Common inguinoscrotal conditions and acute scrotum in children

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Why this topic is important?

b\c it's very common

Common inguinoscrotal conditions" Inguinoscrotal swelling":

It is very common and it is the main manifestation of this area abnormalities

-The most common conditions:

1- Inguinal hernia

2- Hydrocele

3- Undescended testis

4- Acute scrotum

What we mean by hernia? It's protrusion of an organ or the fascia of an organ through the wall of the cavity that normally contains it.

The most common groin hernia?

1- Inguinal hernia

What is the most subtype-" inguinal hernia " → indirect

Dif : Extension of the prenium (and usually its content – small intestine -) through the inguinal canal

NB:

Remember: the hernia is 2 types (direct – indirect)

The inguinal hernia is usually **indirect**

–99% of groin hernia is indirect inguinal hernia

What is the difference b\w direct – indirect inguinal hernia?

-An indirect inguinal hernia follows the tract through the inguinal canal

-A direct inguinal hernia usually occurs due to a defect or weakness in the transversalis fascia area of the Hesselbach triangle.

Anatomy of inguinal canal: from deep inguinal ring which is the connection b\c peritoneal cavity and groin to External ring.

Bounder of the **inguinal canal** : anterior :external oblique ms.

Posterior : transversalis fascia inferior wall (floor): inguinal ligament

superior wall (roof): internal oblique and transversus abdominis

* the deep ring is lateral to inferior epigastric vessels." It is the LAND MARK to differentiate b\w direct and indirect inguinal hernia. " indirect inguinal hernia"

* if the plugged medial to inferior epigastric vessels " direct "

- it's hard to differentiate b\w direct and indirect inguinal hernia clinically !

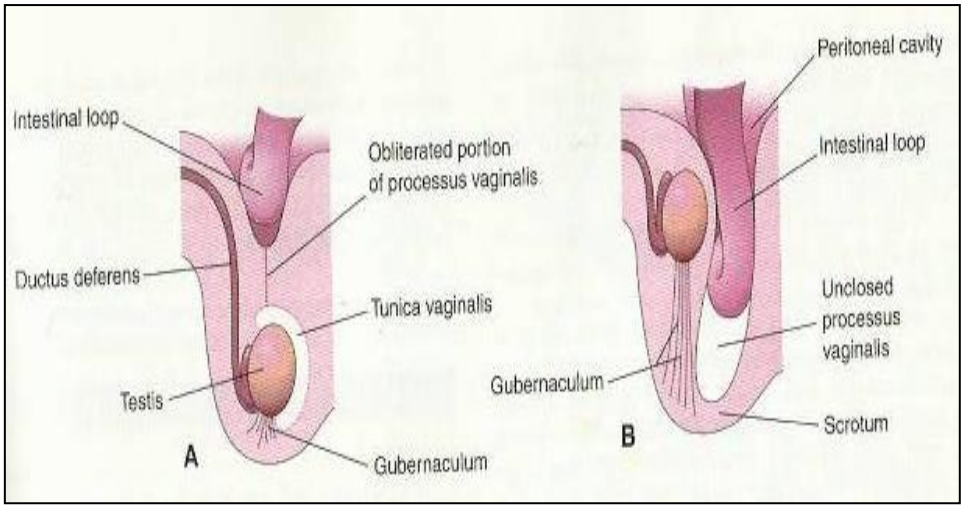
* An **incisional hernia** occurs when the defect is the result of an incompletely healed surgical wound

* **umbilical hernia** : intersection b\w cranial fold .abdominal wall , lateral fold .. they have to meet in the center – most of the times they did not meet 100% - result in defect in the umbilicus ⟶ umbilical hernia

Etiology :

Extension of the prenium (and usually its content) through the inguinal canal

- because of : (patent processes virginals) which is the embryological canal that the testes descend through to the scrotum



CONGENITAL INGUINAL HERNIA:

The processes virginals remains in open communication with the peritoneal cavity.

A loop of intestine may herniated through it into the scrotum.

The opening may be :

A (incomplete)

B (complete).

Presentation (s & s):

The most common presentation is swelling " plugging " in the groin area .

