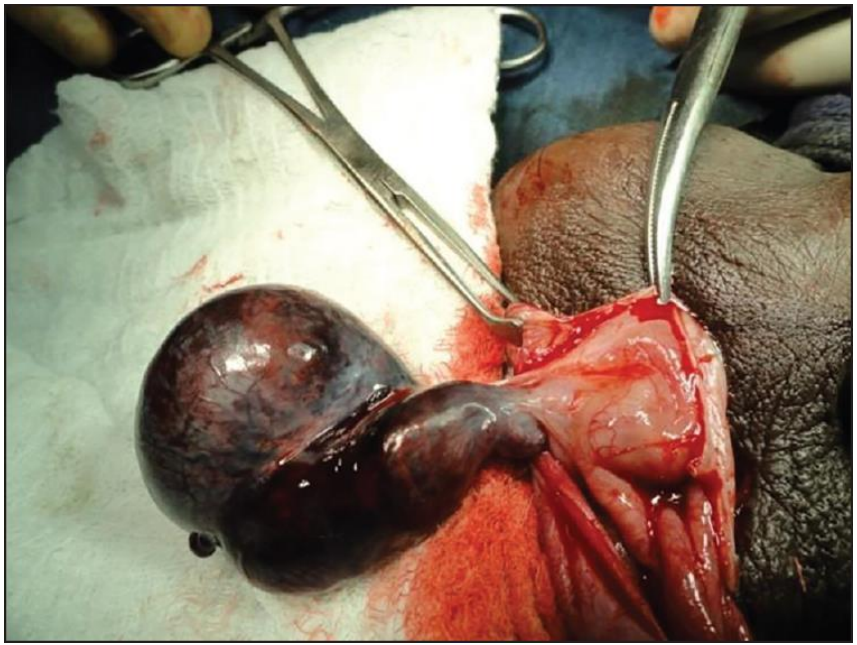
Surgical Emergency - NCEPOD Category 1

- Surgery within 1 hour of provisional diagnosis of Testicular Torsion
- Fast-track emergency protocols

Early Surgery



Late Surgery



Signs

- obvious discomfort
- +/- unusual gait, +/- reluctant to move.
- Scrotal region is usually very tender and may be red and swollen.

May see:

- High riding testicle
- Absence of cremasteric reflex
- Focal blue-dot at the upper pole of the testis
- Diffuse blue discoloration of the hemiscrotum or a reactive hydrocele. A high temperature may also be observed

Investigations

- A urine sample if possible and a dipstix test performed. The urine sample may be sent for microbiological tests at the discretion of the reviewing surgeon.
- At surgery, a microbiology swab may be taken if infection thought to be present.

Radioisotope scans and Doppler ultrasonography are not part of the initial management of acute scrotal pain

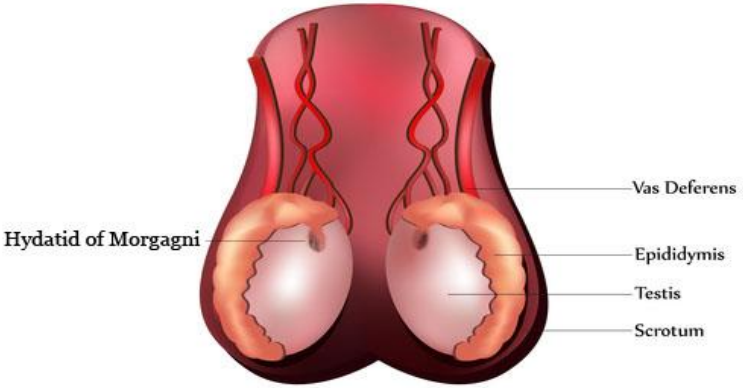
- may contribute to delay in treatment with unacceptable consequences.
- In obese boys and when the testicular volume is about 2 ml (majority of boys under the age of 12 yrs) the diagnostic accuracy of these tests is low resulting in limited clinical benefit.
- Likely that some units do Doppler ultrasound if no delay involved in getting to theatre

Other Acute Painful Scrotum

- Torsion of Testicular Appendage (Hydatid of Morgagni)
- Epididymo-Orchitis
- Acute Trauma
- Acute Idiopathic Scrotal Oedema
- Henoch-Schonlein Purpura
- Fournier’s Gangrene

