INGUINO-SCROTAL DISEASE

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

- INGUINAL HERNIA AND HYDROCELE
- UNDESCENDED TESTIS
- ACUTE SCROTUM

INGUINAL HERNIA AND HYDROCELE

- 5% OF ALL CHILDREN
- MORE IN PREMATURE (¬ 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

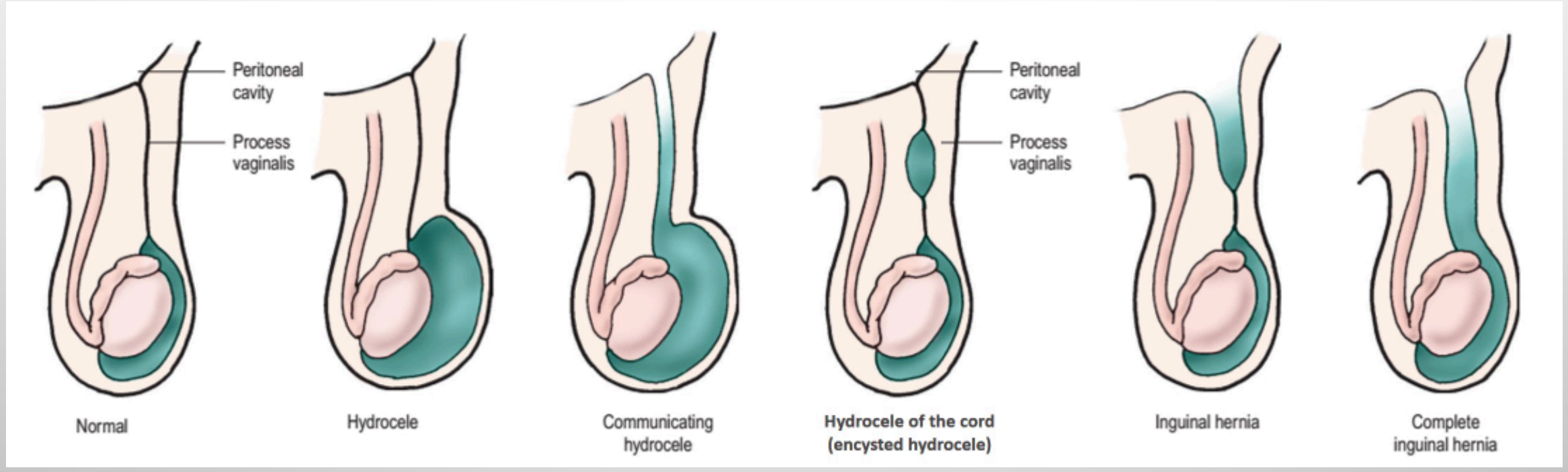
- ANATOMY
- CONTENTS OF INGUINAL CANAL IN ♂ : ILIOINGUINAL NERVE + SPERMATIC CORD
  EMA ♀ : ILIOINGUINAL NERVE + ROUND LIGAMENT
- SPERMATIC CORD STRUCTURES:
  - CREMASTERIC MUSCLE
  - TESTICULAR ARTERY
  - PAMPINIFORM PLEXUS
  - LYMPHATIC CHANNELS
  - VAS
  - GENITAL BRANCH OF GENITOFEMORAL NERVE
  - PROCESSUS VAGINALIS

PATHOGENESIS

- Failed obliteration of patent process vaginalis

- What is Process vaginalis (PV)

- In the inguinal canal, PV gradually obliterates after birth
- In scrotum , PV forms the tunica vaginalis around the testis


Peritoneal cavity
Process vaginalis
Normal
Hydrocele
Communicating hydrocele
Peritoneal cavity
Process vaginalis
Hydrocele of the cord (encysted hydrocele)
Inguinal hernia
Complete inguinal hernia

