INGUINOSCR OTAL SWELLINGS

OTAL

2018

Inguinoscrotal Swelling:

Either:

- Purely Inguinal or
- Purely Scrotal or
- Inguinoscrotal

Scrotal swelling

PAINLESS

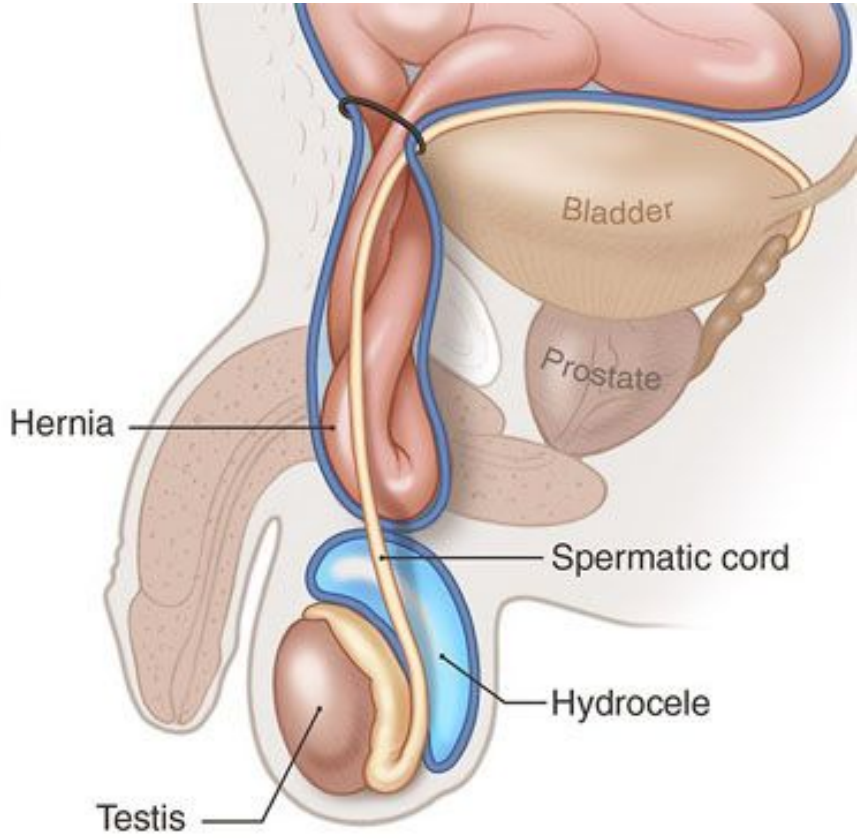
- Hydrocele
- Varicocele
- Spermatocele
- Inguinal hernia

PAINFUL

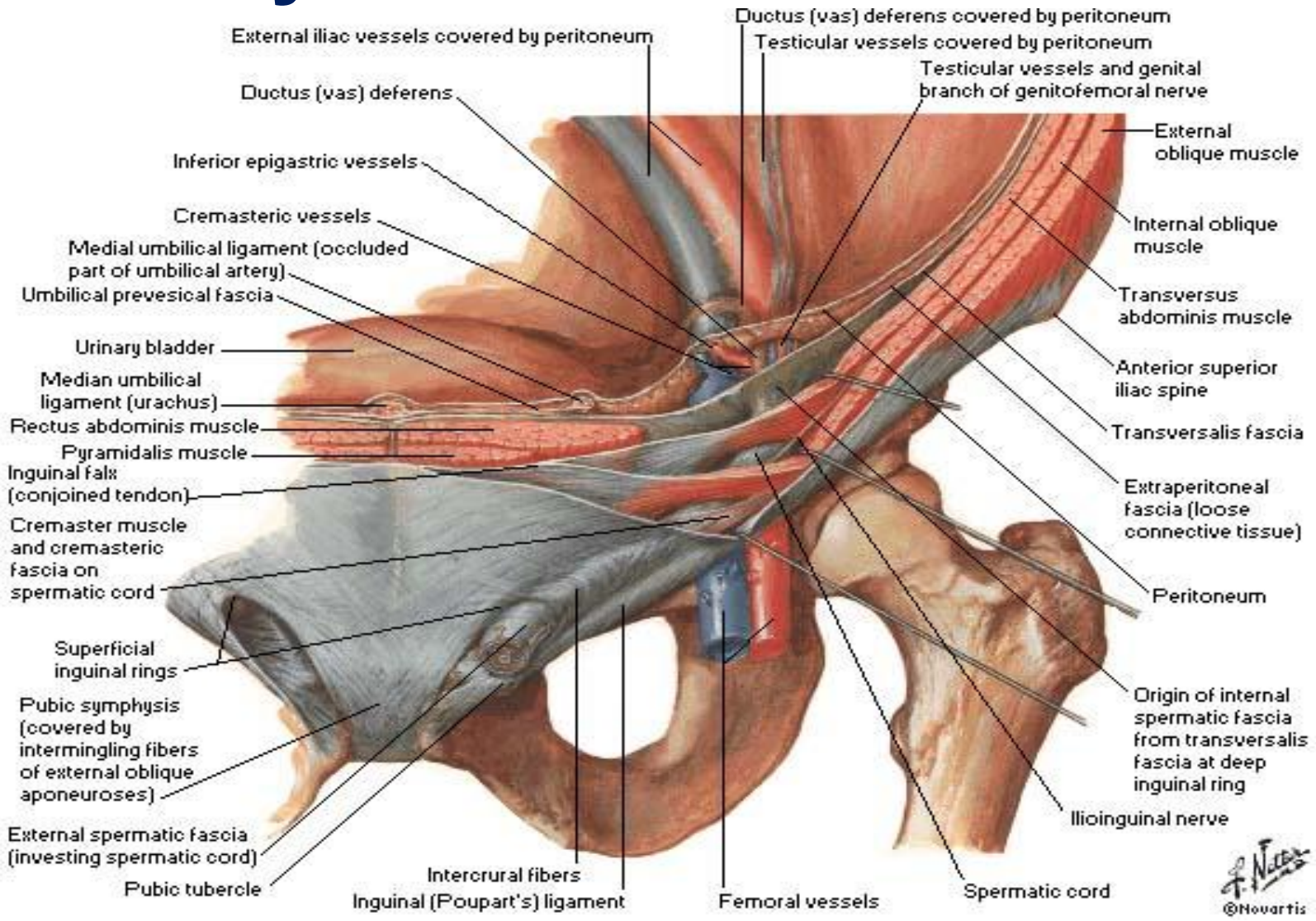
- Testicular torsion
- Epididymitis
- Orchitis
- Incarcerated hernia

Groin Hernias

- **Hernia** is a Protrusion of a viscous or part of a viscous through an abnormal opening in the wall of its containing cavity i.e through the wall of the cavity in which it is normally confined



Anatomy:



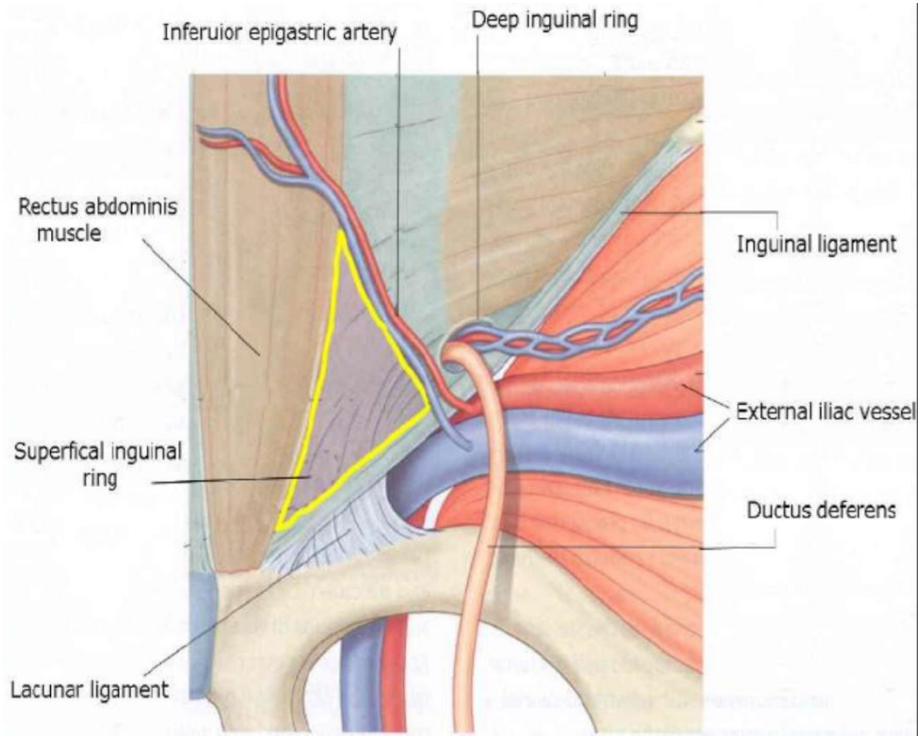
Direct / Indirect (or Femoral)

Inguinal Ligament

- Between the anterior superior iliac spine (**ASIS**) and the **pubic tubercle**, the lower border of the aponeurosis is folded backward on itself, forming **the inguinal ligament** .

Lacunar Ligament

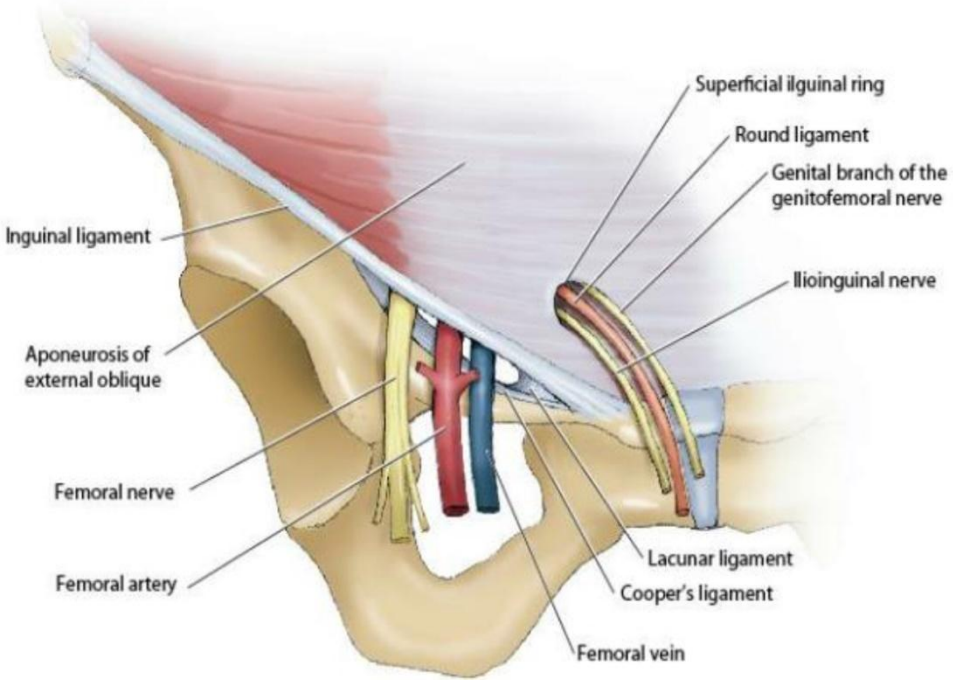
- From the medial end of the ligament, the **lacunar ligament** extends backward and upward to the **pectineal line** on the superior ramus of the pubis



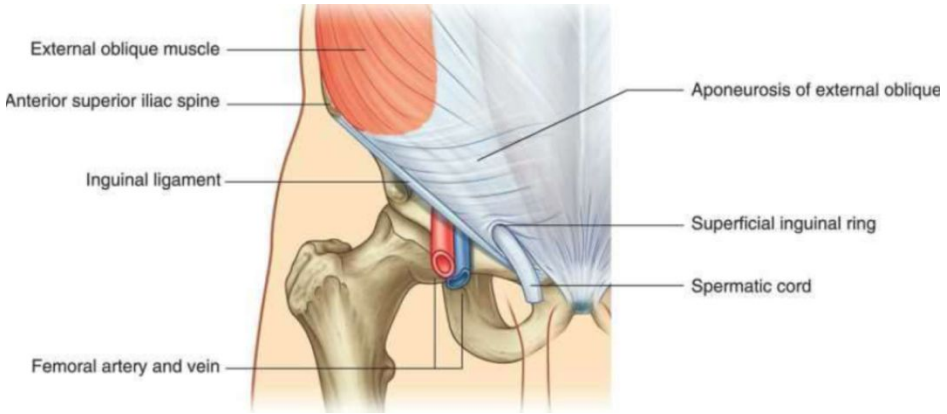
superficial inguinal ring

- **superficial inguinal ring**

  This is a **triangular-**shaped defect in the external oblique aponeurosis that lies immediately above and medial to the **pubic tubercle**



- **The spermatic cord** (or **round ligament of the uterus**) passes through this opening and carries the external spermatic fascia (or the external covering of the round ligament of the uterus) from the margins of the ring

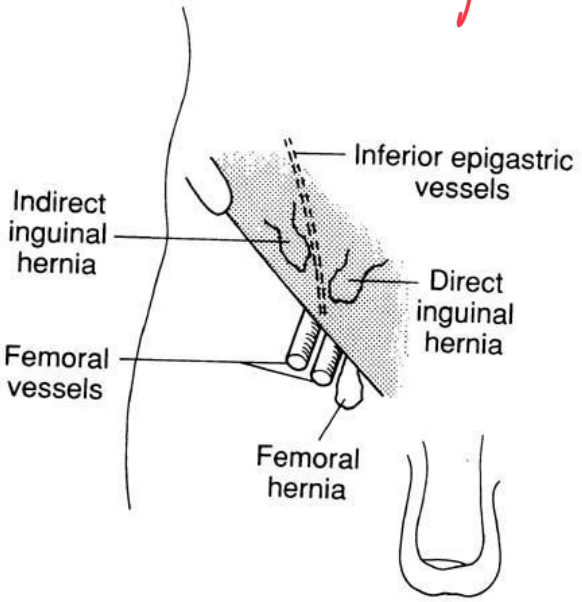


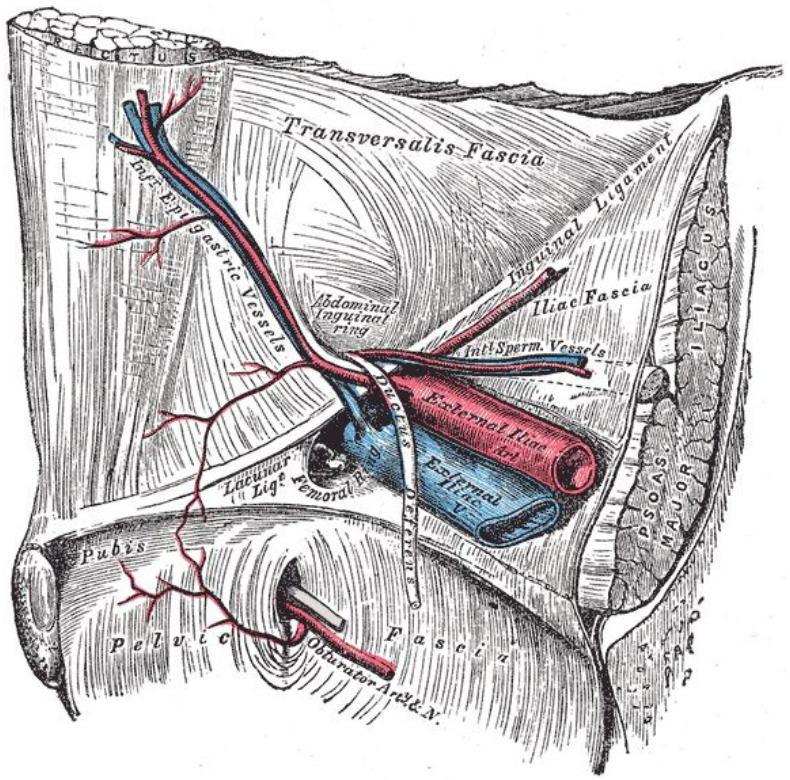
Deep Inguinal Ring

- **Deep Inguinal Ring:** oblique inguinal hernia

This is a circular or U shapd aperture in Tansversus Abdominis m just half an inch above the midpoint of inguinal ligament

there in deep opening of oblique canal.

