

INGUINO-SCROTAL DISEASE

DR.ABEER ALDIAB , MBBS , JBPS,EBPS,FRCS ENG (PAED SURG)

- INGUINAL HERNIA AND HYDROCELE
- UNDESCENDED TESTIS
- ACUTE SCROTUM

INGUINAL HERNIA AND HYDROCELE

- 5% OF ALL CHILDREN
- MORE IN PREMATURE (\approx 10-30%)
- RIGHT>LEFT (RIGHT 60% , LEFT 30%)
- M>F IN FULL TERM BABIES , HOWEVER ITS 1:1 IN PREMATURE BABIES
- 10% HAS FAMILY HISTORY

ASSOCIATION

Box 50.1 Conditions Associated With Inguinal Hernia

- Prematurity
- Family history
- Cystic fibrosis and meconium peritonitis
- Hydrocephalus (ventriculoperitoneal shunt)
- Peritoneal dialysis
- Ascites
- Genitourinary abnormalities
- Connective tissue disorders
- Mucopolysaccharidoses
- Glycogen storage diseases
- Abdominal wall defects
- Chronic lung disease

INGUINAL CANAL

- ANATOMY

- CONTENTS OF INGUINAL CANAL IN  : ILIOINGUINAL NERVE + SPERMATIC CORD
 : ILIOINGUINAL NERVE + ROUND LIGAMENT

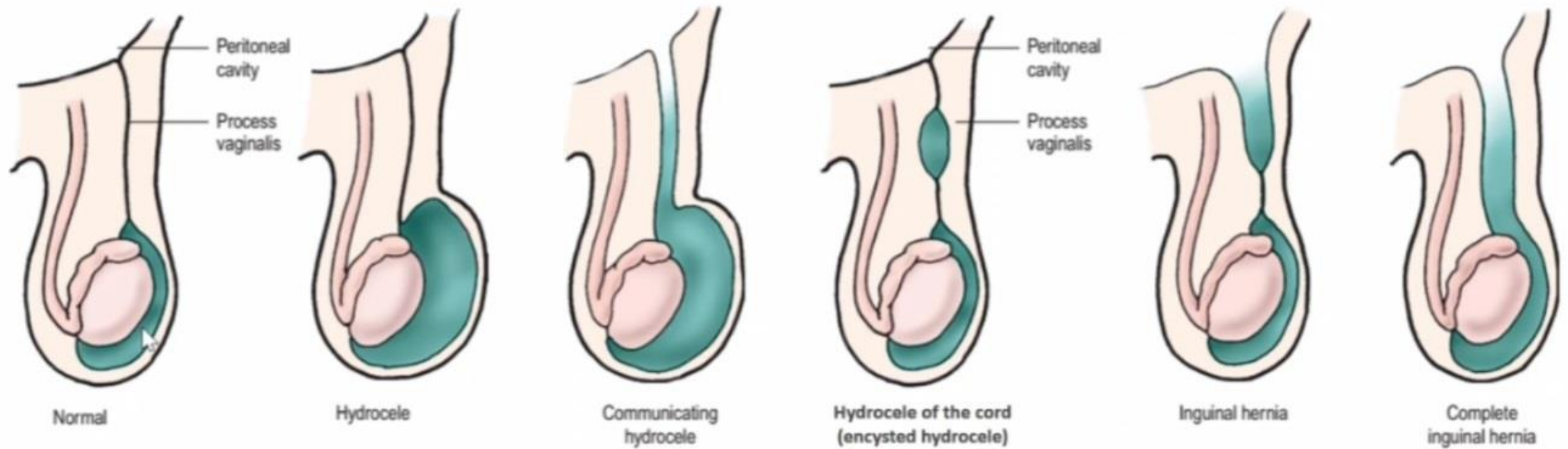
- SPERMATIC CORD STRUCTURES:

- CREMASTERIC MUSCLE
- TESTICULAR ARTERY
- PAMPINIFORM PLEXUS
- LYMPHATIC CHANNELS
- VAS
- GENITAL BRANCH OF GENITOFEMORAL NERVE
- PROCESSUS VAGINALIS