Painless Inguinal swelling : •

(**intermittent** → appear and disappear) – the mother will tell you the swelling comes and go .

The swelling appear more in male and it usually detected in the R side- imp

The swelling disappear when lying down and appear when standing up due to the affect of the graphite " imp"

The R side affect more than L side .

On physical examination :

in the hernia Swelling start in the groin then descend to the scrotm .

" opposite to hydrocele"

There are thickness of the spermatic cord " fell it in the groin area"

Reducibility of the swelling " indicate hernia"

Types of Inguinal hernia :

1-simple (the swelling reduced spontinosly without mechanical enhancement)

في هالنوع التورم يظهر ويختفي من حاله – اي حر الحركه

2- complicated (the swelling reduced by expert hand only but not spontinously) → it called also ((incarcerated hernia)

3- strangulated (the swelling does not reduced + there are reduction of the blood supply to the hernia sac) → these lead to ischemia (this type is painful)

Complication of Inguinal hernia:

1- testicular atrophy due to compression of the blood vessels

2- obstruction of the bowel

3- lack of the blood supply of the hernial sac leading to ischemia (strangulated type)

Management :

Surgically " herniotomy" : ((the procedure is as following : open the groin and hylaigation of the hernial sac and closer of the canal at the level of the deep ring))

When to do it ? (depend on the type) – imp

simple : as soon as possible – pts comes with plugge comes and goes " intermitted"

complicated : urgent : do it in few days " incarceration –strangulation –obstruction "

incarceration : irreducible hernia – urgent surgery" in a day or 2" to avoid complication " compress in the testicular vessels decrease blood flow to the testis " atrophy " imp

strangulated : emergent : do it in few hours

what the dangers of leave hernias in female ? ovary – not fixed will be necrotic

Obstructive type inguinal hernia: it irreducible, content of the hernia is bowel (mainly small bowel), it cause obstruction of the bowel

How do patient with obstructive inguinal hernia will present?

- Abdominal distention
- Vomiting (greenish. Why?! Cuz the obstruction is distal to ampulla of vatre (2nd part of duodenum), so bile will go to the bowel where there is obstruction prevent it from going down, it have to go somewhere, the only way is up)

- Constipation. doctor also mention obstipation (there will be complete obstruction of the bowel, no pass of stool and gas)

When you see patient with abdominal distention and growing bulge, patient with obstructive inguinal hernia what will be the next step? EMERGENCY surgery, why? To avoid bowel ischemia

General rule for u future doctor don't leave a patient with obstructive bowel without intervention

Strangulated hernia: irreducible hernia, why? Cuz the hernias content is dead tissue and stimulating inflammatory reaction around it, so you can`t push it in), so remember content is necrotic either bowel, overy or omentum)

How do they present?

- SEVER pain
- Swelling
- Redness of the Over lying skin (change the color of the over lying skin is a bad sign for any pts with hernia), why? It main the hernia id strangulated subtype and need emergent surgery (herniotomy).

Herniotomy:

In children different than adult, in children the inguinal hernia is indirect (so go from deep ring then through the canal to the external ring), so how to fix it?!by separating the hernia sac from the other content of the inguinal hernia which is differ between male and female, so u have to separate the sac from the adjacent structure. So in children u have to do simple high ligation at the level other deep ring and that is herniotomy. If any content present in the hernia u have to get it back to it normal location.

2- hydrocele :

Dif : accumulation of fluid in the testes ((so it is fluid filled sac around the testis))