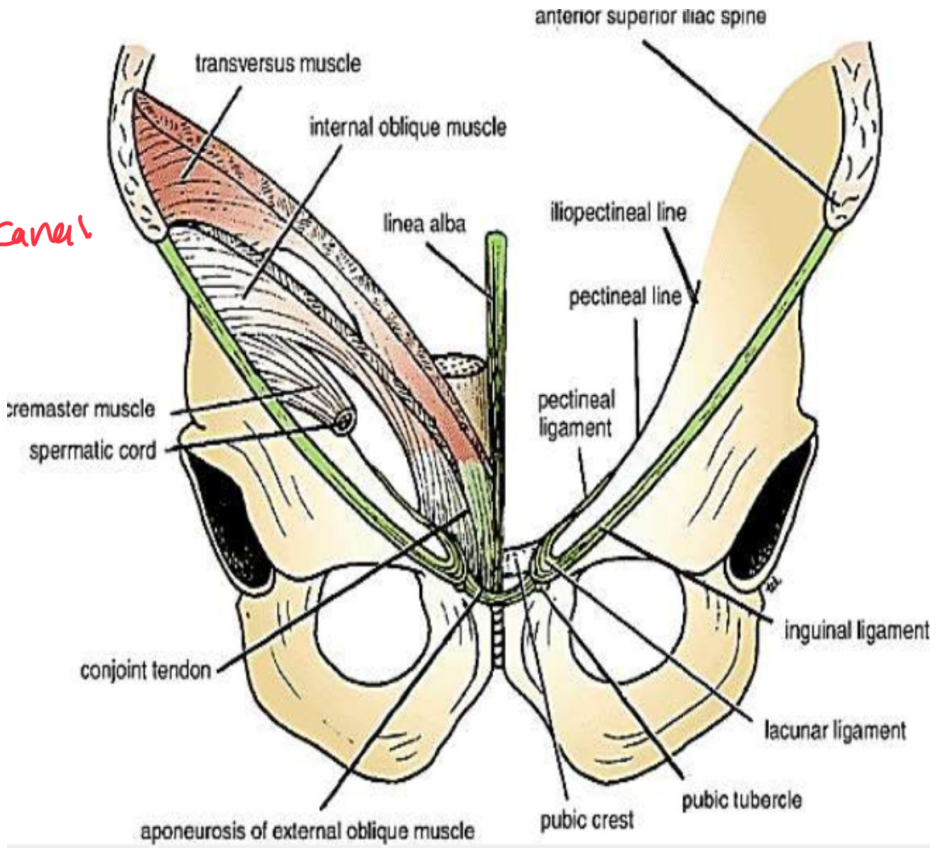




Hesselbach's Triangle

Conjoint Tendon

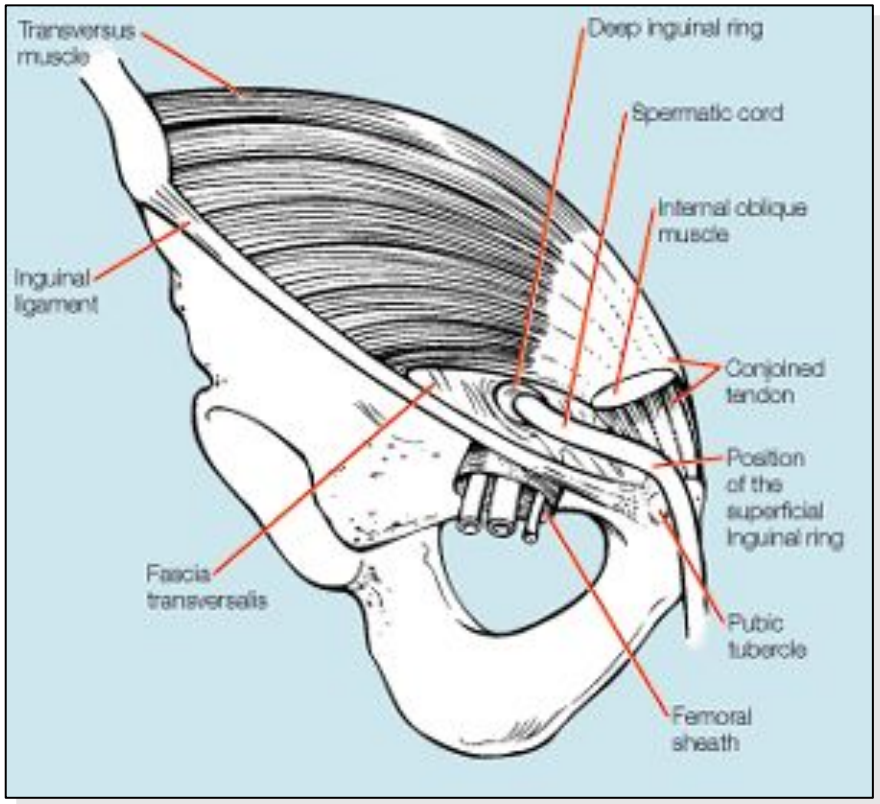
- Lower fibres of internal oblique are joined by similar fibers from the transversus to form the **conjoint tendon** .part of inguinal canal
  in the Ant wall of inguinal canal [laterally]
  " " post " " " " [medially]
- As the spermatic cord (or round ligament of the uterus) passes under the lower border of the internal oblique, it carries with it some of the muscle fibers that are called the **cremaster muscle** .



Inguinal Canal

(Extending Obliquely between Superficial inguinal Ring and the Deep Inguinal Ring; Forwards and Medially…About 4 Cm Long)

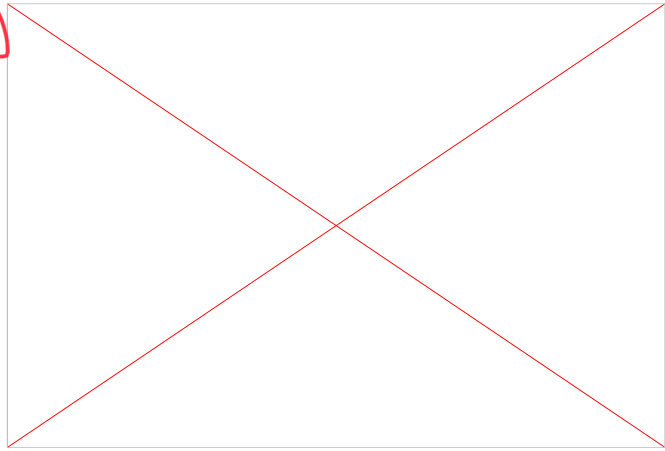
- **Boundaries:**
  - **Anterior**: Ext. oblique aponeurosis & conjoined muscle laterally.
  - **Posterior**: Fascia transversalis & the conjoined tendon.
  - **Superiorly**: conjoined muscle
  - **Inferiorly:** inguinal ligament
- **Contents:**
  - **Spermatic cord:** (*vas deferens, testicular & cremastic arteries , pampiniform plexus of veins, lymphatics*
  - Ilioinguinal nerve (L1)
  - Genital branch of genitofemoral nerve
  - **In Females** – Round ligament is present instead of spermatic cord.



Femoral canal: mid point of inguinal ligament.

an anatomical compartment located in the anterior thigh.

It is the smallest and most medial part of the femoral sheath in the Femoral Triangle . It is approximately **1.3cm long**.

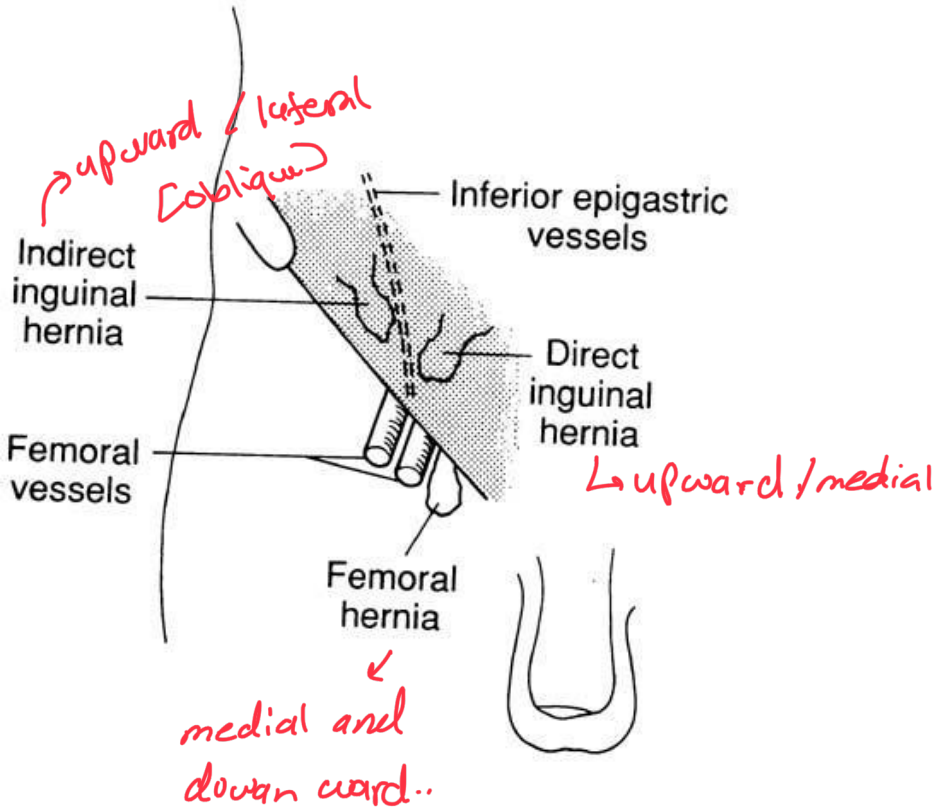


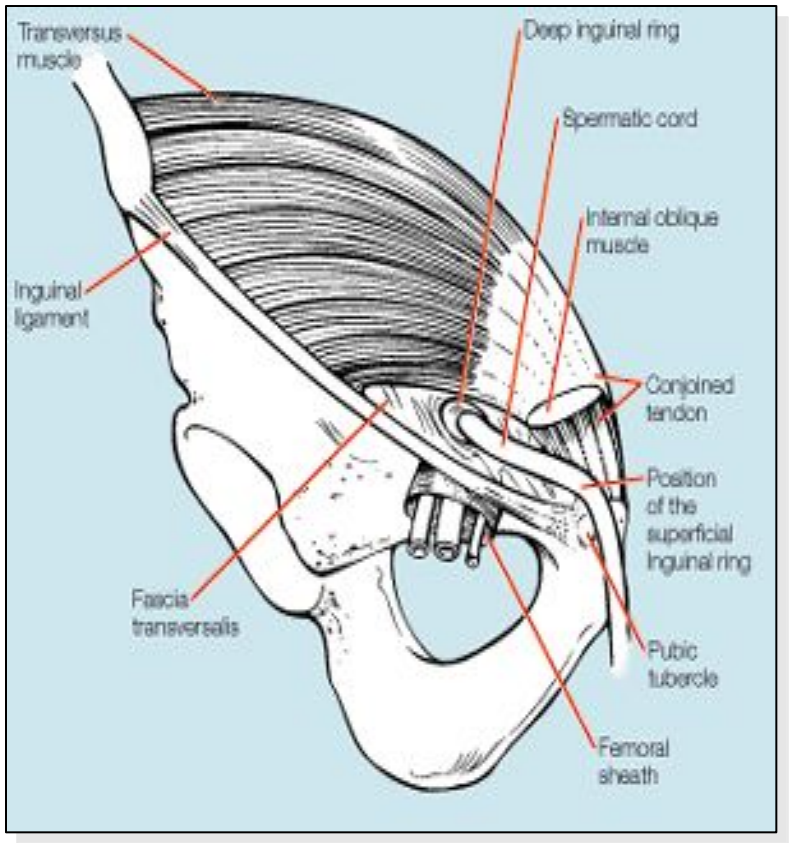
Rectangular shaped compartment with four borders and an opening:

- **Medial border:**lacunar ligament.
- **Lateral border:** femoral vein.
- **Anterior border:** inguinal ligament.
- **Posterior border:** pectineal ligament, superior ramus of the pubic bone, and the pectineus muscle
- The opening to the femoral canal is located at its **superior** border, known as the **femoral ring**.
- The femoral ring is closed by a connective tissue layer – the **femoral septum.** This septum is pierced by the lymphatic vessels exiting the canal.

Femoral Cana

Groin Hernias





Hesselbach's Triangle

surgical managment لـ inguinal hernia..