PATHOGENESIS

- Failed obliteration of patent process vaginalis
- What is Process vaginalis
- In the inguinal canal → gradually obliterates after birth
- In scrotum → forms the tunica vaginalis around the testis



- **SLIDING HERNIAS:**
 - **MAY CONTAIN:** FALLOPIAN TUBE, OVARY, SIDE-WALL OF THE URINARY BLADDER
- **APPENDIX IF HERNIATED : AMYAND'S HERNIA**
- **MECKEL DIVERTICULUM IF HERNIATED : LITRE'S HERNIA**
- **RICHTER HERNIA : ISCHEMIC ANTIMESENERIC BOWEL BORDER IN THE HERNIA**
- **PANTALOOM HERNIAS : DIRECT AND INDIRECT INGUINAL HERNIAS . MORE COMMON IN NEONATES.**

•

PRESENTATION :

- MOST ARE ASYMPTOMATIC
- OFTEN FOUND BY THE PARENTS OR PEDIATRICIAN ON ROUTINE PHYSICAL EXAMINATION
- THE DIAGNOSIS IS CLINICAL

- IF ASYMPTOMATIC:

- CAN SIMPLY BE OBSERVED FOR 1-2 YEARS OF AGE
- 90% OF NON COMMUNICATING HYDROCELE RESOLVED
- 65-70% OF COMMUNICATING HYDROCELE RESOLVED

- INDICATIONS OF SURGERY:

- WHEN FAILS TO RESOLVE
- IF A CLINICAL HERNIA IS APPARENT
- IF SYMPTOMATIC (PAIN)

HYDROCELE

- ACCUMULATION OF PERITONEAL FLUID A NON OBLITERATED PROCESS VAGINALIS

SURGERY

- HIGH LIGATION OF PROCESS VAGINALIS + DRAINAGE OF HYDROCELE
- LORD'S/BOTTLE /JABOULY'S PROCEDURE

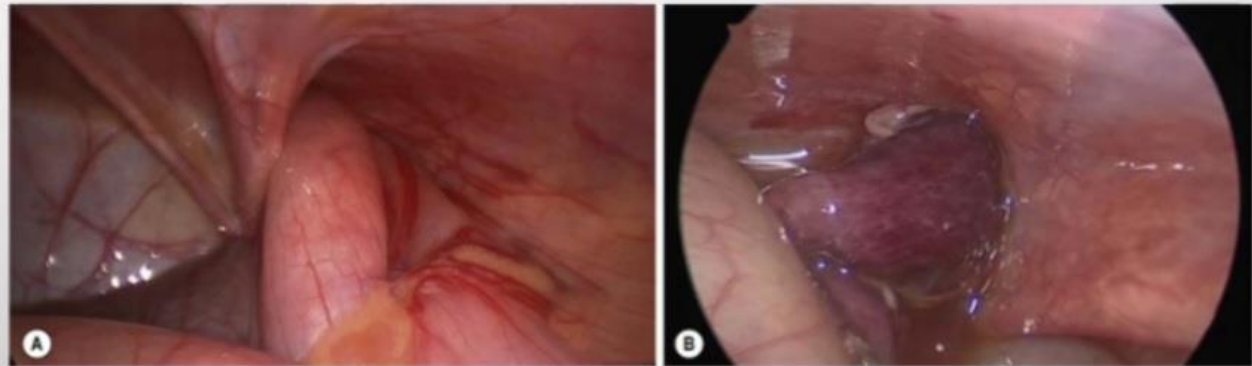


HERNIA

- OPEN VS LAPAROSCOPIC PPV LIGATION
- OPEN EXPLORATION OF THE CLINICALLY-FREE CONTRALATERAL SIDE IS JUSTIFIED IN:
 - PREMATUREITY
 - YOUNGER AGE
 - FEMALE GENDER
 - LEFT-SIDED UNILATERAL HERNIA
- MESH IS ALMOST NEVER USED IN CHILDREN
 - EXCEPT IN: RECURRENT HERNIAS IN CHILDREN WITH CONNECTIVE TISSUE DISORDERS OR MUCOPOLYSACCHARIDOSES