- SLIDING HERNIAS:
  - MAY CONTAIN: FALLOPIAN TUBE, OVARY, SIDE-WALL OF THE URINARY BLADDER
- APPENDIX IF HERNIATED : AMYAND'S HERNIA
- MECKEL DIVERTICULUM IF HERNIATED : LITTRE'S HERNIA
- RICHTER HERNIA : ISCHEMIC ANTIMESENTERIC BOWEL BORDER IN THE HERNIA
- PANTALOON 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

HYDROCELE

- ACCUMULATION OF PERITONEAL FLUID A NON OBLITERATED PROCESS VAGINALIS

- 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

SURGERY

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

HERNIA

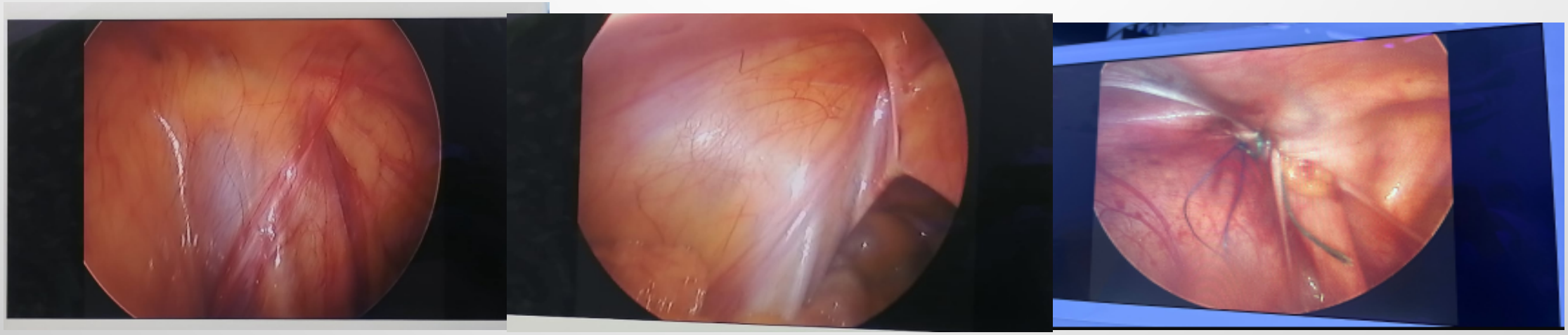
- OPEN VS LAPAROSCOPIC PPV LIGATION

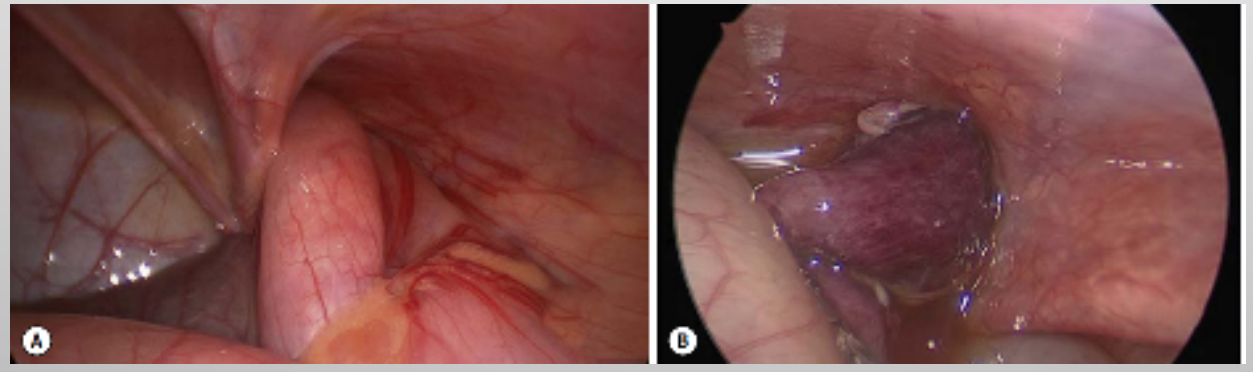
- OPEN EXPLORATION OF THE CLINICALLY-FREE CONTRALATERAL SIDE IS JUSTIFIED IN:
  - PREMATURITY
  - YOUNGER AGE
  - FEMALE GENDER
  - LEFT-SIDED UNILATERAL HERNIA