Three borders:

- **Medially:**

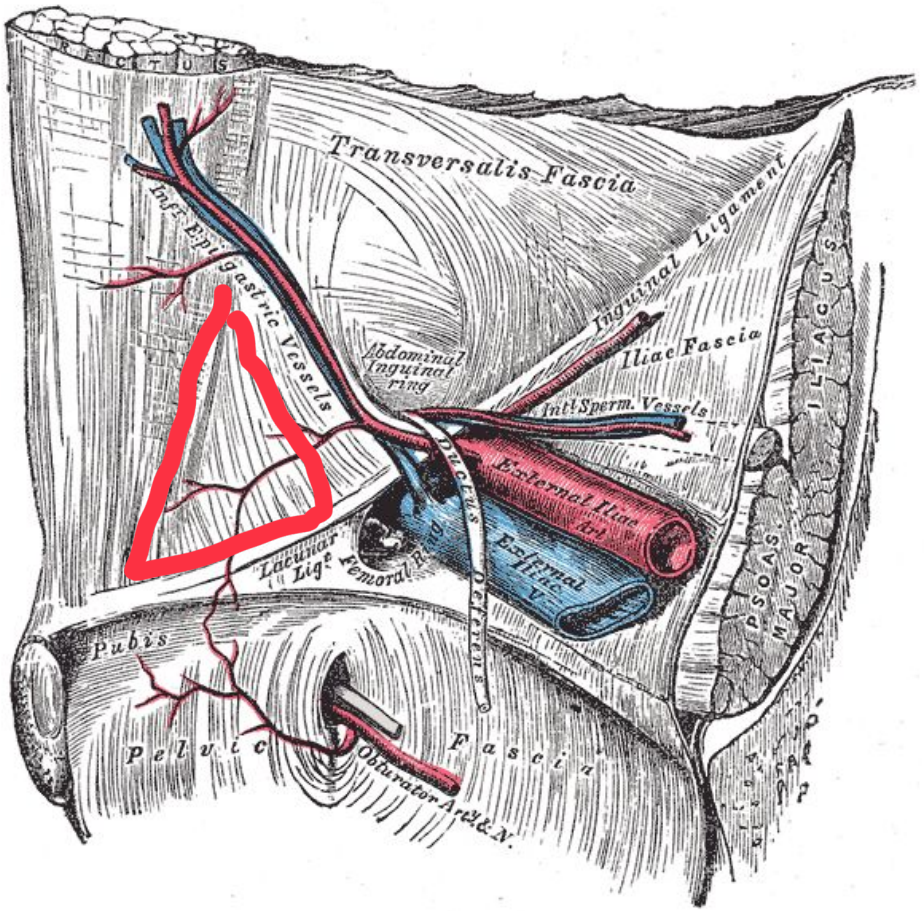
  Rectus abdominis

- **Inferiorly:**

  Inguinal Ligament

- **Superiorly and Laterally**

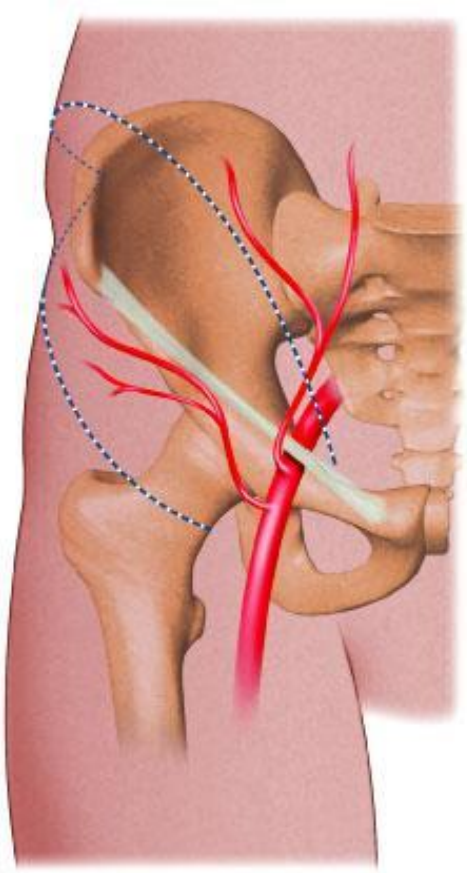
  Inferior epigastric vessels

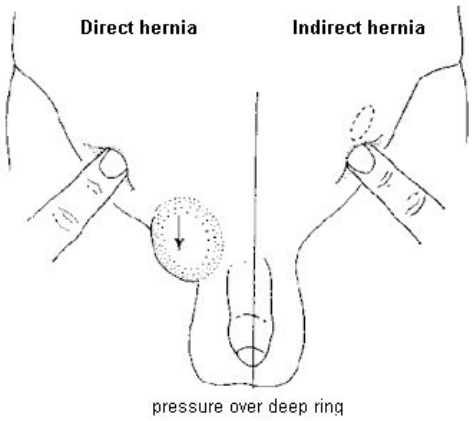


Midinguianal Point Vs Midpoint of Inguinal Ligament

- **Mid-inguinal point :**
  Half way between ASIS and symphysis pubis
  "landmark for **femoral artery** in groin"

- **Midpoint of inguinal ligament**:
  Half way between ASIS and pubic tubercle –
  "landmark for **Deep Inguinal Ring** and **indirect inguinal hernia**"
  "direct inguinal hernia *Medial to this.*





HERNIA:

Aetiology and Contributing Factors :

- coughing
- straining
- obesity
- intra-abdominal malignancy, ascitis , weakness of the sheath..
- post-operative [distructive surgery]
- congenital

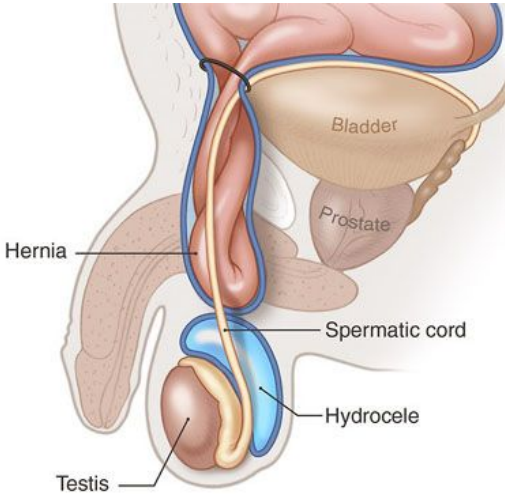
Composition of a Hernia:

Sac:

Types (in OIH):

- **Congenital,;complete; scrotal**
- **Funicular, (processus vaginalis closed above epididymis**
- **Bubonocele(hernia in inguinal canal still)**

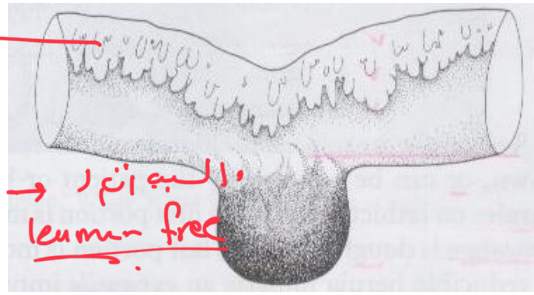
Parts: - Fundus
- Body
- Neck



Contents:

- Fluid
- Omentum
- Part of bowel circumference (Richter's hernia)
- Organ or Part of an organ:

- **Sliding hernia**
  Little's hernia: organ; ovary, falloopean tube, Mickle's Diverticulum
- **Amyand's Hernia** :A normal or inflamed vermiform **appendix** found inside an **inguinal hernia sac**
- **Dual or (Pantaloon) Hernia, Hernia with Two sacs, Direct and Indirect)**

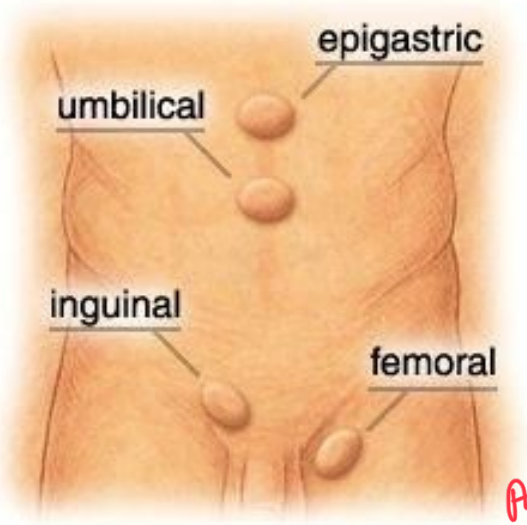


Coverings:

Types of Hernia (classification):

a) Anatomically:

- Inguinal
- Femoral
- Epigastric
- Umbilical
- Para-umbilical
- Spigelian
- Incisional



→spleen hernia [lateral border of the rectus sheath].

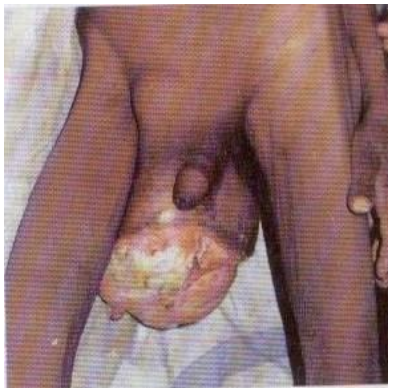
b) Pathologically:

- Reducible
- Irreducible
- Obstructed
- Strangulated
- Inflammed

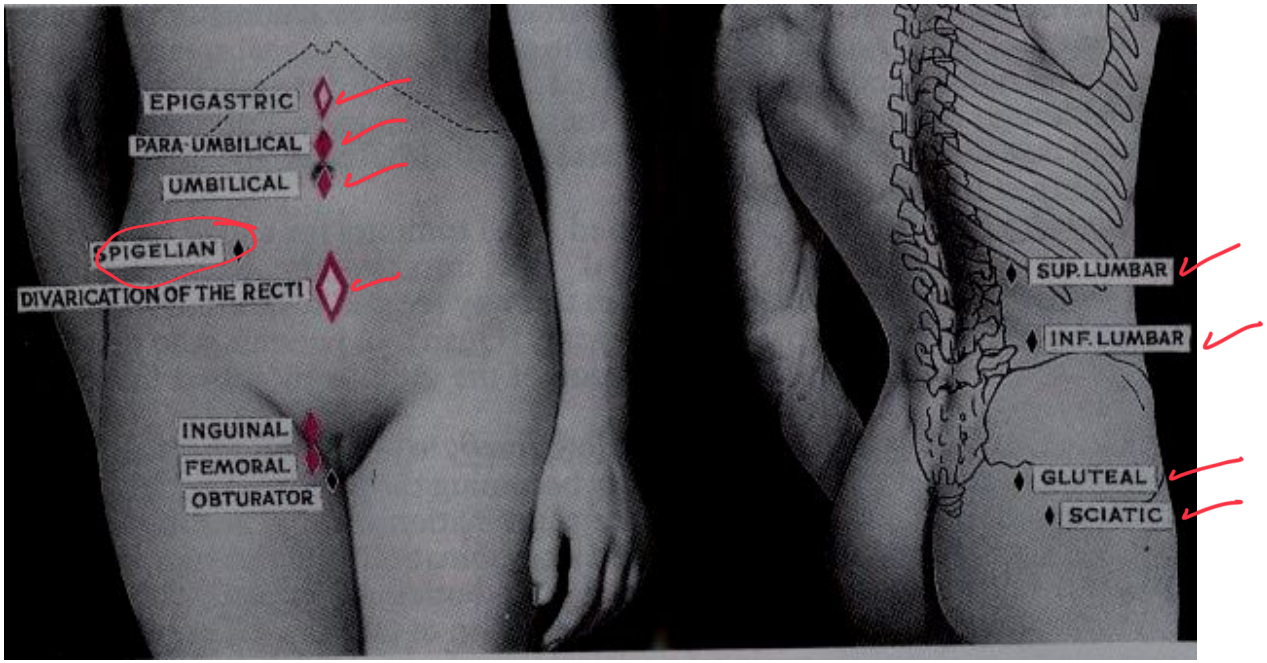
emergency

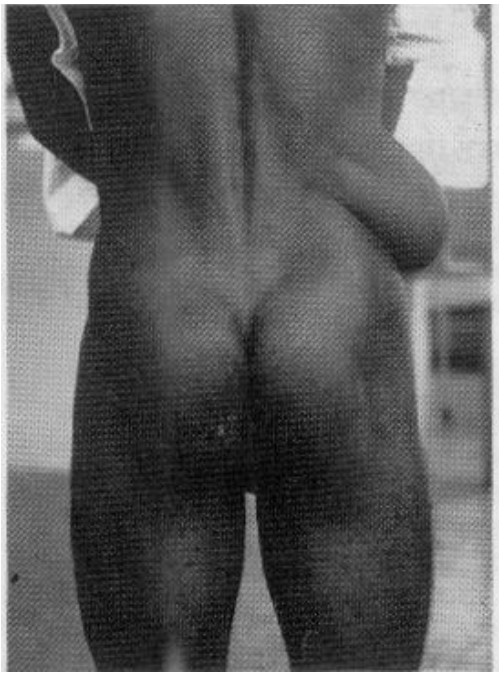
skin ulcer

Ascitis



Hernias; anatomically





HISTORY TAKING:

Personal history:

age, sex, type of work,……

C/O: Swelling…….. Duration

Pain.. Since……

HPI: Analysis of presenting complaint ….

How does it happen!?

Associated symptoms:

redcibility, reddness,..skin ulceration

vomiting

constipation

constitutional symptoms: fever,….

H/O: cough, constipation, urinary problems, lifting heavy objects

Ask for ? *Occult hernia*: internal H, *complicated H*: strangulation, obstruction, inflammation, peritonitis,….etc

clinical systemic review….

***Past History:**

medical….

surgical… operations

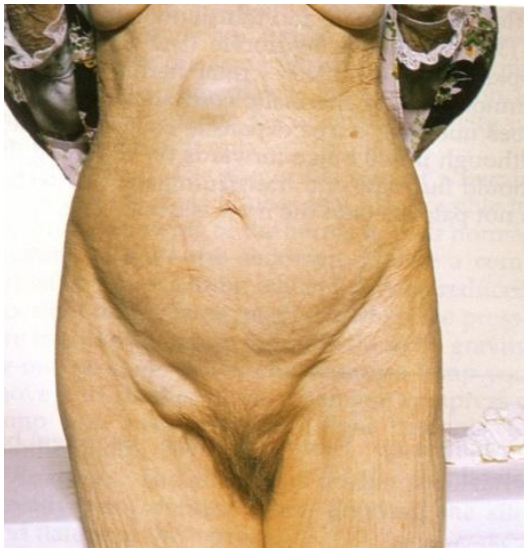
Hernia Examination

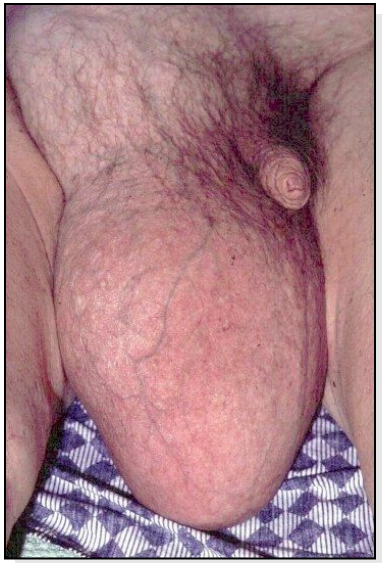
Rule of Thumb:

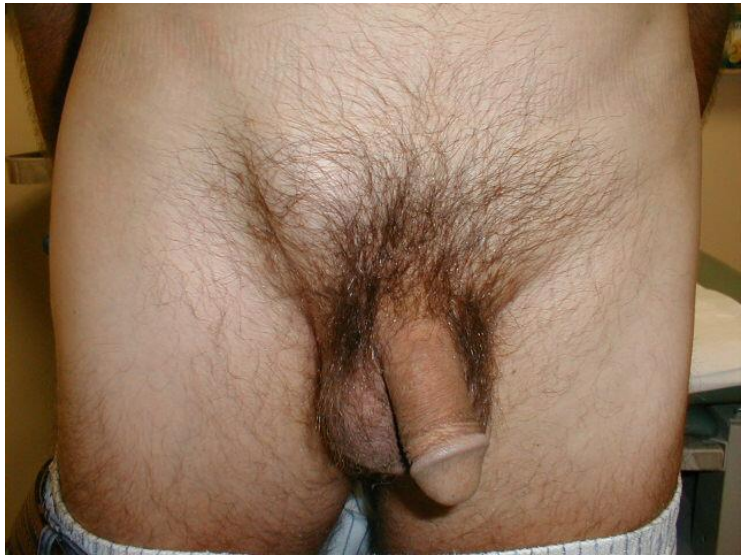
- **Examine Hernia patient Both on: Standing and Lying down position**
- **Always Ask your patient to reduce his/her hernia him/her self**
- **Patient:** Standing (stripped below the waist)
- **Examiner:** Sitting (from aside & front)

Inspection:

- **Ask pt to stand up**
- Examine from **in front**
- **Ask pt to cough:** observe the lump
- **Inguinal hernias** into corner of mons above groin crease
- **Femoral hernia** bulges into or below medial end of groin crease (below inguinal ligament)