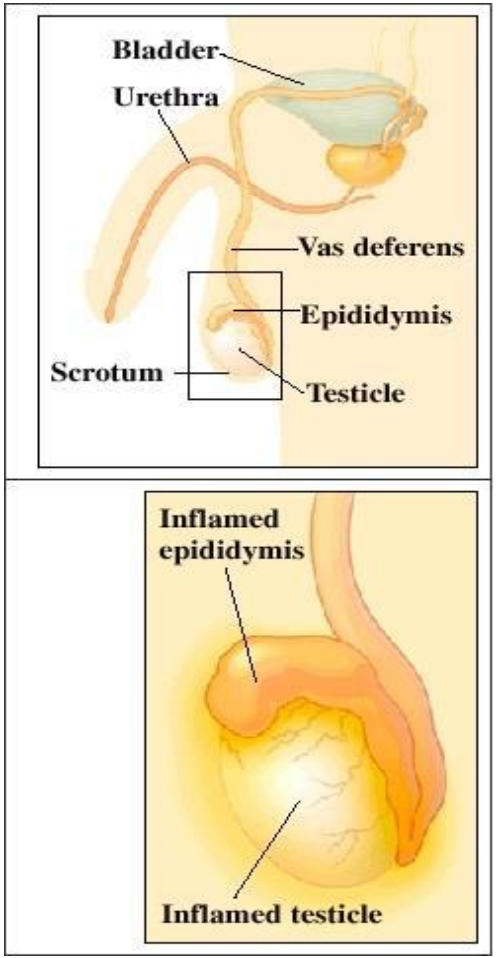
Torsion of Testicular Appendage (Hydatid of Morgagni)

Classical Blue Dot Sign



Epididymo-orchitis

- Pain, swelling and increased temperature of the Epididymis
- May involve the Testis and Scrotal skin. (hence-”orchitis”)
- Generally caused by migration of pathogens from the urethra or bladder. **Torsion of the spermatic cord (testicular torsion) is the most important differential diagnosis in boys and young men.**
- Predominant pathogens-Chlamydia trachomatis, Gut bacteria (usually E.coli) and N.gonorrhoeae
- Men who have anal intercourse
- Abnormalities of the urinary tract resulting in bacteriuria are at higher risk of epididymitis caused by Enterobacteria.
- Mumps orchitis- consider if parotitis and absent MMR



Epididymo-orchitis

Investigation-

Urinalysis and MSU

STD screen for Chlamydia and Gonorrhoea- first void urine and discharge swab

Treatment-

Young sexually-active men- (10-14 days Rx) Fluoroquinolone to cover Enterobacteria and Chlamydia; if urethral discharge additional antibiotic to cover Gonococcus

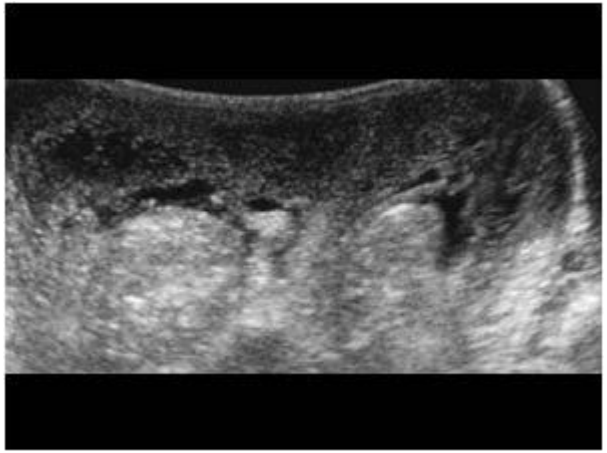
Older Men- assume Enterobacteria- Fluoroquinolone alone for 10-14 days

Acute Idiopathic Scrotal Oedema- AISO

Southampton General Hospital Catchment area= 1.9 million people - 5 year Period

- Twenty-four children with a total of 31 episodes of AISO
- AISO accounted for 30 per cent of all admissions with acute scrotal pathology in this period
- Final diagnosis in 69 per cent of cases **under the age of 10 years.**
- Unilateral in 48%, Bilateral in 52%
- 21% had recurrent attacks.