- MESH IS ALMOST NEVER USED IN CHILDREN
  - EXCEPT IN: RECURRENT HERNIAS IN CHILDREN WITH CONNECTIVE TISSUE DISORDERS OR MUCOPOLYSACCHARIDOSES

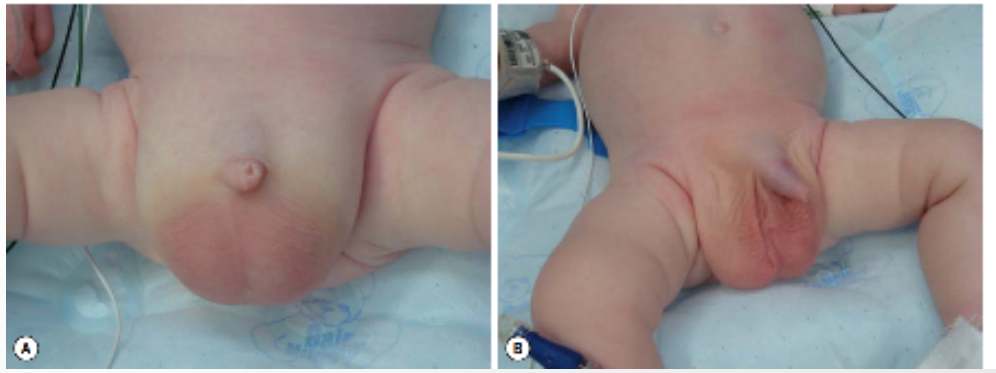
LAPAROSCOPIC VS OPEN

- NO DIFFERENCE IN RECURRENCE (< 0.5%)
- DETECT METACHRONOUS HERNIA
- SHORTER 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 / STRANGULATION
  - 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)