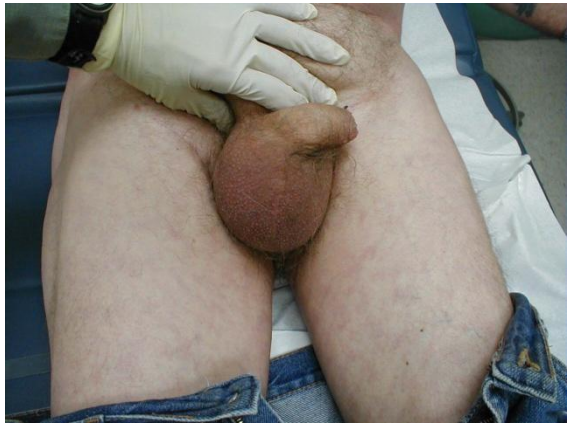


Palpation:

- **Examine the scrotum and it's contents**
- **Can you get above the lump?....**
  If so it's not a hernia

Feel the lump

- **Position**
  scrotal neck test
- **Temperature**
- **Shape**
- **Size**
- **Tension**
- **Tenderness**
- **Composition**
- **Cough impulse**



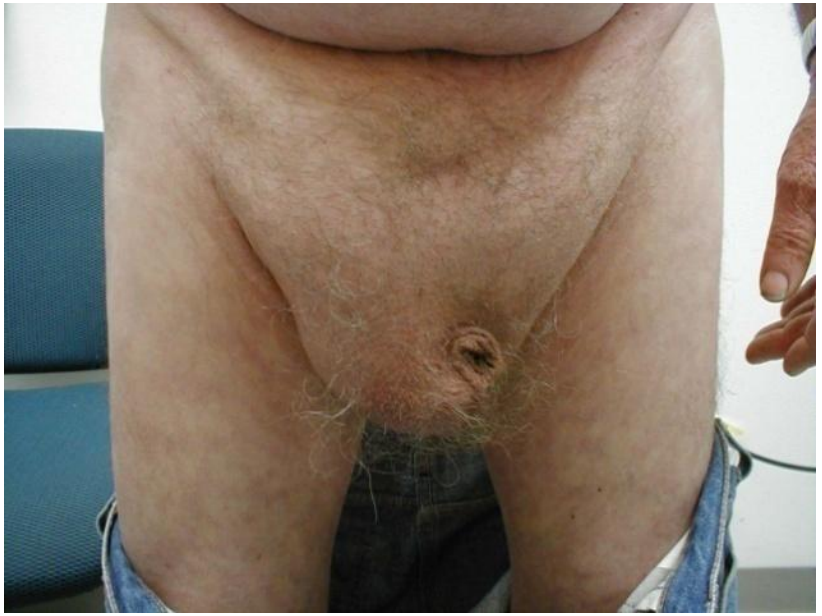
Cough impulse

- **Compress lump with fingers**
- **Ask pt to cough**
- **If lump expands = cough impulse** (Zieman's test)

Reducibility of a Hernia

Is the swelling reducible?

- **Ask patient** himself to reduce it first
- **Compress** the lump to reduce tension
- **Lift** hernia up to external ring
- **Slide fingers** upwards and laterally towards internal ring

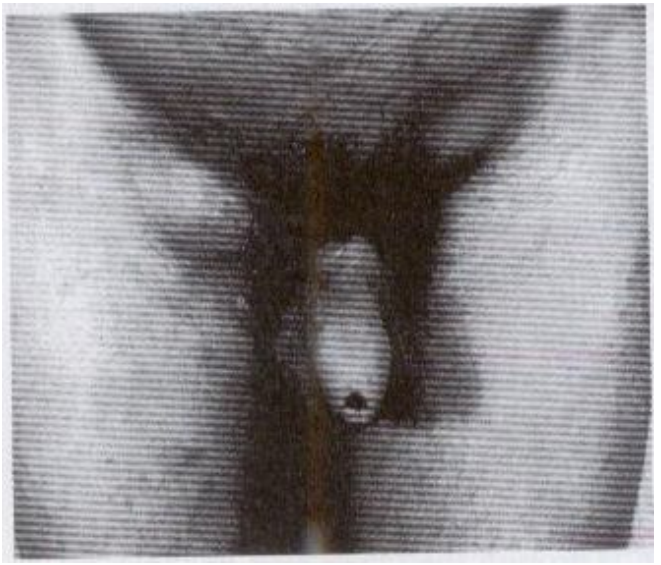


Pubic tubercle test:

(To differentiate between Inguinal & Femoral)

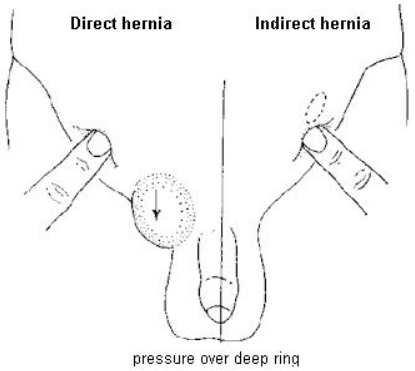
The Idea is to check Where does hernia reduce in relation to pubic tubercle?

- **Above and Medial=Inguinal Hernia**
- **Below and Lateral=Femoral Hernia**



DIRECT OR INDIRECT INGUINAL HERNIA

i. Internal Ring Test



*Is hernia reduction maintained by pressure over internal ring?

- Yes = Indirect hernia
- No = Direct hernia
  (reduction only maintained by pressure over external ring)

*Remove hand and watch hernia reappear

- Indirect hernias slide obliquely along canal
- Direct hernias project directly forward

ii. DIGITAL PALPATION TEST:

To: D.D BETWEEN DIRECT FROM INDIRECT INGUINAL HERNIA:

The Test: on inagination of the scrotal skin through the superficial ring into inguinal canal:

The Nail of little finger lies against the cord:

IF HERNIAL SAC HITS THE NAIL : INDIRECT HERNIA,…

R. Hand for R. side
L. Hand for L. side

Percussion & Auscultation

- May be resonant by percussion if gas-filled bowel
- May have audible bowel sounds by auscultation
- Examine the other side
- Examine the abdomen for causes of raised intra-abdominal pressure

Differential diagnosis of Groin swelling:

- Inguinal hernia
- Femoral hernia
- Lymph node
- Sapheno-varix
- Ectopic testis
- Psoas abscess → psoas M. from pelvic → post to inguinal ligament
- Lipoma
- Hydrocele

VAN vessels in the psoas...

Is the Swelling Inguinal, Scrotal or inguinoscrotal?

DO: **Scrotal Neck Test** :

" neck is hold between the Thumb infront
and the other fingers from behind"

* If you can get above the swelling;
then it is purely scrotal swelling eg, vaginal hydrocele

*If you cannot get above the swelling;
then it is inguinoscrotal swelling:
eg, big oblique inguinal hernia

Diagnosis of a Hernia:

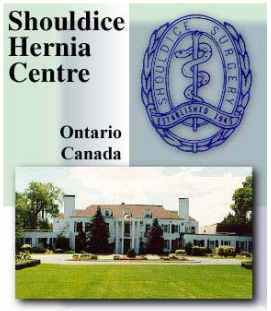
- Anatomical Diagnosis
- Pathological Diagnosis
- Operative Diagnosis
- Differential Diagnosis

Repair of inguinal hernia:

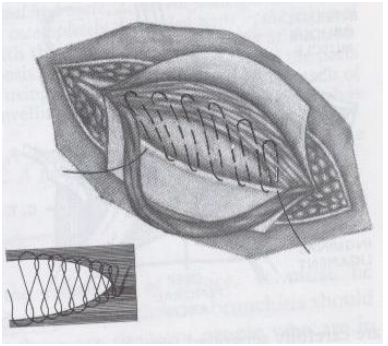
- Inguinal incision : parallel and one inch above medial 2/3 of inguinal ligament
- Inguino-scrotal incision : for strangulated oblique hernia
- Division of external oblique aponeurosis in same direction of skin incision
- Isolation of spermatic cord with preservation of ilio-inguinal nerve
- Dissection of hernial sac which lies anterior to other contents of cord (vas deferens , testicular vessels, lymphatics and nerve fibers)

HERNIOTOMY:

- Dissection of hernial sac is done down to the neck of sac which is identified by :
- Narrowest part of sac
- Surrounded by collar of fat
- Inferior epigasric artery is medial to neck
- Herniotomy by transfixion of neck of sac and removal of sac above the ligature
- In infants herniotomy alone is enough (no need for repair)

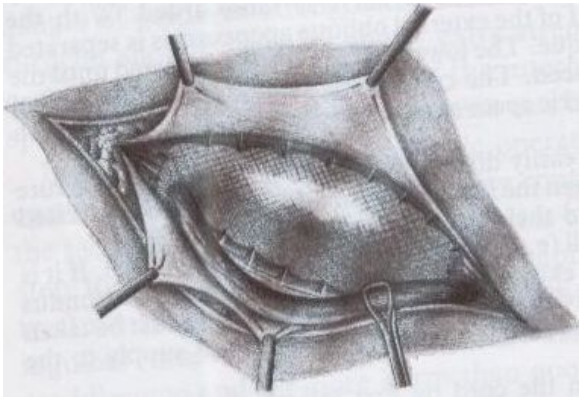


HERNIORRAPHY
(Hernia Repair)



- In children only narrowing of internal ring is done
- plication of fascia transversalis
- Bassini repair : suture of conjoint tendon to inguinal ligament
- Bloodgoods repair : triangular flap is taken from lower part of rectus sheath and sutured to inguinal ligament
- Shouldice repair : division of fascia transversalis transversly then overlapping the lower part by the upper part (double breasting) behind cord
- Darn repair: two layers of continuous non-absorbable sutures between conjoint tendon and inguinal ligament starting from pubic tubercle up toabove deep ring and back to the starting point

HERNIOPLASTY

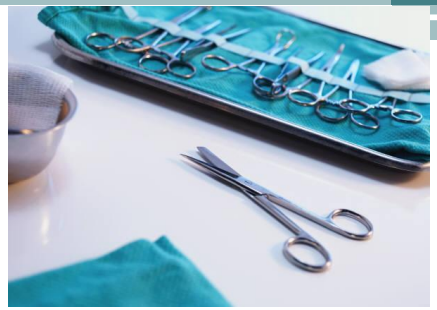


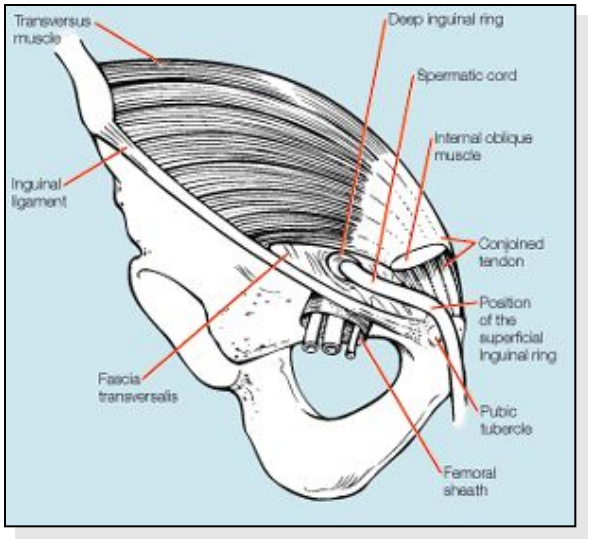
- Synthetic mesh is put over fascia transversalis in space between conjoint tendon and inguinal ligament
- The mesh is formed of either one layer or formed of 2 layers
- The mesh is fixed in place by few non-absorbable sutures
- used it in only recurrent cases, old age, large defects or weak musculature
- Suturing external oblique aponeurosis
- Closure of skin with drain

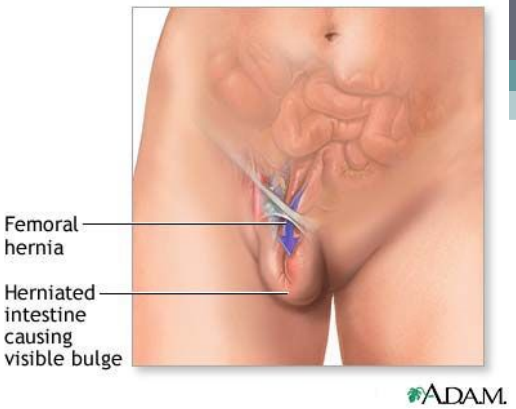
LAP versus OPEN hernia repair:

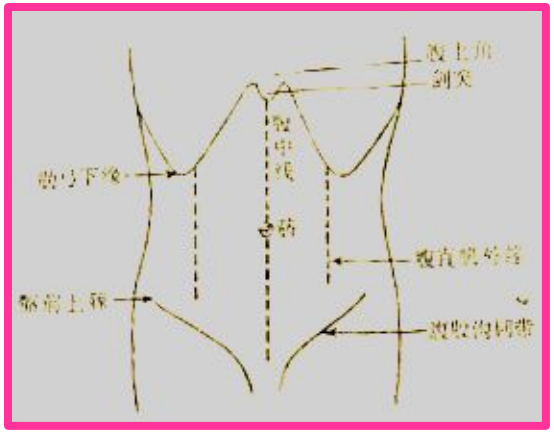
- LAP hernia repair is not cost effective compared to OPEN repair
  - Recurrence rate higher (disadvantage)
  - Return to work sooner (advantage)

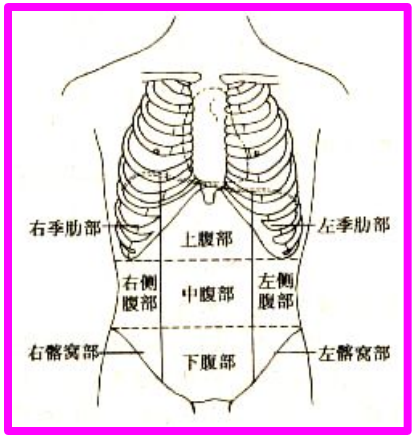
- For patients with unilateral and recurrent hernias, LAP repair is cost effective option for some patients

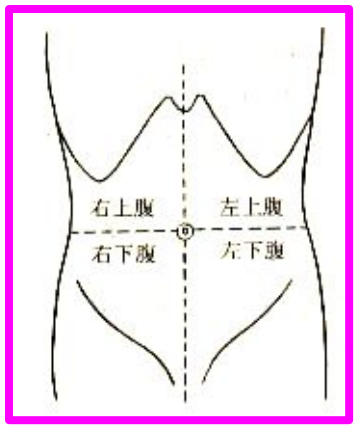



Transversus muscle
Deep inguinal ring
Spermatic cord
Internal oblique muscle
Inguinal ligament
Conjoined tendon
Position of the superficial Inguinal ring
Fascia transversalis
Pubic tubercle
Femoral sheath


Femoral hernia
Herniated intestine causing visible bulge
A.D.A.M.