AISO- Prompt Ultrasound **Without Delay**



Henoch-Schonlein Purpura

Fournier's Gangrene

Acute necrotic infection -"necrotising fasciitis"

Predisposing factors

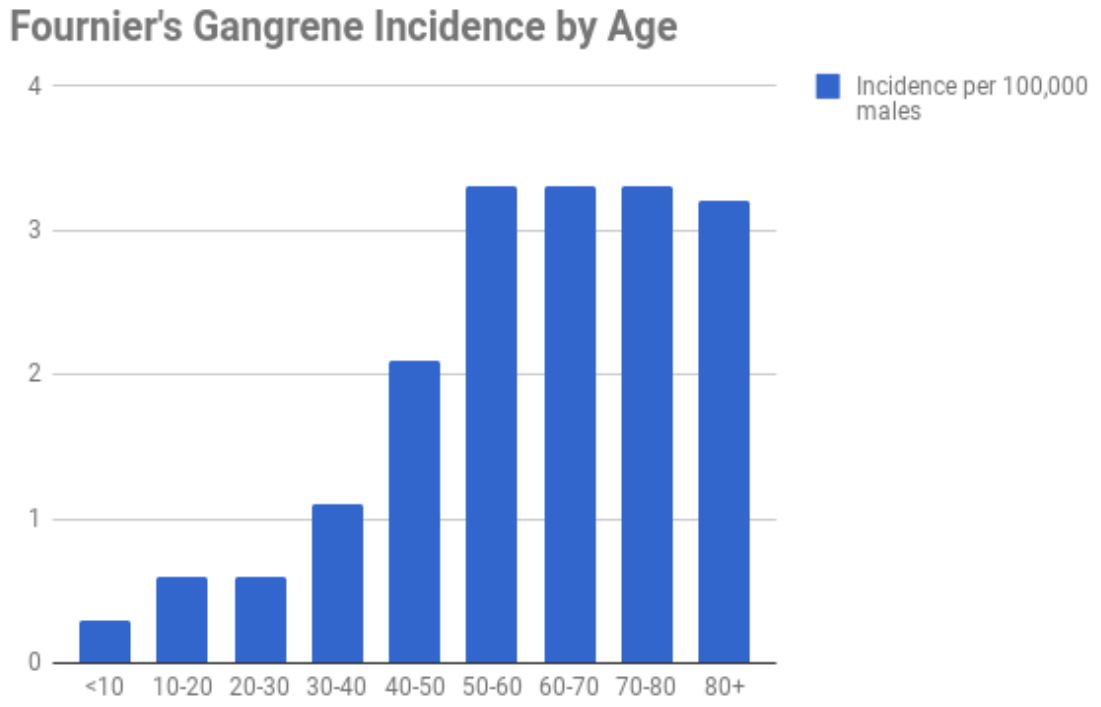
- Diabetes
- Alcoholic liver disease
- HIV
- Obesity

Incidence

Rare- max 3.2 per 100,000 Males

Can occur at any age

Predominantly >50 yrs



Portal of Entry of Infection

Urogenital (45%)

- urethral strictures
- indwelling catheters
- traumatic catheterization
- urethral calculi
- prostate biopsy.

Anorectal (33%)

- Ischiorectal, perianal and intersphincteric abscesses, esp.inadequately treated.
- Rarely after routine anorectal procedures- rectal mucosal biopsy, anal dilatation and banding of haemorrhoids.
- Carcinoma of the sigmoid colon and rectum, appendicitis, diverticulitis and rectal perforation by a foreign body are also recognized causes.

Cutaneous (21%)

- may be occult
- pressure sore
- Vulval or Bartholin's abscess
- Episiotomy
- hysterectomy
- Vasectomy
- Diathermy for genital warts;

Surgical Emergency

Urgent debridement of all infected tissue

Non-Acute Pain

Hydrocele

Infantile

Adult-type

Infantile- due to Patent Processus Vaginalis

110 Infantile Hydroceles:

- 63% complete resolution by 12 months
- 37%surgery by 14 months (persistent size/hernia palpable)

Refer at 1yr - Tunica spontaneously closes by 1yr

Refer if hernia associated (urgently)

J Pediatr Surg. 2010 Mar;45(3):590-3.