LAPAROSCOPIC VS OPEN

- NO DIFFERENCE IN RECURRENCE (< 0.5%)
- ↓ INCIDENCE OF METACHRONOUS HERNIA
- ↓ OP. TIME FOR LAP. BILATERAL REPAIRS
- ↑ OP. TIME WITH LAP. UNILATERAL REPAIR



INCARCERATED HERNIA



- **TRY TO REDUCE IT :**

- WITH SEDATION
- FIRM AND CONTINUOUS PRESSURE APPLIED AROUND THE INCARCERATION
- IF REDUCED (90–95%) ,ADMIT AND REPAIR WITHIN 24-48HRS
- IF FAILED OR INCOMPLETE REDUCTION OR CONTRAINDICATED, ADMIT FOR EMERGENT SURGERY

- **DON'T REDUCE IF:**

- SIGNS OF PERITONITIS
- SEPTIC SHOCK



SURGICAL COMPLICATION

RECURRENCE (<1%)

- HIGHER IN:
 - PREMATURE INFANTS
 - CHILDREN WITH INCARCERATED HERNIAS
 - ASSOCIATED DISEASES (E.G., CONNECTIVE TISSUE DISORDER, VPS)

INJURY TO THE SPERMATIC CORD OR TESTIS (RARE)

WOUND INFECTION (SSI)

HEMATOMA

PERSISTENT HYDROCELE

CHRONIC PAIN (UNCOMMON IN CHILDREN)

LOSS OF DOMAIN (DUE TO A HUGE HERNIA)

IATROGENIC CRYPTORCHIDISM

UNDESCENDED TESTES (UDT)

INCIDENCE OF UDT

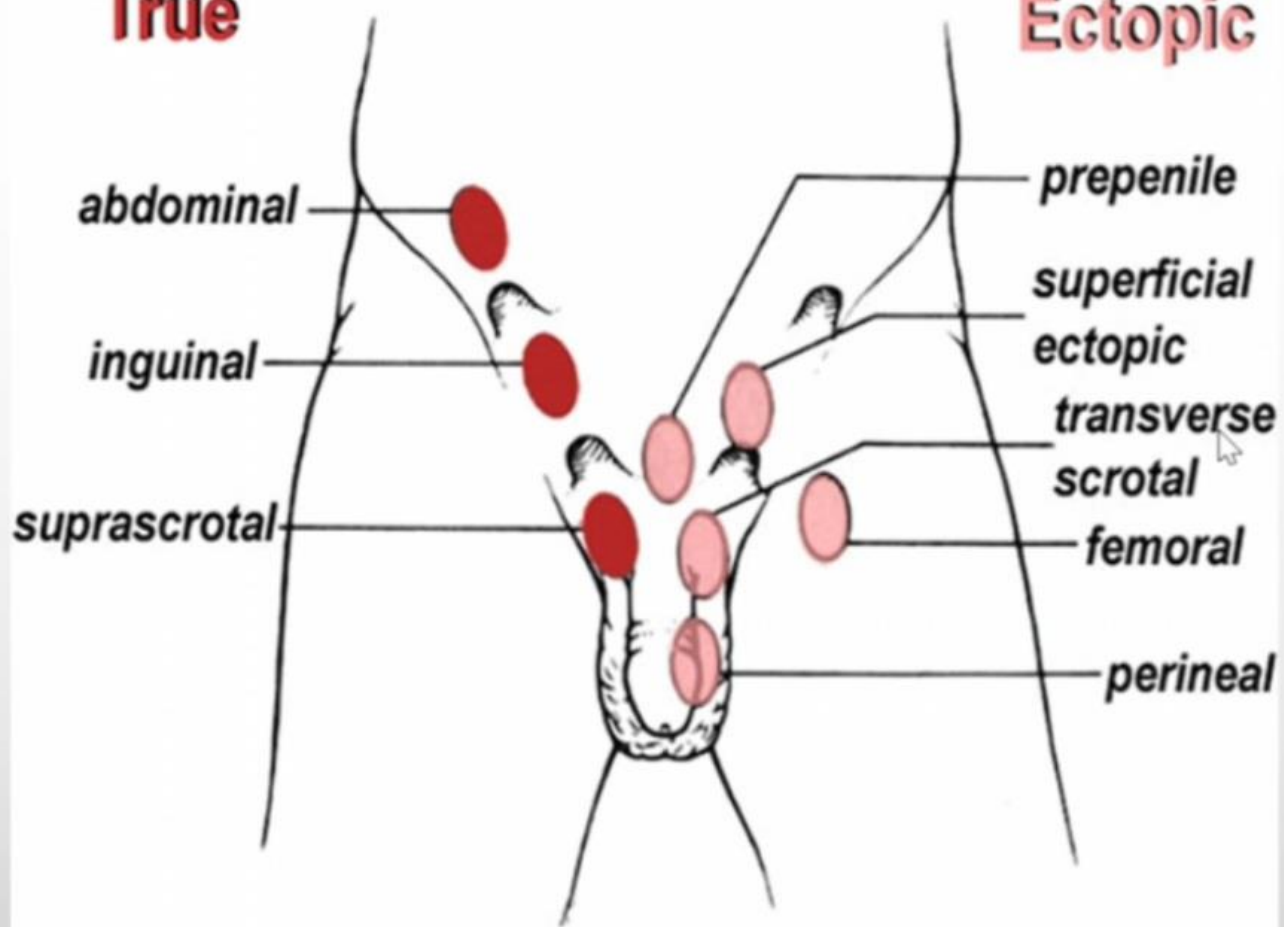
- 3% OF TERM MALE NEWBORN
- 33–45% OF PREMATURE OR LOW BIRTH WEIGHT (<2.5 KG)
- THE MAJORITY OF TESTES DESCEND WITHIN THE FIRST 6–12 MONTHS SUCH THAT AT 1 YEAR, THE INCIDENCE IS DOWN TO 1%.