右季肋部
左季肋部
上腹部
右側腹部
中腹部
左側腹部
右髂窩部
下腹部
左髂窩部


右上腹
左上腹
右下腹
左下腹

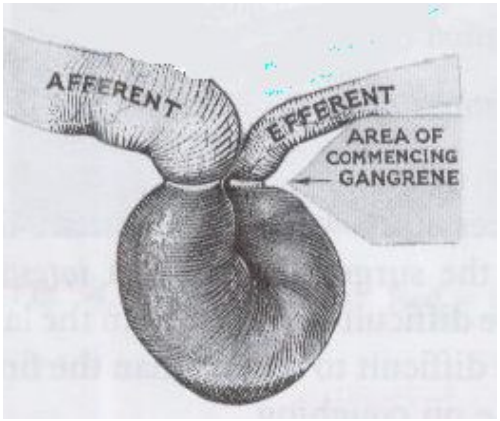
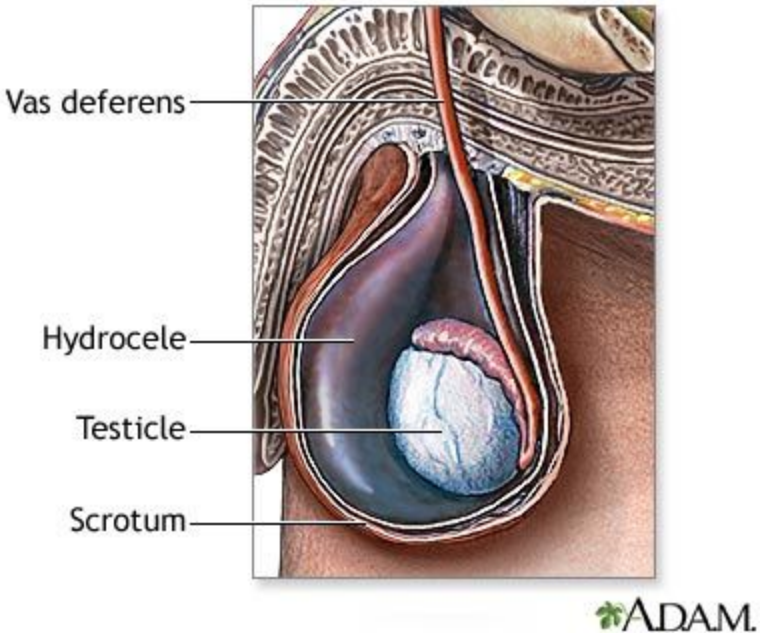
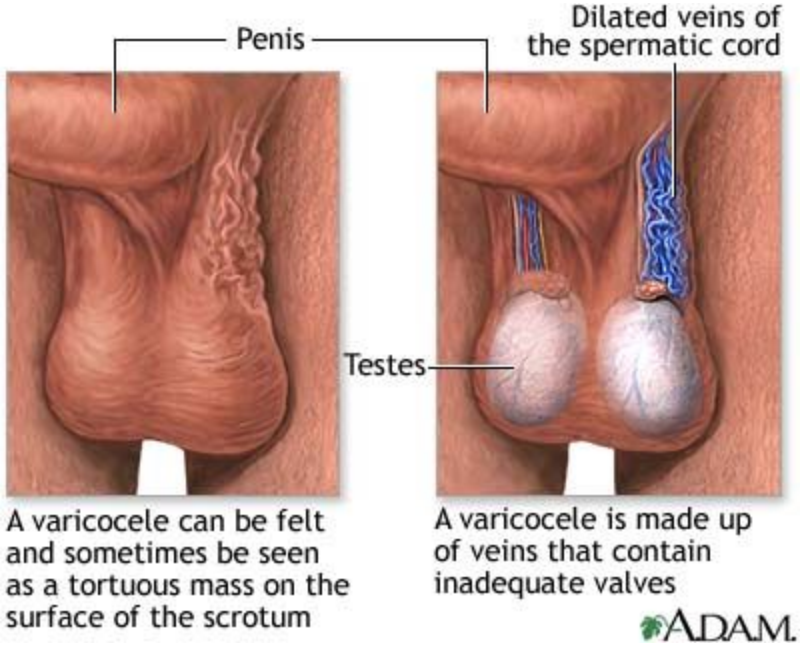
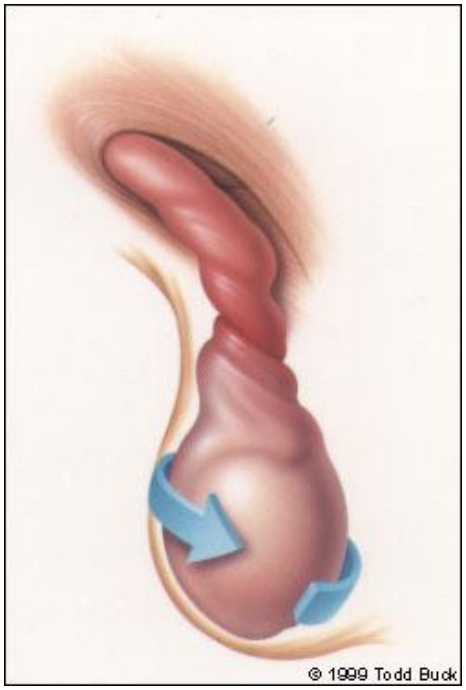

AFFERENT
EFFERENT
AREA OF COMMENCING GANGRENE


图 7-5　腹部侧位观察法

Varicocele


Vas deferens
Hydrocele
Testicle
Scrotum
A.D.A.M.


Penis
Dilated veins of the spermatic cord
Testes
A varicocele can be felt and sometimes be seen as a tortuous mass on the surface of the scrotum
A varicocele is made up of veins that contain inadequate valves
A.D.A.M.

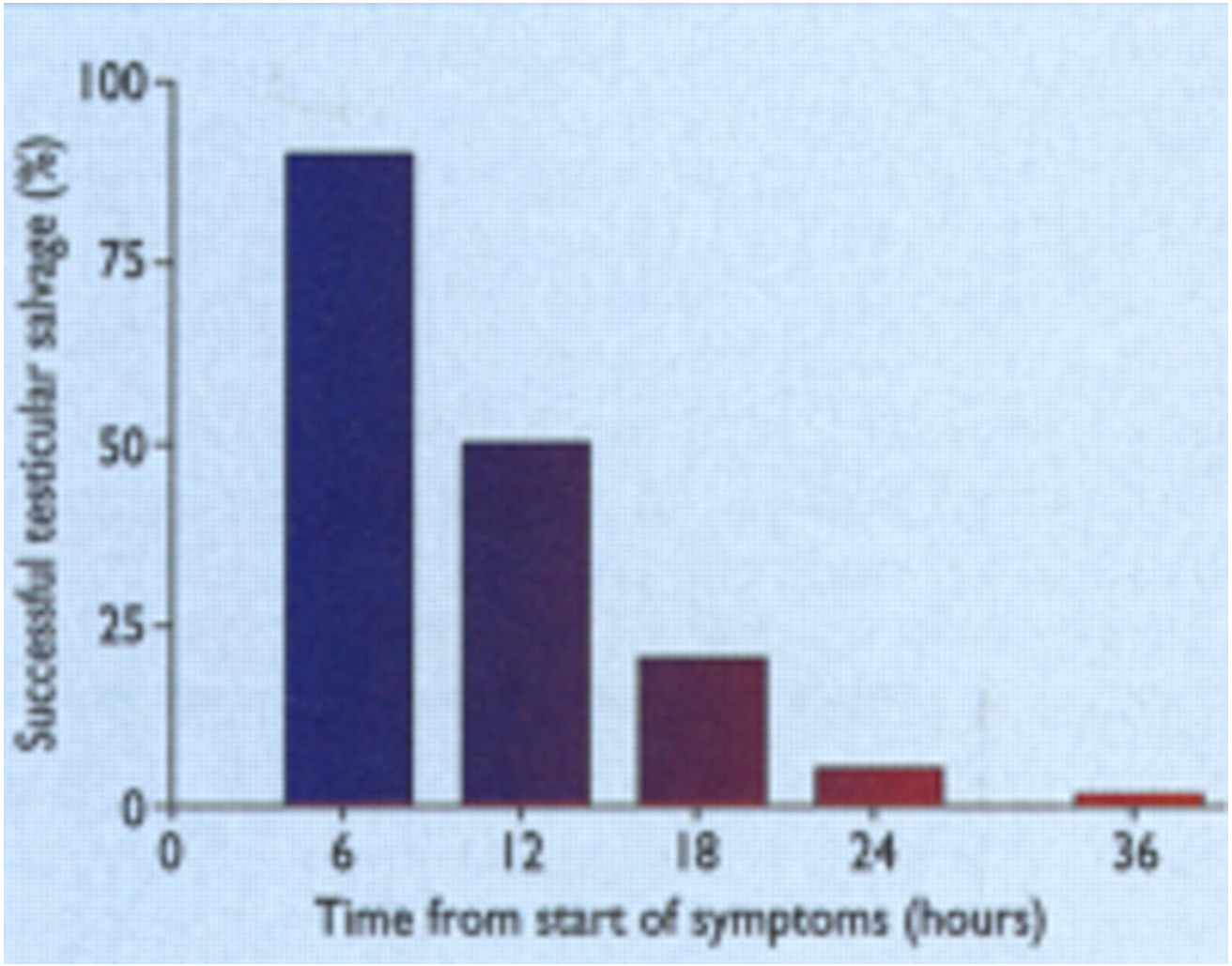


Neonatal Torsion :About 10% (prenatal 70% and postnatal 30%)
It presents as a firm asymptomatic testicular mass with in a high or inguinal position and bruising of the scrotal skin.
No viability at exploration in 80-100% of cases.

Testicular torsion in older boys and adults:

- Many cases of ‘epididymitis‘ treated with antibiotics.
- Slight left sided bias, incidence higher in winter months
- Major predisposing factor is undescended testis
- Symptoms include severe testicular pain which may radiate to the groin +/- nausea and vomiting.
- Examination - gentle. high riding or horizontal testis. No specific pathognomonic clinical signs to differentiate from epididymitis.
- Treatment - successful testicular salvage highly dependent on time b/w start of symptom and surgery. Detorsion and fixation of viable testis. contra lateral testis fixed at same time.

Rates of testicular salvage by time from start of symptoms.



Cystic scrotal swellings

- Separate from testis
- Epididymal cysts
- Spermatocoele
- Testis lies within swelling
- Hydrocoele
- Haematocoele - does not transilluminate

Solid scrotal masses

- **Separate from testis**
  - Acute/chronic epididymitis
  -Torsion of hydatid of Morgagni

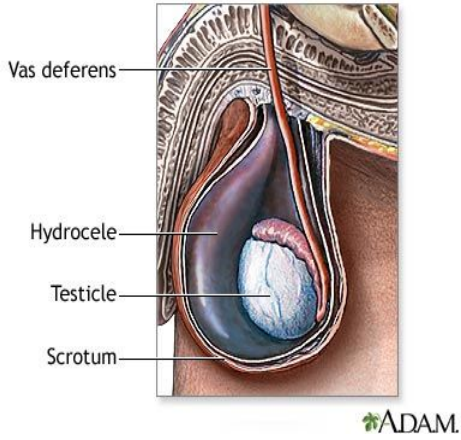
- **Within the testis**
  -Testicular tumour
  -Torsion of testis
  -Orchitis- bacterial/viral (mumps,influenza, TB,STD)
  -Testicular gumma

Scrotal mass not confined to scrotum:

- Examiner is **unable to get above**

- Inquino- scrotal hernia
- Varicoecoele of the pampiniform plexus
- Encysted hydrocoele of the spermatic cord

Hydrocoeles:



- Result of excessive fluid in tunica vaginalis

Types:

- Congenital/acquired
- Primary – usuully, No testic. Tends to be large and tense.Common in young boys
- Secondary to a pathology eg- tumour, infection, and torsion

Clinical Picture:

- Presentation is usually as a soft non tender and cystic swelling in scrotum which transilluminates. One can get above lesion. Testis lies within fluid collection and is not palpable
- Conservative mgt. Scrotal support. Refer if symptoma children > 1 yr. ? needle aspiration, surgery.
- Secondary- : Treat underlying cause

Types of Hydroceles:

- **The presence of fluid within the hemiscrotum imparts little clinical impact on the testis.**

Types according to the cause:

I. CONGENITAL:

II. ACQUIRED:

- **Primary, or Idiopathic**
- **Congenital**
- **Infantile**
- **Vaginal**

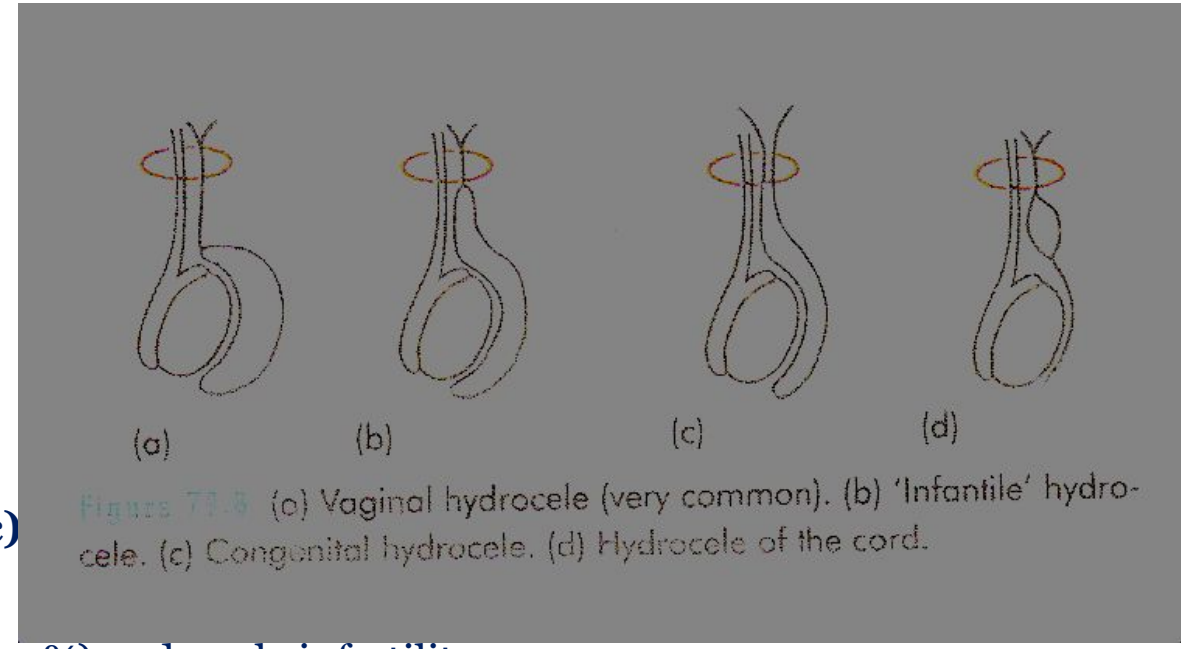


Figure 77.8 (a) Vaginal hydrocele (very common). (b) 'Infantile' hydrocele. (c) Congenital hydrocele. (d) Hydrocele of the cord.

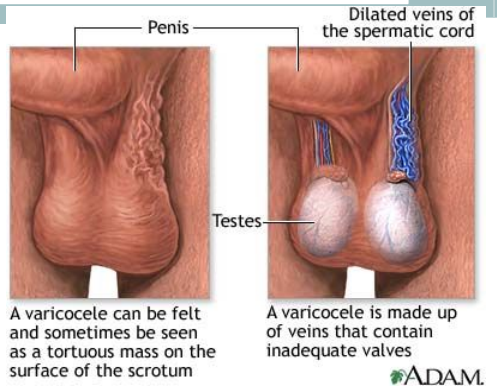
- **Secondary (acute or chronic)**

- Inflammations
- Tumours
- Pos-varicocelectomy (approximately 7%) and male infertility

- Hydrocele of spermatic cord:

. Encysted
. Hydrocele of hernial sac

Varicocoele



- Varicose veins in the pampiniform plexus of the spermatic cord and scrotum.affects 15 - 20% of males. rare after 40 years.
- Most are asymptomatic found during investigation for infertility in 40 % males.
- Pelvic mass compressing venous drainage of testicle

Clinical Picture:

- Dull ache at the end of the day or following exercise
- Dragging or feeling of heaviness
- Visible on standing and feels like a ‘bag of worms’, Positive cough impulse. Disappears when recumbent

Treatment:

- Surgical intervention only if painful, infertile or testicular atrophy

Testicular tumors:

- Most common cancer in men ages 20 – 40
- Most growths in scrotum are benign.