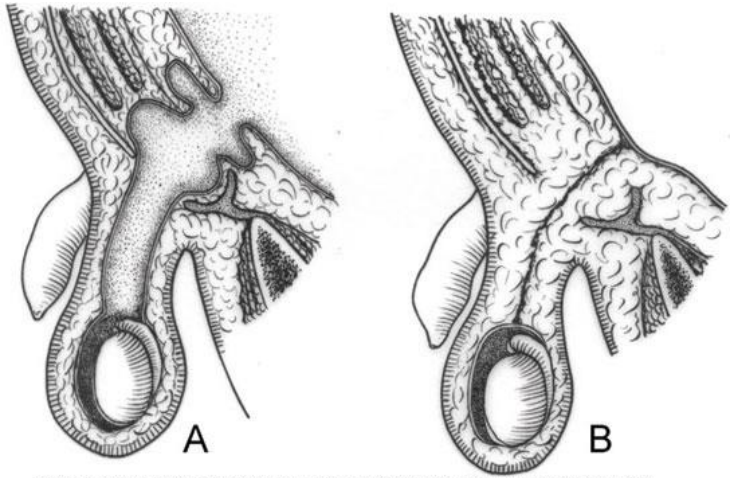


Figure 1 *– Schematic drawing demonstrating the persistence of the processus vaginalis (A) and the occluded processus vaginalis (B).*

Adult-type Hydrocele

Primary

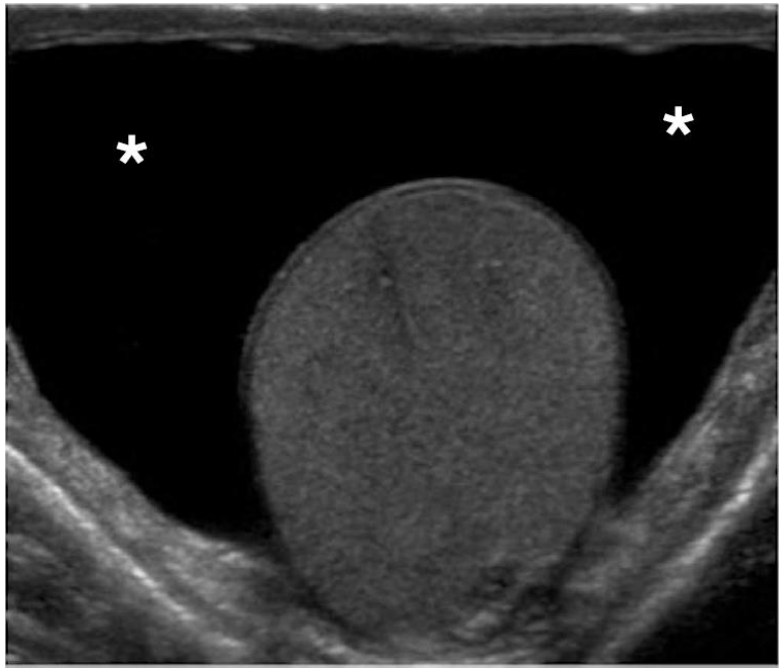
- Defective reabsorption of fluid by Tunica vaginalis

Secondary

- Trauma including Post-surgery for varicocele
- Infection - epididymo-orchitis
- Testicular tumour

Clinical Features

- Can get above the swelling
- No cough impulse
- Transilluminates



Adult-type Hydrocele- Treatment

Many men just want **Reassurance**- Clinical exam +/- ultrasound

Aspiration (+/- sclerotherapy to prevent recurrence **Open surgery.**

Cochrane review 2014. Four small studies were identified after an extensive literature search. Limited information re study design; small number of patients enrolled: **Results should be interpreted with caution**.

Surgery

- Meta-analysis showed lower rates of recurrence
- Postoperative complications-infection, fever, cost and time to work resumption higher.
- Cure at short-term follow-up was similar, however there is significant uncertainty in this result which may be as a result of the age of one of the studies and the different agent used compared to the other studies.