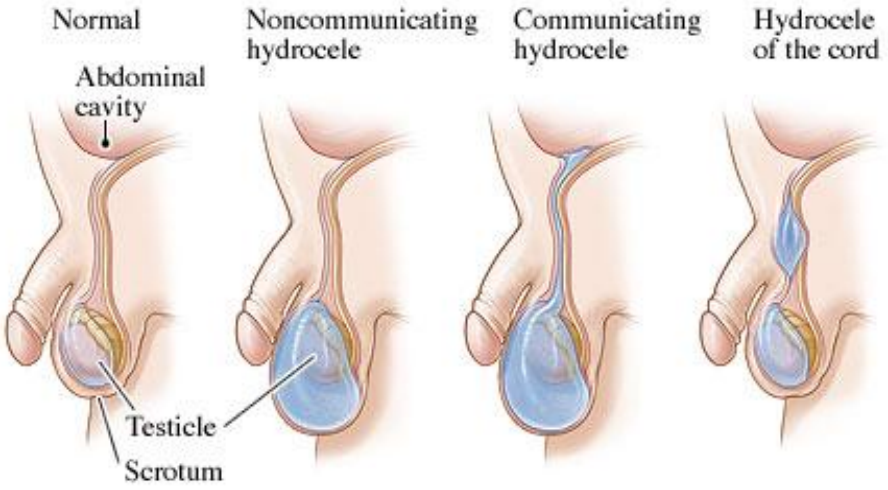
Types :

Normal: The fluid around the testicles is absorbed.

Noncommunicating hydrocele: The fluid stays around the testicles and is not absorbed.(there was a tunnel then it was obliterate)

Communicating hydrocele: The fluid flows back and forth between the scrotum and the abdomen.(communication between abdominal and scrotum, so you can squeeze the fluid back to the peritoneum cavity)

Hydrocele of the cord: The fluid is located in the spermatic cord, between the scrotum and the abdomen.

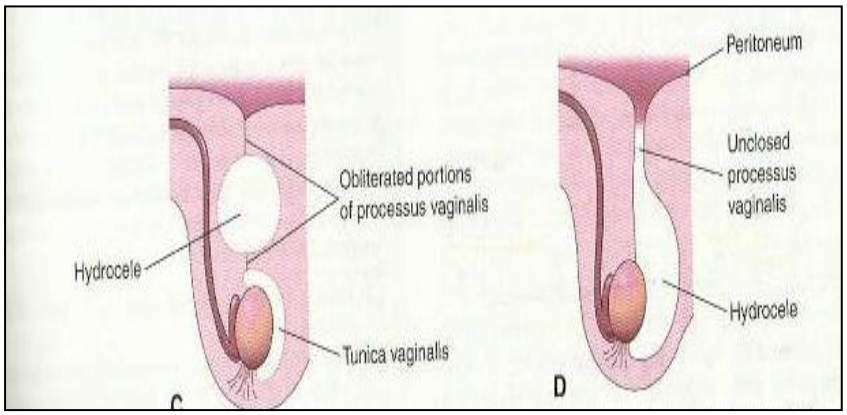


Etiology : same as inguinal hernia

(patent processes vaginalis → but the opening is smaller than inguinal hernia so the fluid only come throgh)

If the middle part of the processus vaginalis remains open, fluid may accumulate forming a **hydrocele of spermatic cord (C).**

If the abdominal end of processus vaginalis remains open but is too small to permit herniation of intestine. Peritoneal fluid passes into patent processus vaginalis forming a **hydrocele of testis(D**



Presentation imp!:

Non redusable swelling

Painless (asymptomatic) , swollen testicle , which feels like a water balloon. A hydrocele may occur on one or both sides.

During a physical exam, the doctor usually finds an swollen scrotum that is not tender. Often, the testicle cannot be felt because of the surrounding fluid. The size of the fluid-filled sack can sometimes be increased and decreased by pressure to the abdomen or the scrotum.

If the size of the fluid collection varies, it is more likely to be associated with an inguinal hernia.

The groin is not swelled as IH (get above the swelling)**imp!**

Management:

Hydroceles are usually not dangerous, and they are usually only treated when they cause discomfort or embarrassment, or if they are large enough to threaten the testicle's blood supply.

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The treatment is not urgent so we can wait until the 2nd year of age because it may spontaneously resolved m if not we do surgery **imp!**

What the different between IH and hydrocele (both are common & in children)?

Hydrocele is a fluid full sac in the scrotum

Etiology:

It`s the same as of IH (persistent of patent processes **vaginalis**), ppv: is the extension of the peritoneal out of the abdominal cavity, enter through the deep ring, IC, and the external ring.

The open of the ppv is small in hyrocele, but in hernia it big so allow abdominal content to go through it .