CLASSIFICATION

- **NON-PALPABLE UDT**
 - TESTICULAR AGENESIS
 - INTRA-ABDOMINAL UDT
 - VANISHED TESTIS (ATROPHIED DUE TO PREV. VASCULAR INSULT AS PERINATAL TORSION, TRAUMA, OR IATROGENIC)
 - SMALL TESTIS, OBESE CHILD, OR NON-EXPERIENCED EXAMINER
- **PALPABLE UDT (70%)**
 - INGUINAL UDT
 - RETRACTILE TESTIS (CREMASTERIC OVERACTIVITY)
 - ASCENDING TESTIS (ACQUIRED UDT)
 - PEEPING TESTIS *
 - ECTOPIC TESTIS*

True

Ectopic



ASSOCIATIONS

- ASSOCIATED ANOMALIES:
 - PATENT PROCESSUS VAGINALIS
 - EPIDIDYMAL ABNORMALITIES
 - PRUNE-BELLY SYNDROME
 - GASTROSCHISIS
 - BLADDER EXSTROPHY
 - PRADER–WILLI, KALLMAN, NOONAN SYNDROMES
 - TESTICULAR DYSGENESIS
 - ANDROGEN INSENSITIVITY SYNDROMES

WHY WE ARE CONCERNED

- MALIGNANCY RISK
- FERTILITY

PRESENTATION

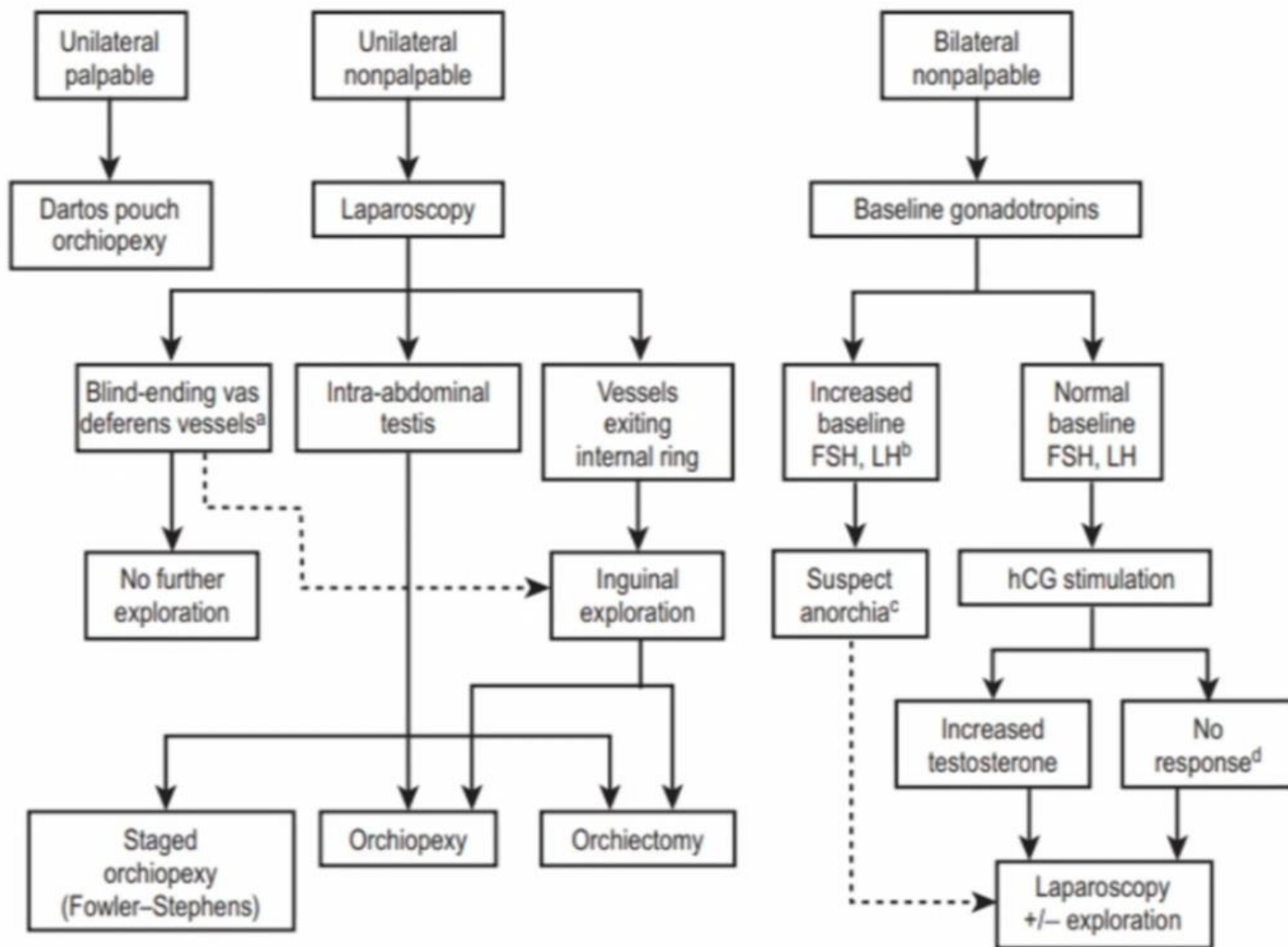
- EMPTY HEMISCROTUM DURING NEONATAL CHECKUP OR LATER VISITS
- HISTORY IS IMPORTANT (GESTATIONAL AGE, PRESENT AT BIRTH, HISTOY OF TRAUMA/TESTICULAR TORSION , PREVIOUS INGUINAL SURGERY)

ON EXAM

- INSPECT : SCROTUM , PHALLUS
 - SIGNS OF SCROTAL DEVELOPMENT (DARKER SKIN COLOR AND PRESENCE OF RUGAE)
 - SCROTAL SIZE

- PALPATE : SCROTUM , TESTIS (BILATERALLY), INGUINAL REGION

MANAGEMENT



MANAGEMENT

HORMONES (LH-RH AGONIST)
CONTROVERSIAL

SURGERY

WHY WE DO SURGERY ?