C/O: painless lump in scrotum or in testicle or unexplained pain in one testis.
May Present with hydrocoele.

O/E: Mass is hard and does not transilluminate
Predisposing factor is History of undescended testis

Labs: tumour markers **LDH**, **AFP** and **HCG**

Rule of Thumb:

Consider neoplasia in any swelling or mass in the body of testis.

Consider urgent US in men with scrotal mass that does not transilluminate and when body of testis cant be distinguished

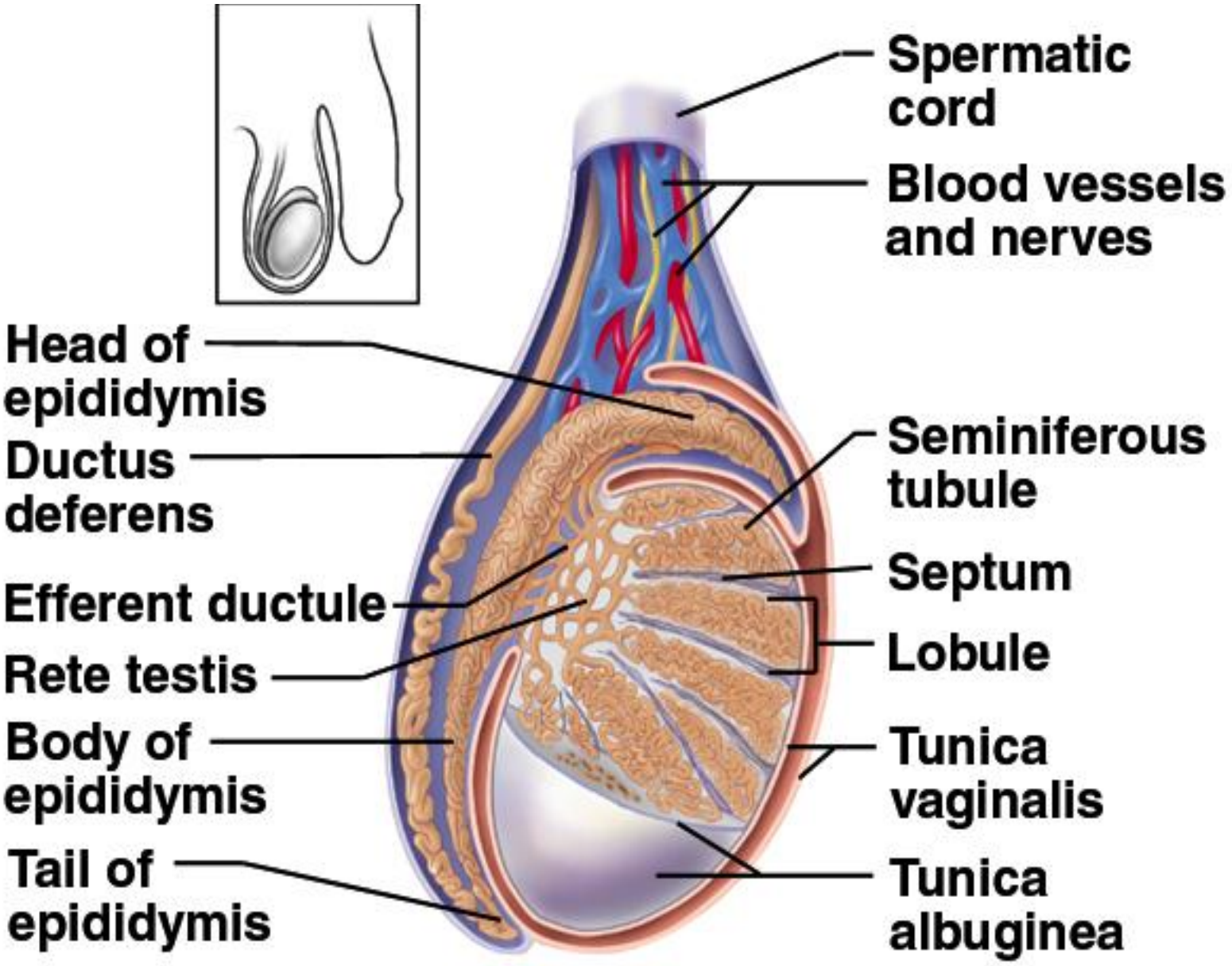
Epididymitis

- Inflammation of epididymis +/- orchitis
- Predisposing factors ;UTI, Urethral instrumentation,
  common organisms; E.coli and Chlamydia with history of discharge

- **C/O:** pain and swelling, inflammation, fever +/- rigors.
- Prehn's sign: **scrotal elevation relieves pain**
- Secondary hydrocoele, Clinically indistinguishable from torsion

- **Labs:** –CBC,blood culture,msu,plain abdo xray, IVU/USS

- **Trt**:–rest, scrotal elevation, broad spectrum antibiotics, NSAIDs and non exertion for 1-3 wks


Spermatic cord
Blood vessels and nerves
Head of epididymis
Ductus deferens
Efferent ductule
Rete testis
Body of epididymis
Tail of epididymis
Seminiferous tubule
Septum
Lobule
Tunica vaginalis
Tunica albuginea

Summary:

Decide the answer of four questions:

1- Can you get above the swelling?

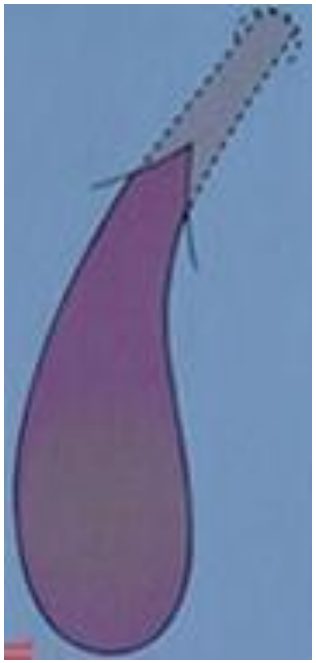
2- Can you identify the testes & the epididymis?

3- Is the swelling translucent?

4- Is the swelling tender?

Swellings NOT Confined to the Scrotum:

- Cough Impulse
- Reducible
- Testis palpable
- Opaque



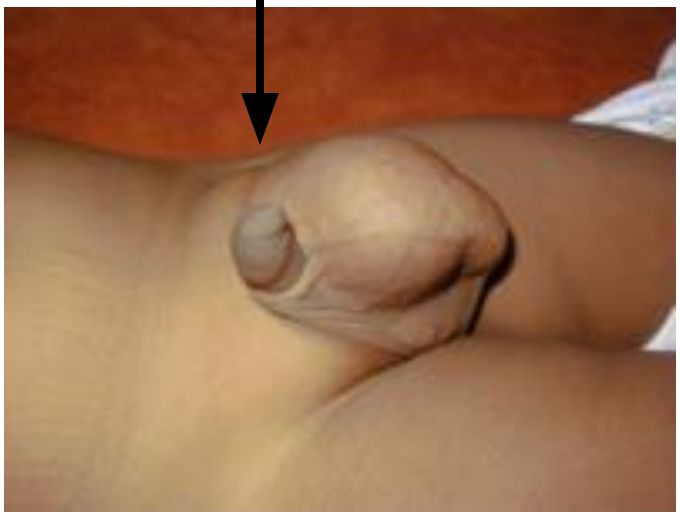
- No cough impulse
- Not reducible

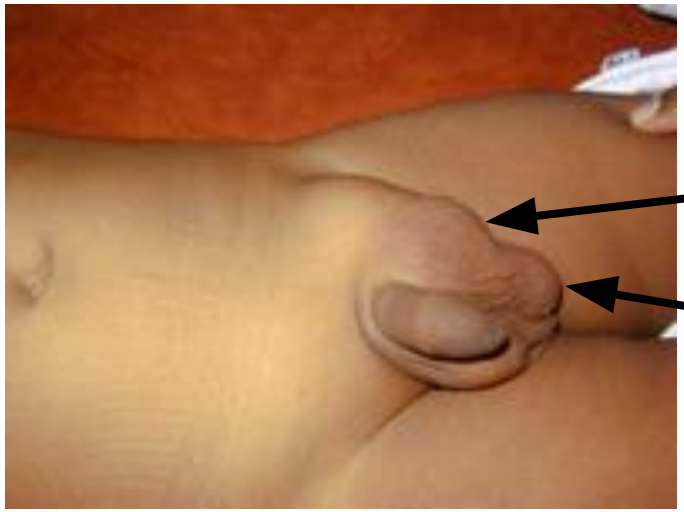
- Testis not palpable
- CYSTIC
- TRANSLUCENT

HERNIA

HYDROCELE

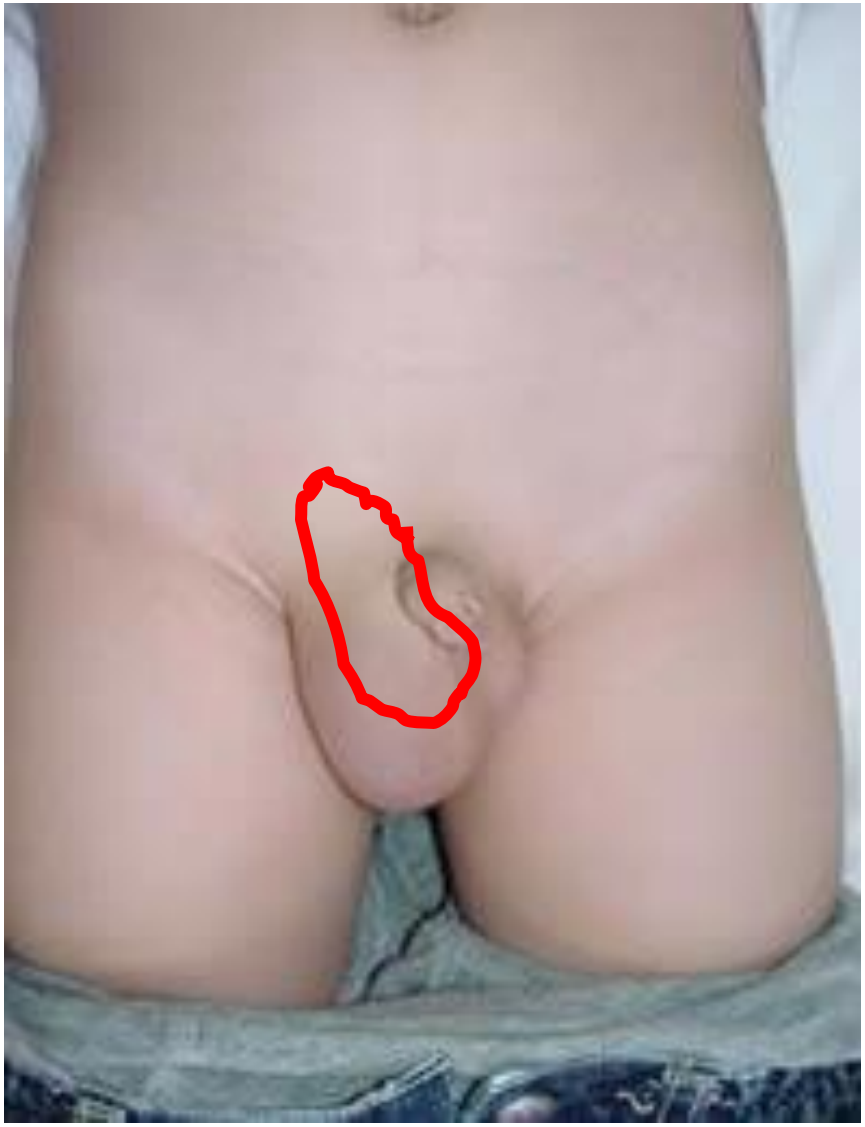
Swellings NOT Confined to the Scrotum:





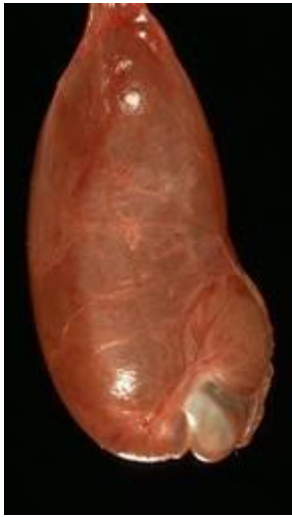
- Cough Impulse
- Reducible
- Testis palpable
- Opaque

Swellings NOT Confined to the Scrotum:



- No cough impulse
- Not reducible

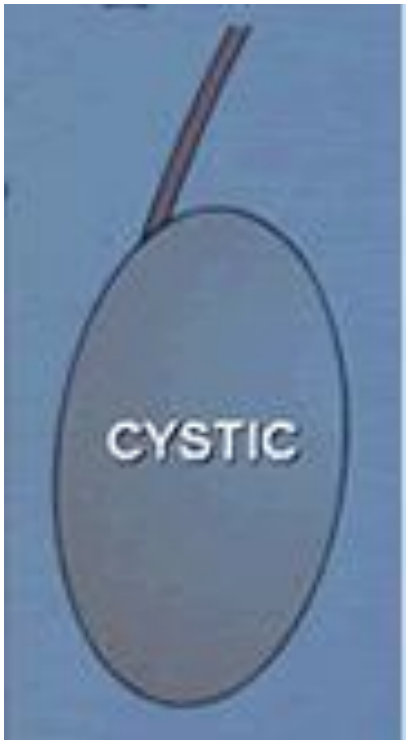
- Testis not palpable
- CYSTIC
- TRANSLUCENT



Swellings Confined to the Scrotum:

Testis & Epididymis NOT Definable

Translucent



Vaginal Hydrocele

Opaque

Not Tender

Ch. Hematocele

Gamma / Tumour

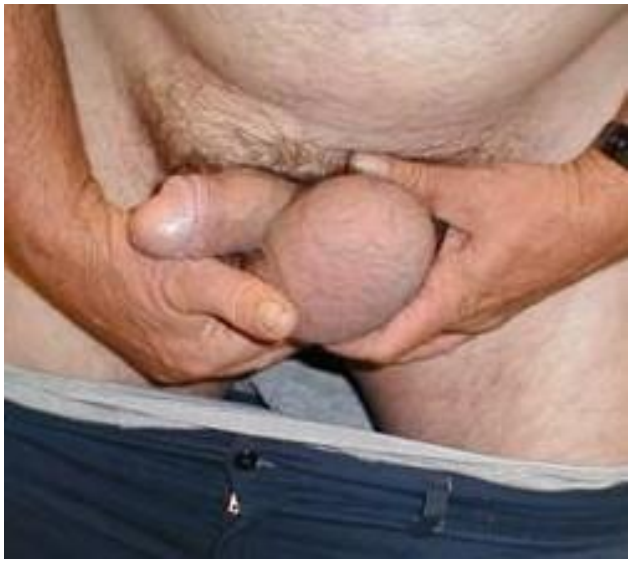
Tender

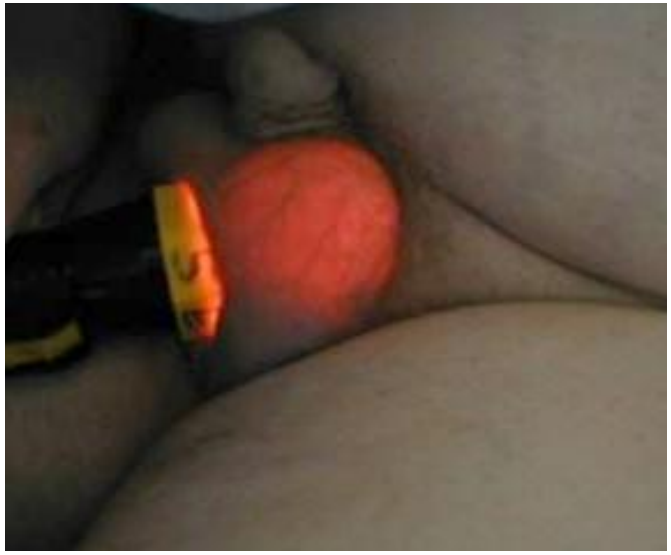
- Torsion
- Acute Hematocele
- Severe epid.orchitis