Epididymal Cyst

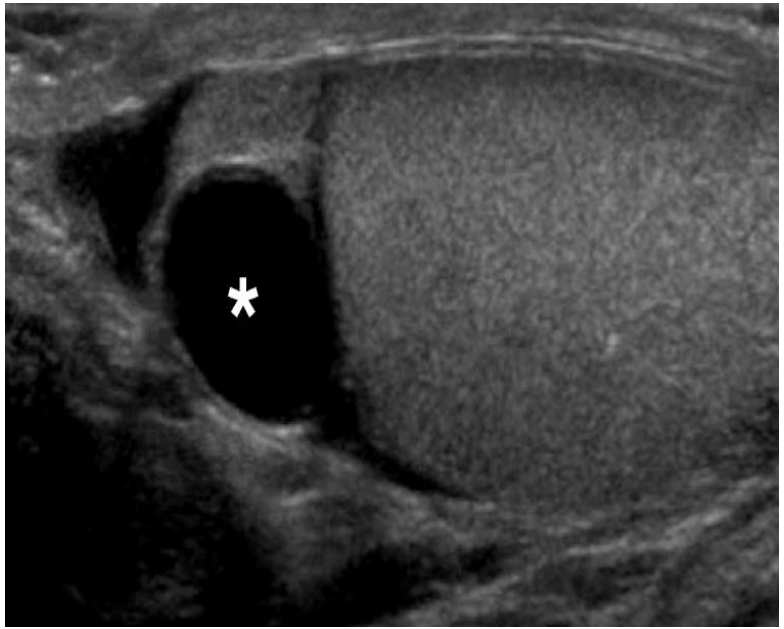
Very Common

20-40 % of asymptomatic males on Ultrasound

Attached to but clinically separate from Testis

Epididymis 18 feet long

Cystic degeneration / obstruction



Epididymal Cyst

Examination

- Can get above it
- No cough impulse
- Can be defined on palpation separate from testis
- transilluminates

Epididymal Cyst

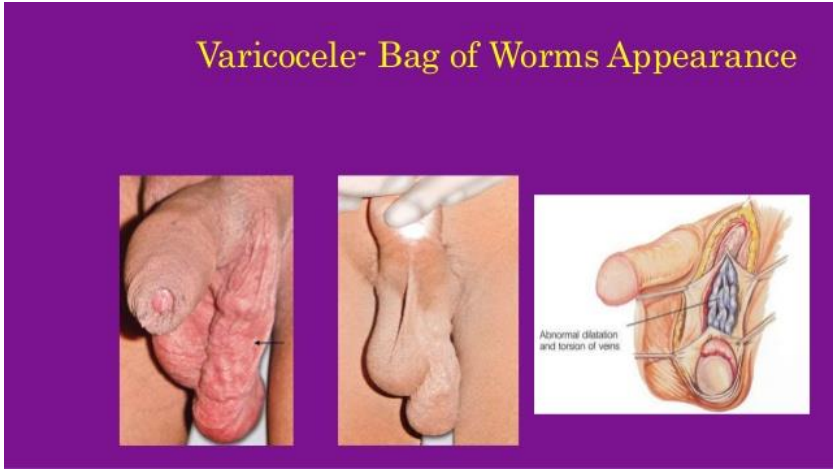
Treatment

- **Reassurance**
- Avoid surgery if family not completed as risk of damage to sperm transport mechanism
- High rate of recurrence
- Small risk of persistent pain
- Aspiration - always recur. Sclerosants - risk of persistent pain

Varicocele

Dilatation of veins of pampiniform plexus

- 12% of Adult Men
- 25% of Men with abnormal semenalysis



Problems

- Discomfort
- Risk of impaired testicular development
- Risk of abnormal sperm production

Classification

Subclinical	Varicocele not detected on physical exam; found by **RADIOLOGICAL** study.
Grade I	**PALPABLE** DURING/AFTER VALSALVA
Grade II	**PALPABLE** WITHOUT VALSALVA
Grade III	**VISIBLE**