Different from clinical point of view:

- Location
- Swelling: Hydrocele: Scrotum swelling, but no groin swelling, but IH the bulge start in groin and may extent to the scrotum
- Reducibility: if it is reducible it hernia,
- Transillumination: for hydrocele will be positive, it can help in different but it not a reliable sign, cuz some time in neonate with hernia the tranilllumination is positive.
- The most reliable clinical feature to distinguished between the 2 pathologist is the reducibility (imp!), site also can help
- If you can feel the testis it`s hernia, if u can`t feel it cuz of all fluid it hydrocele.

Why to different between them? Cuz if it is hydrocele you don`t need to fix it right away, majority will disappear by itself, wait for 2 years if didn't disappear enter to fix it.

3- Undesigning testis :

Dif : A testis that has remained in the abdomen or inguinal canal and not descended into the scrotum. Also called *retained testis*.

Undesigning testis it common, pts present with:

Abdominal pain, empty scrotum, sometime u can`t feel the testis even in the groin (call it non palpable)

Testis descend from the abdominal at the kidney level in the retroperitoneum, descend to the inguinal canal to the scrotum any rest in this processes we call it true Undesigning testis.

Types :

2- ectopic : it descend but stock in the way down (Ectopic testis: testis is out of the normal pathway of the testis descending)

3- retractile : the testis descend normally at birth but it goes up back to the abdominal cavity after while → (due to hyperactivity of grainmestric muscels)

So why I need to know different type:

Different types have different management:

Retractile: able to get it back, just tall the parents it normal phenomena☺, the reason of this retractility is the muscle (crimastic) in the canal, it hyperactive muscle when it overactive the contraction lead to the pull of testis.

True undiscerning and ectopic: fixation by surgery but when?

At age of 6 month imp!, why we wait? To give chance for spontaneous testicular descend after birth.

Why we should not wait , or we shouldn't wait until 2,3,4, years to do orchiopexy ?

b/c Fx of testis will be affected :

-Risk of infertility

-Cancer (testis has high risk of cancer at age 20,30,40)

Orchiopexy: Fixation of testis in scrotum, we place testis back to normal position to minimize cancer risk and to enhance the fertility!

Presentation:

Empty scrotum!

The testis could be :

palpable : you can feel it in the groin area

not palpable (it usually in the abdominal cavity)

non palpable Undesigning testis if u can't feel the testis in groin what will be the next step?! **MCQ!**

We expect the testis in abdomen > so to visualize the abdominal activity we will do laparoscopy trying to search for testis.

Laparoscopy can be diagnostic and therapeutic to bring the testis down to scrotum.

Complications:

1- Cancer

2- Infertility

Management:

The retractile does not need medical intervention, it usually return in its normal position at puberty

But the other types need surgical intervention:

When ? → the treatment should be after the age of 6 months → because there are chance of spontaneously resolving.

If it's palpable: open orchiopexy. Small incision same as hernia, open groin and search for testis.

If it's nonpalpable: laparoscopy assisted orchiopexy.

Two stages fowler-stephens orchiopexy> If the testis is higher in abdomen we need to do second surgery. which called fowler-stephens orchiopexy >u don't have to worry about it ☺

4- acute scrotum:

Dif : acute onset of pain in the scrotum

Why it's serious condition? b/c it's lead to testicular loss

How they present with acute scrotum? Painful scrotum, can or can't be associated with swelling, may or mayn't associated with redness.

Most common Causes :

testicular torsion

acute hydrocele

Most serous one : testicular torsion . Which has 2 peak one perinatal and other is around puberty.

They present with sudden onset of scrotal pain that can progress to swelling and redness which mean the testis is necrotic. Pt can have abdominal pain N/V.

On Examination the signs are: tenderness of testis > when u feel the testis the boy will scream , high lying testis and maybe lying in horizontal plane. Other sign which is very specific is absent of cremasteric reflux.

When the Hx and Ex suggest the testicular torsion the next step is> Emergent scrotal exploration. Imp!! b/c of we wait to do Doppler ultrasound or nuclear scan we will waste valuable time instead we should take the boy to OR and do Emergent scrotal exploration and untwist the testis if it left testis > clockwise , untwist the right testis > counterclockwise , fix contralateral testis !