Swellings Confined to the Scrotum:

Testis & Epididymis NOT Definable

Translucent



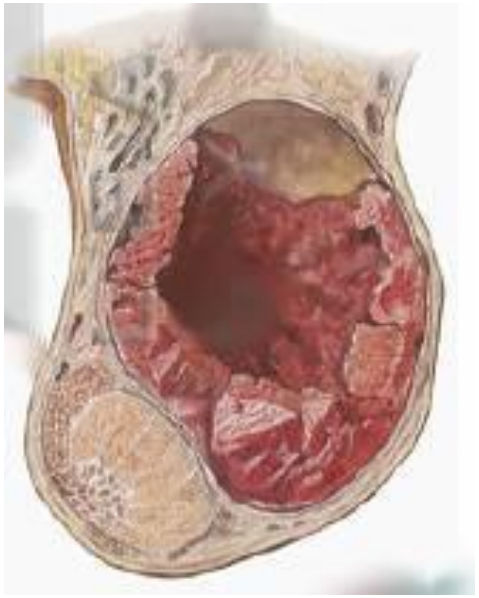


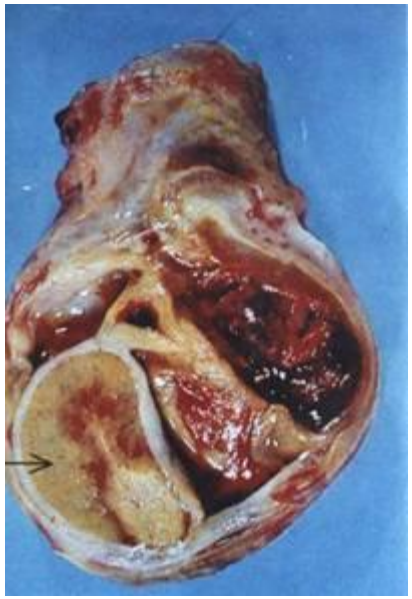
Swellings Confined to the Scrotum:

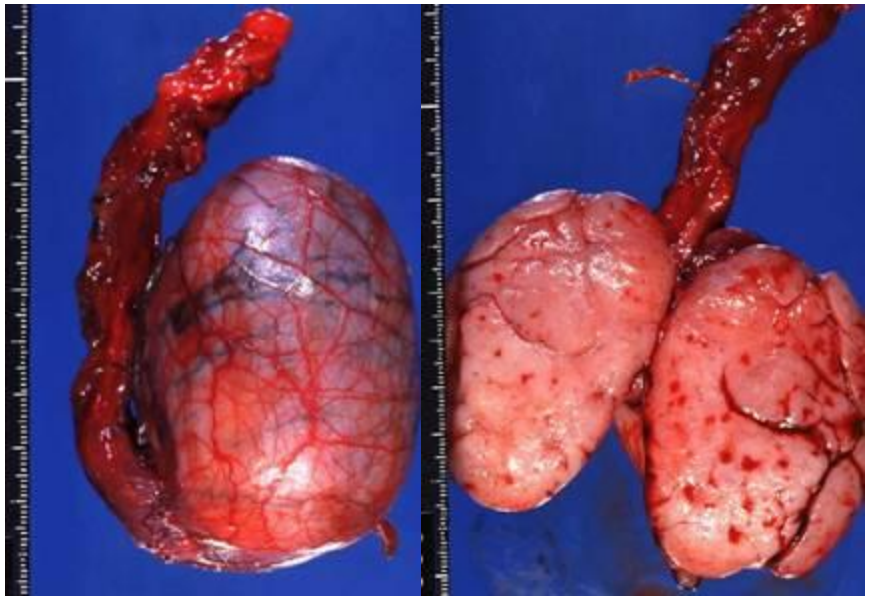
Testis & Epididymis NOT Definable

Opaque

Not Tender





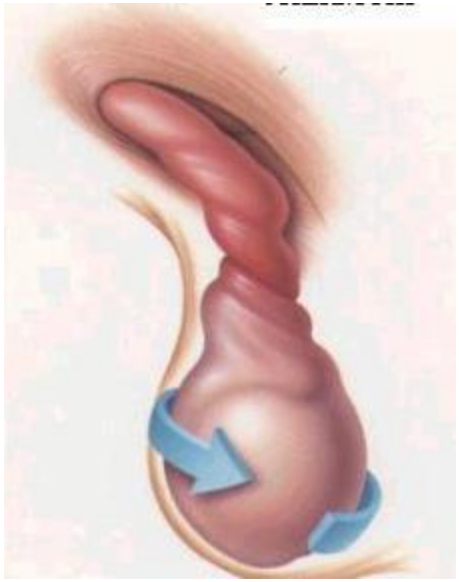


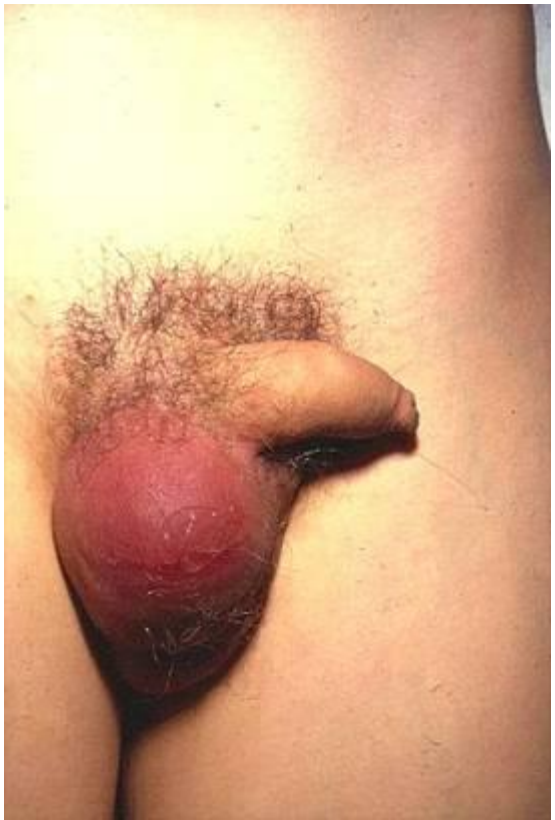
Swellings Confined to the Scrotum:

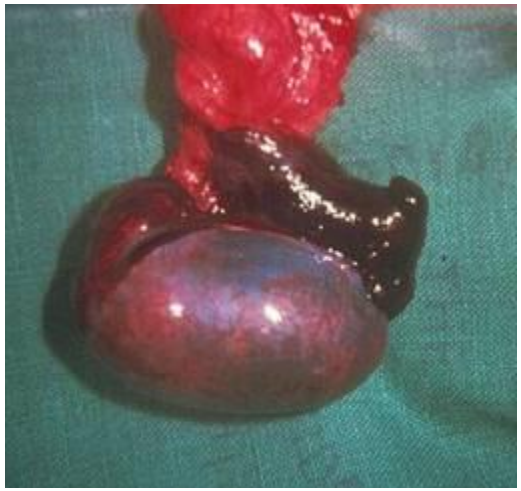
Testis & Epididymis NOT Definable

Opaque

Tender



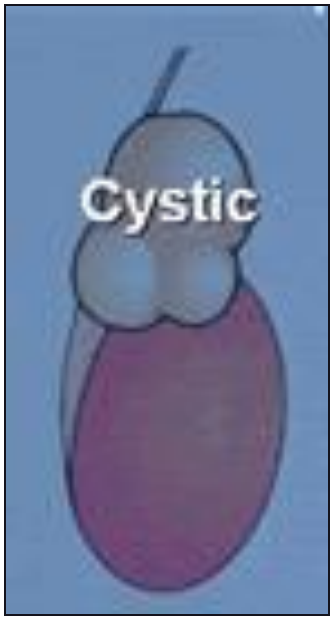




Swellings Confined to the Scrotum:

Testis & Epididymis DEFINABLE

Translucent



Epididymal Cyst

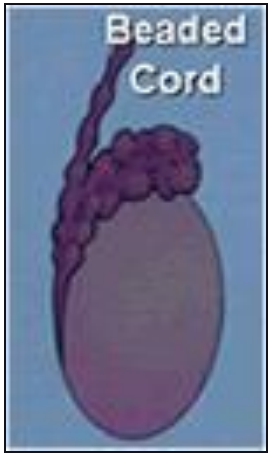
Hydrocele of Cord

Opaque

TENDER

Acute Epididymo -orchitis

NOT TENDER



TB Epididymis

Tumour (early)

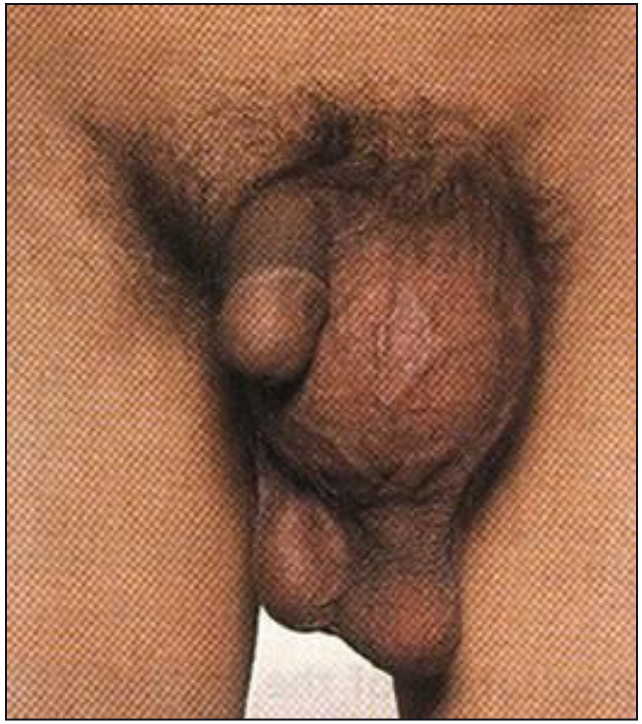
Cystic & Opaque (Spermatocele)

Swellings Confined to the Scrotum:

Testis & Epididymis DEFINABLE

Translucent

Cystic

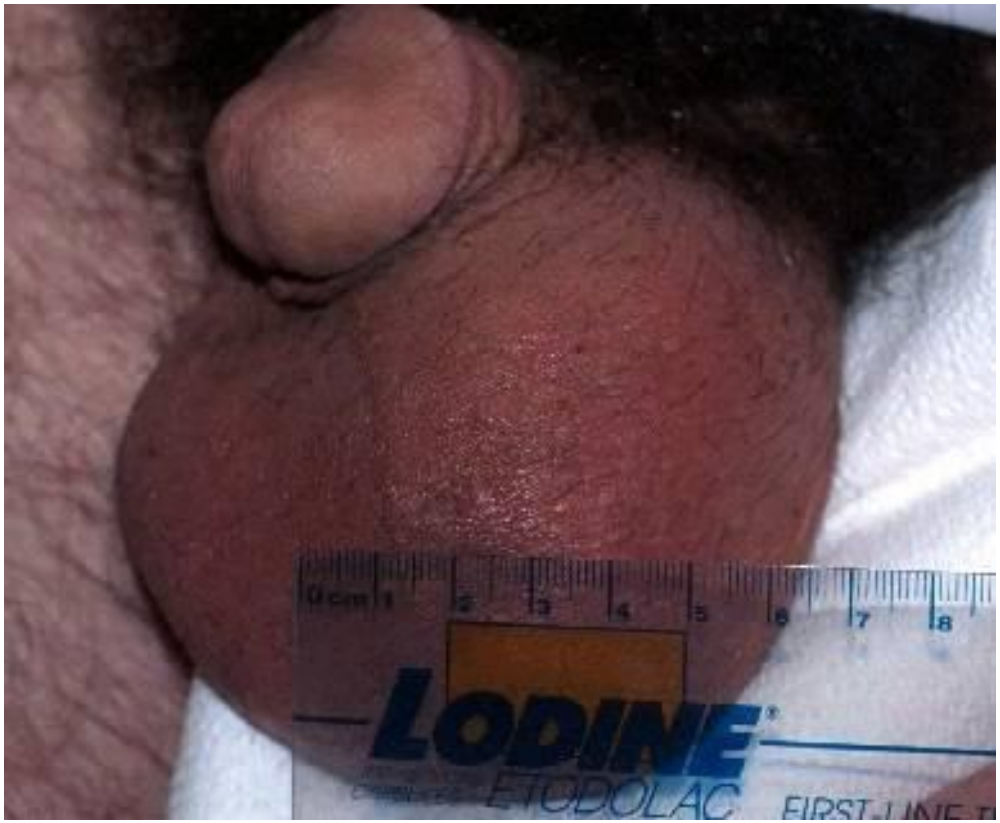


Swellings Confined to the Scrotum:

Testis & Epididymis DEFINABLE

Opaque

TENDER

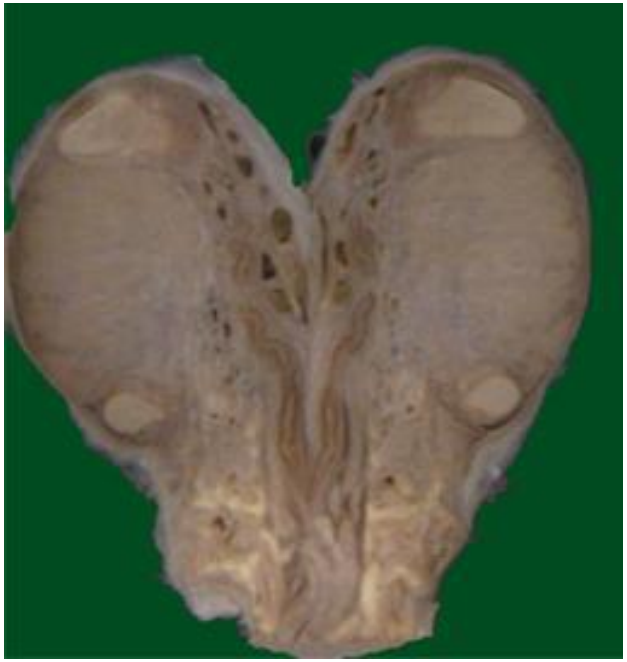


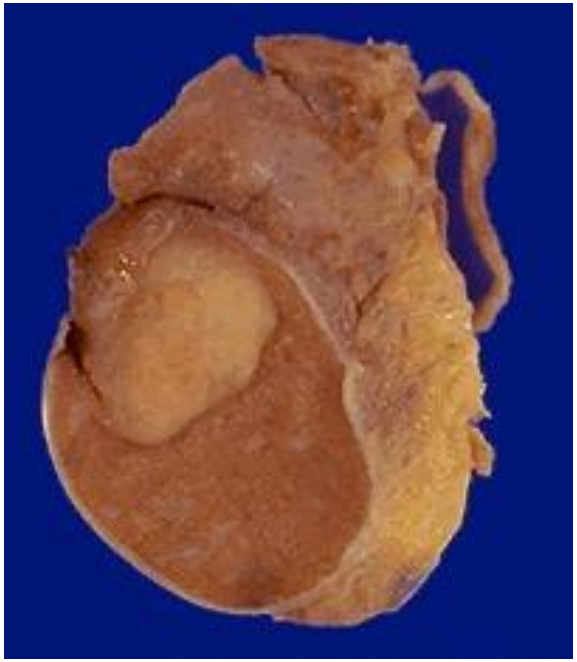
Swellings Confined to the Scrotum:

Testis & Epididymis DEFINABLE

Opaque

NOT TENDER



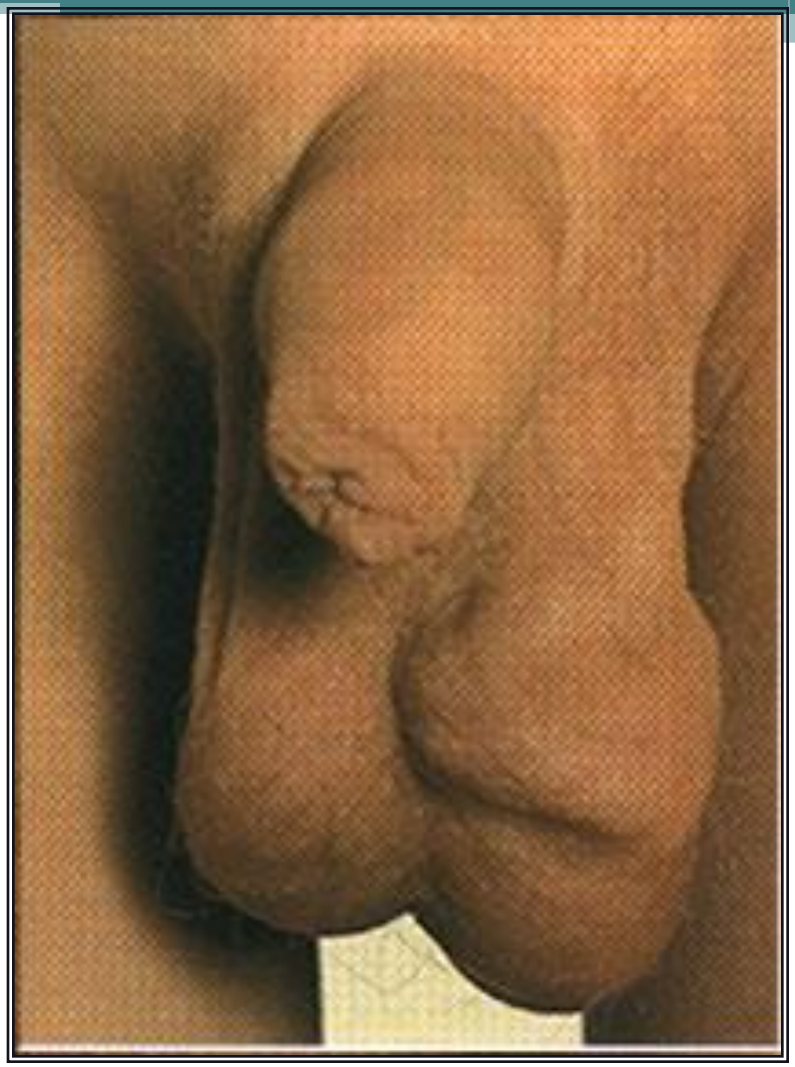


Inguino- scrotal Swelling

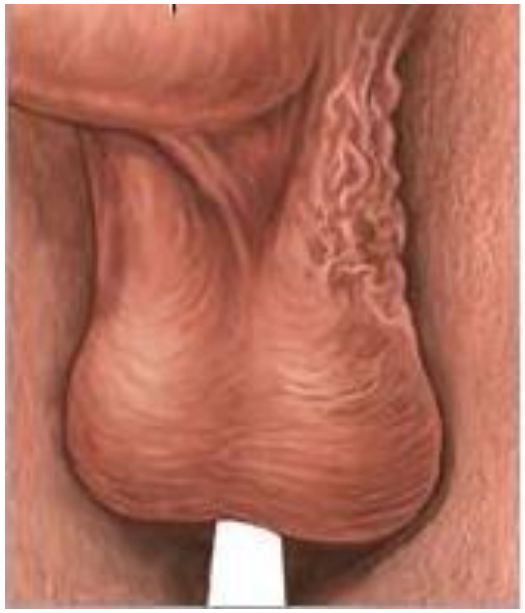
Bunch of dilated tortuous veins in the pampiniform plexus (Varicose veins in the spermatic cord)

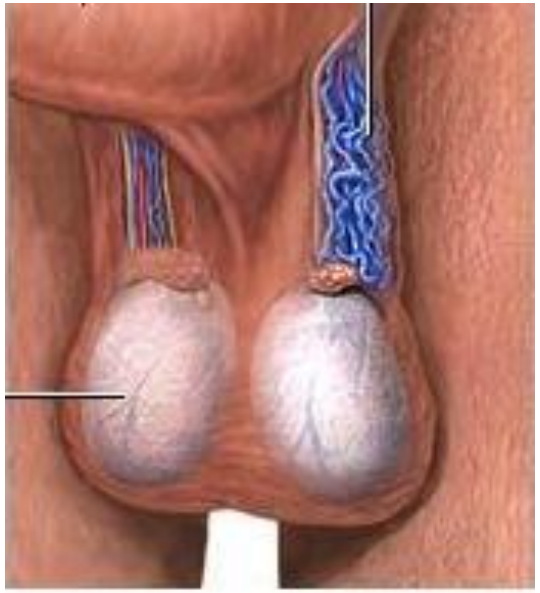
More on the left side

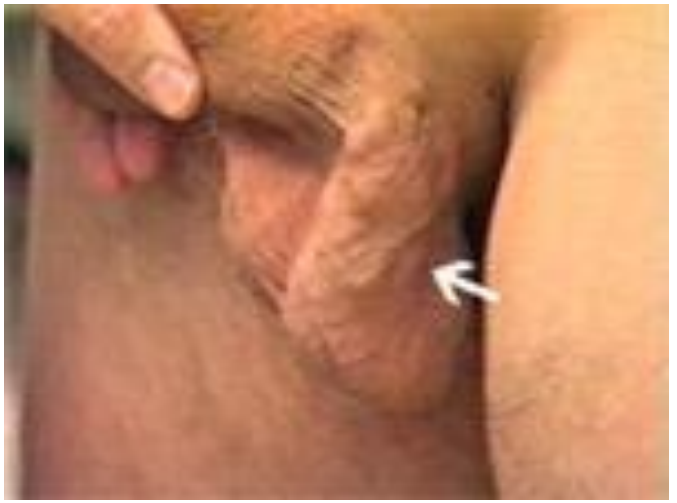
Veins empty when the patient is lying down

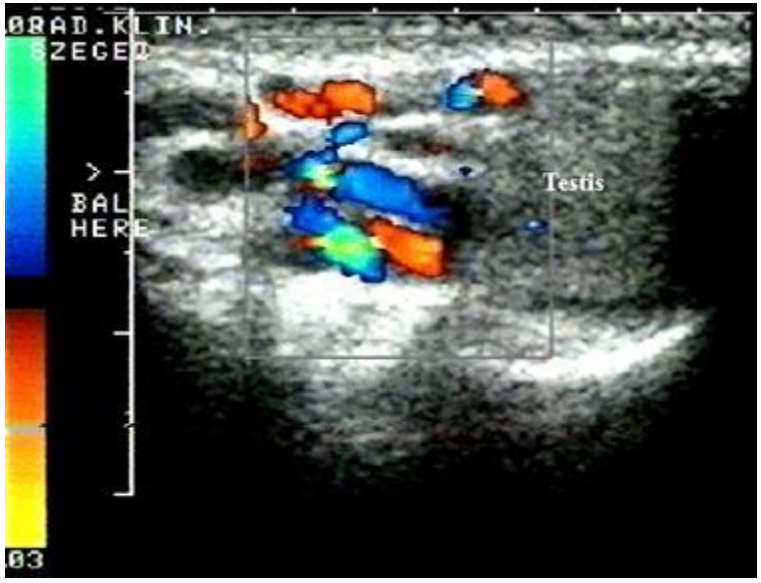


VARICOCELE

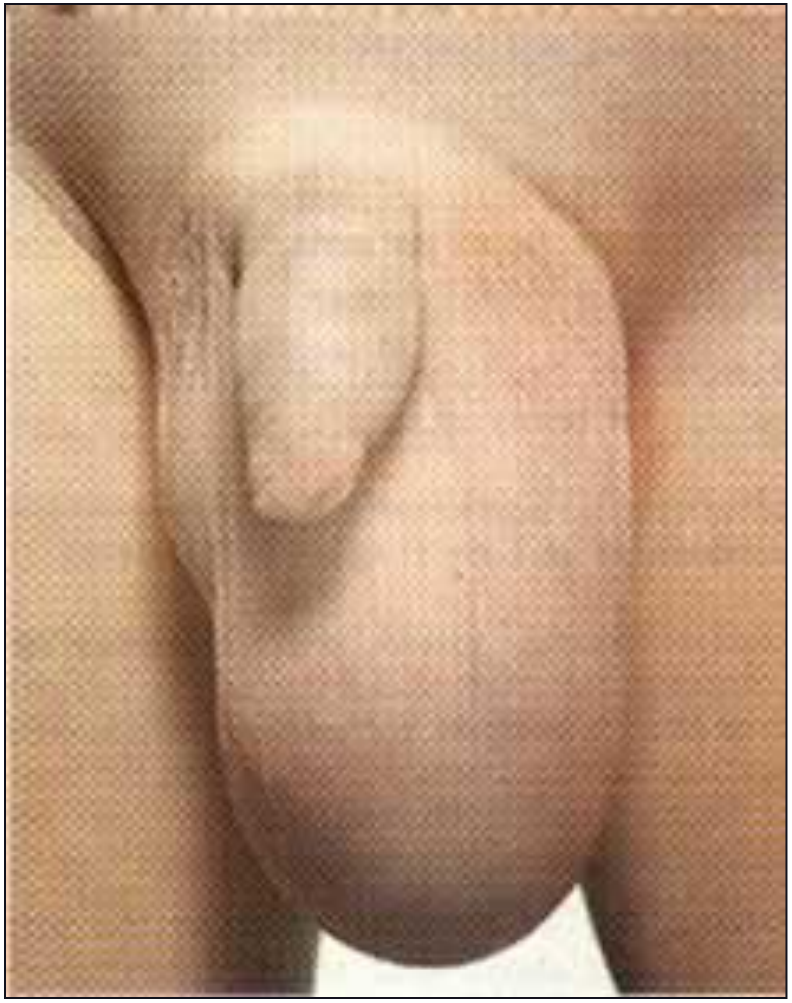






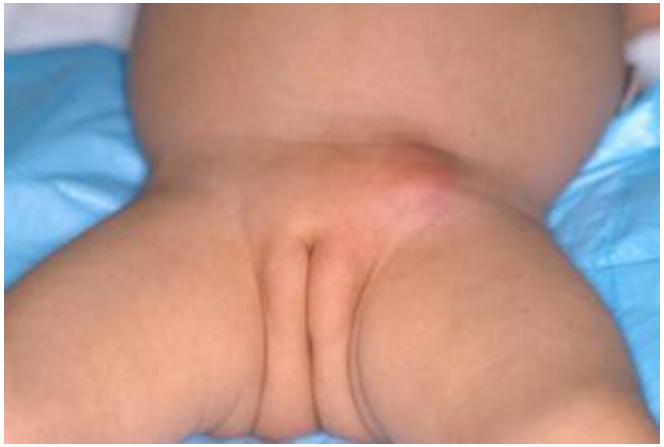

ORAD.KLIN.
SZEGED
BAL
HERE
Testis
03

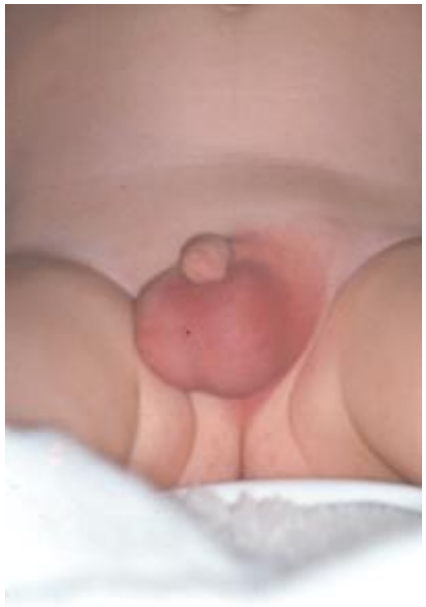
- Scrotal Swelling
- Can’t feel testis & epididymis
- Cystic, translucent
- Not tender



Vaginal Hydrocele

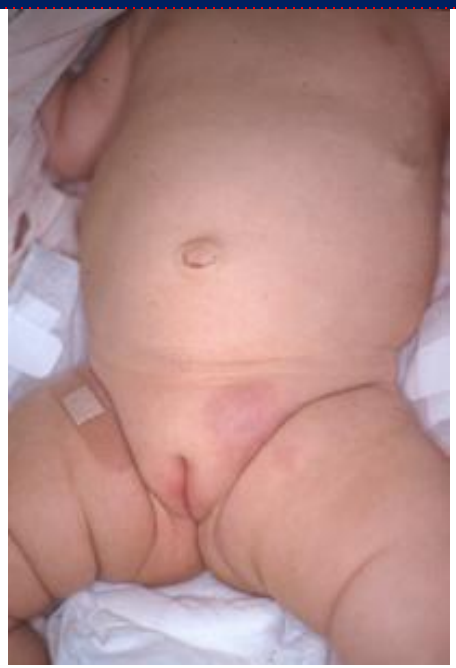
Acute Lt. inguinal lymphadenitis

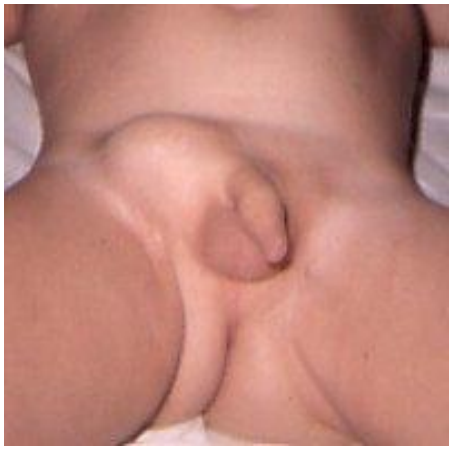




Strangulated Lt. inguinal hernia

Lt. strangulated inguinal hernia





Rt. congenital inguinal hernia