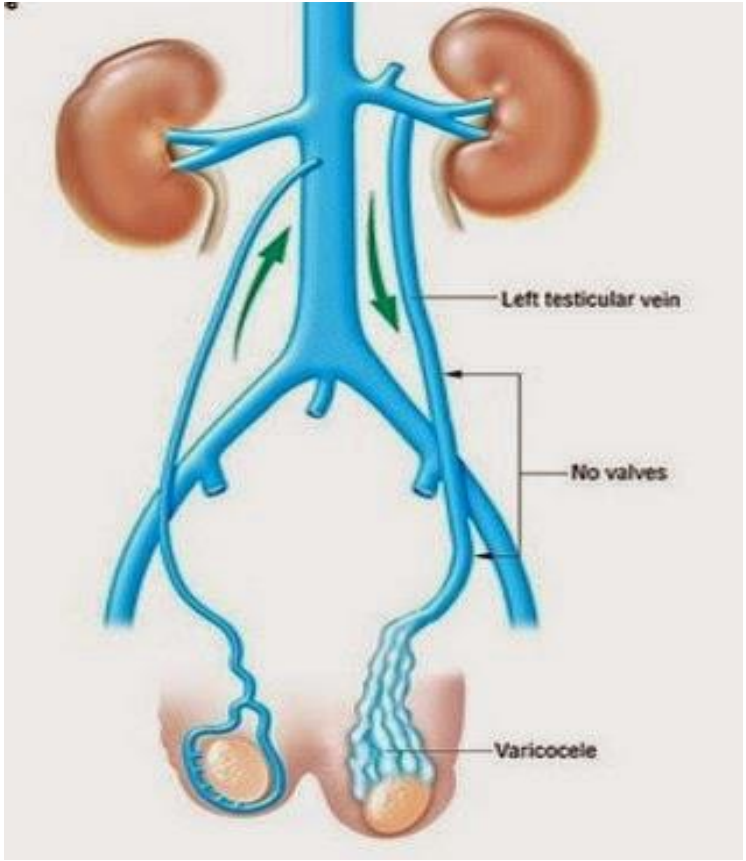
Varicocele Anatomy

- 90+ % left-sided

Due to anatomy - left testicular vein

1. Is 8-10 cms longer than right
2. Is vertically orientated
3. Drains perpendicularly into Left renal vein

All leads to greater hydrostatic pressure and reflux



ATROPHY

In Adolescence-

- disparity in growth of >/= 1cm indicates need for surgery
- Majority demonstrate catch-up growth

Varicoceles and Sub-Fertility

Incidence in normal: subfertile men = 12%:25% i.e. 1:2

Most men with clinical varicoceles conceive normally

Semen count, motility and morphology improve with surgery but……

Increase in pregnancy rates, over observation alone, did not reach statistical significance

May be a role in assisted conception.

In Practice, if Fertility Clinic advised surgery…. We complied

Treatment

Indications-

- Significant discomfort
- Adolescent growth disparity >/= 1cm
- At request of Fertility Clinic

Methods -depends on local experience

1. Radiologist- sclerotherapy/embolisation
2. Surgery-

Scrotal Inguinal High tie

Micro-dissection Inguinal (MDI)

Laparoscopic (L)

Lowest recurrence rate- MDI or L ~ 4% ; radiology 10%

Varying risks of - hydrocele, testicular atrophy etc

Varicocele.....Beware??

Traditionally Ultrasound to exclude Renal/ retroperitoneal tumour. Conclusion from available evidence :

- Retroperitoneal tumour will manifest in other ways before the development of a varicocele
- Young patient with a varicocele will almost never have a retroperitoneal tumour
- Extended US relevant only when varicocele develops in patient 40 yrs. Even then- a rare finding and there will be other clinical manifestations of the primary tumour.

Clin Radiol. 2006 Jul;61(7):593-9.

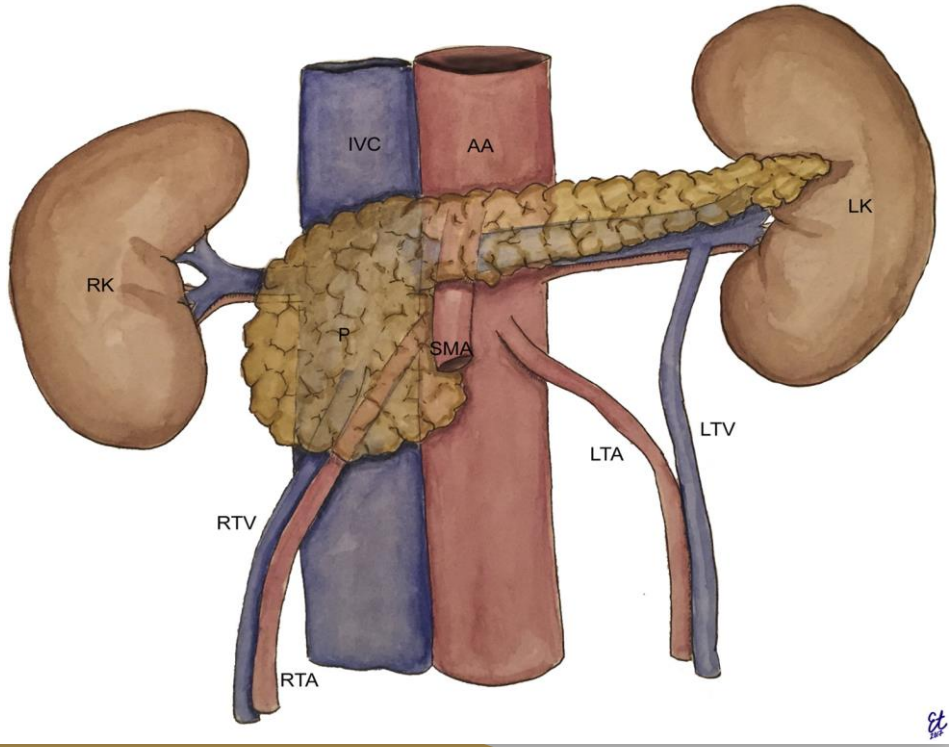
"Scrotal varicocele, exclude a renal tumour". Is this evidence based?