- REDUCES THE RISK OF MALIGNANCY AND INFERTILITY
- REDUCES THE RISK OF TORSION
- EASIER EXAMINATION
- PSYCHOLOGICAL : NORMAL-APPEARING SCROTUM
- ENHANCE ENDOCRINE FUNCTION

Acute scrotum

Dr.Abeer Aldiab . MD,JBGS, JBPS,EBPS,FRCS Eng(Paediatric surgery)

- ▶ Acute scrotal pain with or without swelling and erythema
- ▶ Most conditions are nonurgent .But, it's critical to differentiate between them & testicular torsion
- ▶ Age at presentation is an important clue
(torsion of the appendix testis/epididymis → prepubertal boys • testicular torsion → neonates and adolescents)

► DDX:

- Torsion of the testis
- Torsion of the appendix testis/epididymis
- Epididymitis/orchitis
- Hernia/hydrocele
- Trauma/sexual abuse
- Tumor
- Idiopathic scrotal edema (dermatitis, insect bite)
- Cellulitis
- Vasculitis (Henoch-Schönlein purpura)

TESTICULAR TORSION

Results from twisting of the spermatic cord which compromises the testicular vasculature and results in infarction

Probability of testicular salvage declines significantly beyond **6 hours**

Typically occurs before age 3 years or after puberty

Less common in prepubertal boys and after age 25 years

- ▶ Presentation: sudden onset of severe, unilateral testicular pain /lower thigh/ or lower abdominal pain , nausea and vomiting

(Intermittent testicular pain → incomplete torsion with spontaneous detorsion)

- ▶ enlarged testis, retracted up, transverse orientation, anteriorly located epididymis, severe generalized testicular tenderness , swelling and erythema , cremasteric reflex is often absent

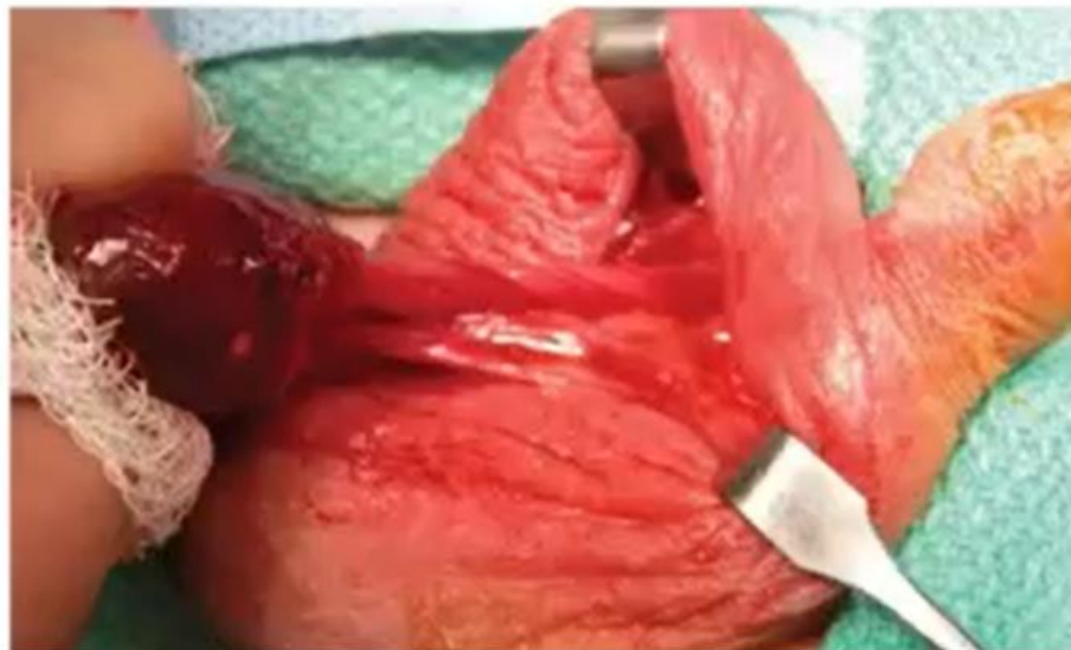
► Two types of torsion:

Extravaginal : occurs perinatally
spermatic cord twists proximal to the tunica vaginalis
the tunica and testis to spin on the vascular pedicle

Intravaginal : more common in children and adolescents
spermatic cord twists within the tunica vaginalis
'bell-clapper' deformity

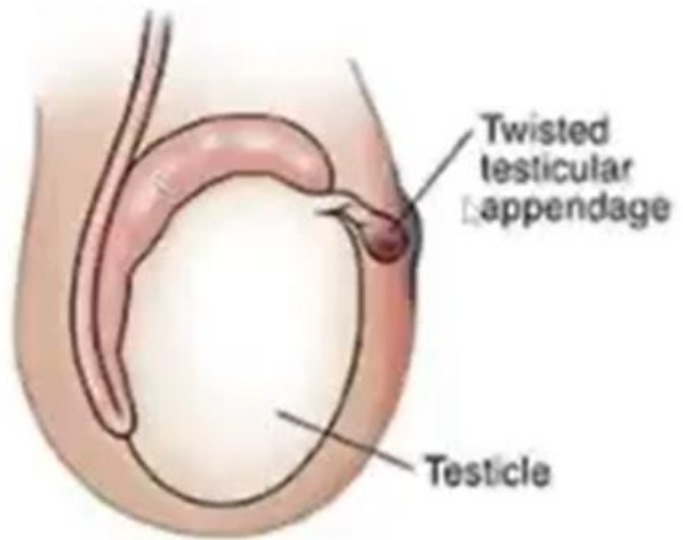


- ▶ Exploration under GA, detorsion, placement in warm saline/gauze, and fixation , in addition to contralateral fixation
- ▶ If the testis is clearly nonviable, it should be removed



Torsion of Testicular Appendages

- ▶ Torsion of the appendix testis or appendix epididymis is the most common cause of an acute scrotum
- ▶ Most commonly between ages 7 and 10 years (? prepubertal hormonal)
- ▶ Presentation: sudden onset of pain and nausea , appendage can be palpated/ focally tender (blue dot sign)
- ▶ Self-limited
- ▶ Management : NSAIDs, restricted activity, and warm compresses



Epididymitis/Orchitis

Bacterial (rare in children) : Retrograde bacterial infection (from the bladder and urethra)

Scrotal pain and swelling typically have a slow onset, worsening over days

On exam : induration, swelling, and tenderness of the hemiscrotum , positive urinalysis and culture, or urethral swab in sexually active adolescents suggests the diagnosis

Treatment : antibiotic therapy

Viral :Mumps orchitis (rare) , Adenovirus, enterovirus, influenza, and parainfluenza virus infections

Treatment : supportive (self-limited)

Idiopathic Scrotal Edema

Scrotal swelling +erythema

Unknown etiology

Boys 5 to 9 years of age

characterized by: Insidious onset of swelling and erythema that begins in the perineum or inguinal region, and spreads to the hemiscrotum , Pruritus

Testis is not tender

US shows normal testicular blood flow

DDx: Contact dermatitis ,insect bites ,minor trauma ,cellulitis from an adjacent infection



Henoch-Schönlein Purpura

A vasculitis syndrome that involve the skin, joints, and GI and GU systems

Symptoms :scrotal and spermatic cord pain, erythema, and swelling (in 1/3) , skin purpura, joint pain, and hematuria

Most commonly in boys younger than 7 years of age

Doppler US: normal blood flow to the testis

Management :conservative

TESTICULAR TRAUMA

- Rare
- Dx: History of trauma , don't forget to check sexual abuse
- Exam: injured testis is swollen and markedly tender ,swelling and bruising of the scrotum
- US: evaluate for rupture of the tunica albuginea

Management : exploration +/- repair of the ruptured tunica albuginea