Varicocele……..Beware??

Right sided varicocele …….suggests IVC compression

Sudden onset new varicocele…..> 40 yrs

Non-draining varicocele…….suggests IVC or Renal Vein compression



Testicular Tumours

Testicular Cancer

- highest incidence 30-34yr olds
- 2418 cases diagnosed in 2014
- 1 diagnosed every 14 yrs per GP in UK (wte)
- Rare < 15 yrs and >60 yrs

Less Likely Presentations

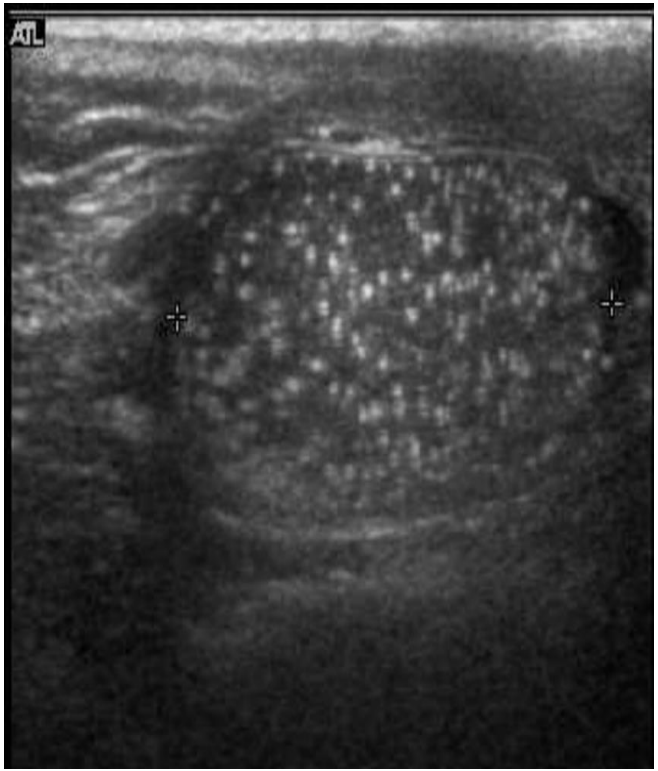
- Testicular pain - presentation in 20%
- Back and loin pain -from LN mets in 11%
- Gynaecomastia -from bHCG in 7%
- Hydrocele alone - occasional

Testicular Microcalcification

Definition - 5 or more echogenic foci per high-powered view, in either or both testes.

Prevalence

- Male population =5%- cancer incidence= 1%
- sub-fertile men =2.4% ~ ~ = 4%



When is Microcalcification(MC)a Risk Factor for Testicular Cancer?

- Small testis (<12mls)
- Undescended testis including PMH of orchidopexy
- Subfertility
- Contralateral testicular cancer

These are features of TDS = Testicular Dysgenesis Syndrome

MC and Testicular Dysgenesis- EAU Guideline

Microcalcification plus ONE or more features of Testicular Dysgenesis

- Advise testicular biopsy- if negative, then annual Ultrasound until aged 55 yrs

Microcalcification and NO features of Testicular Dysgenesis

- No biopsy and No Ultrasound surveillance

Epidemiology

- Whites : Blacks 3:1
- 10% occurs in undescended testis (x3-14 relative risk cf normally descended)
- Family History - Father x5 incidence ; Brother x8 incidence
- Bilateral in 1-2% of cases

Investigations

Ultrasound- urgent

Tumour Markers - nb - only positive in 51% of cases

- AFP
- BetaHCG
- LDH

Thankyou