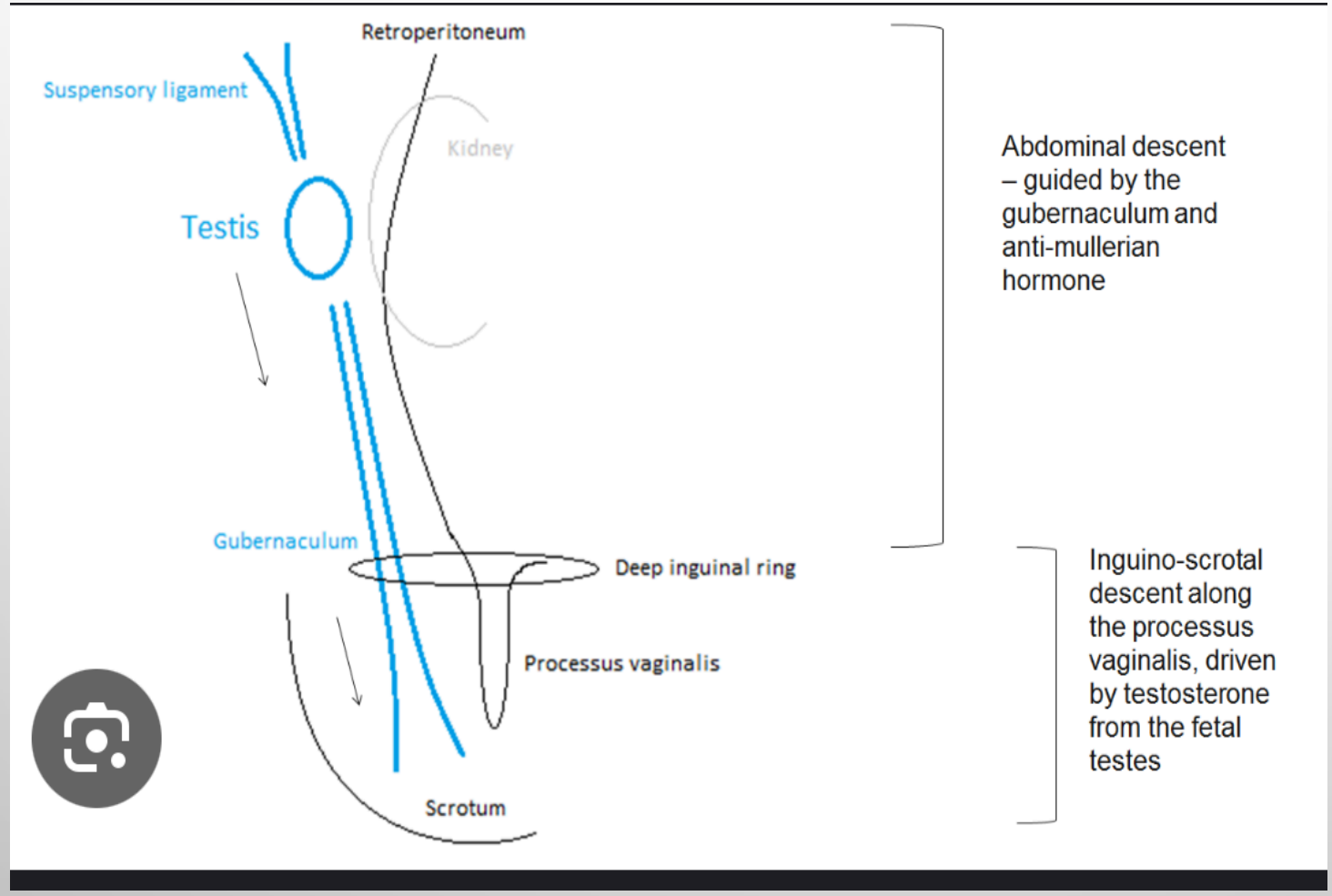
INCIDENCE OF UDT

- 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%.

ASSOCIATIONS

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

EMBRYOLOGY

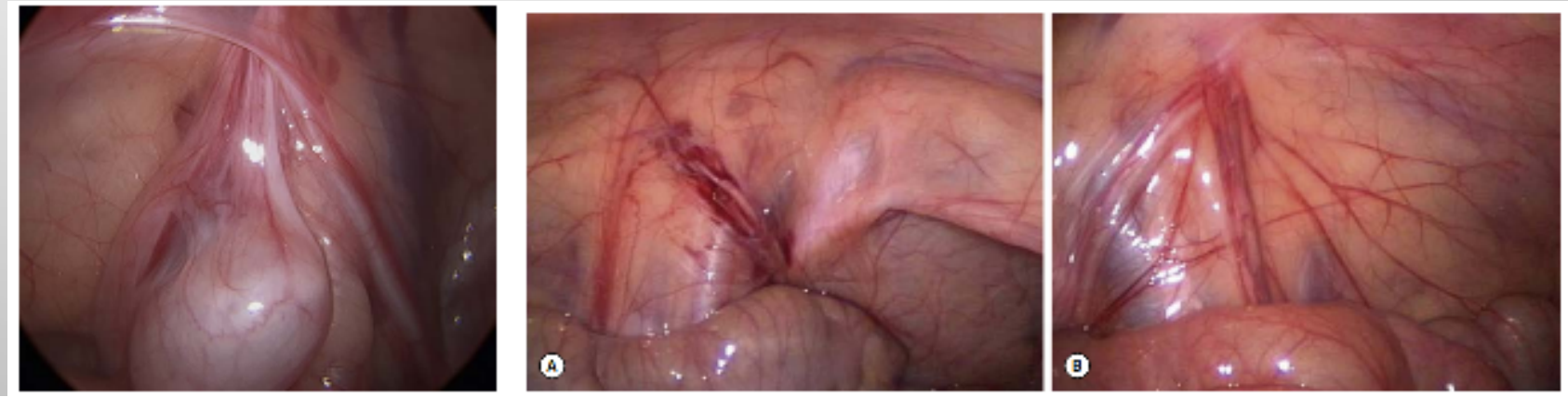


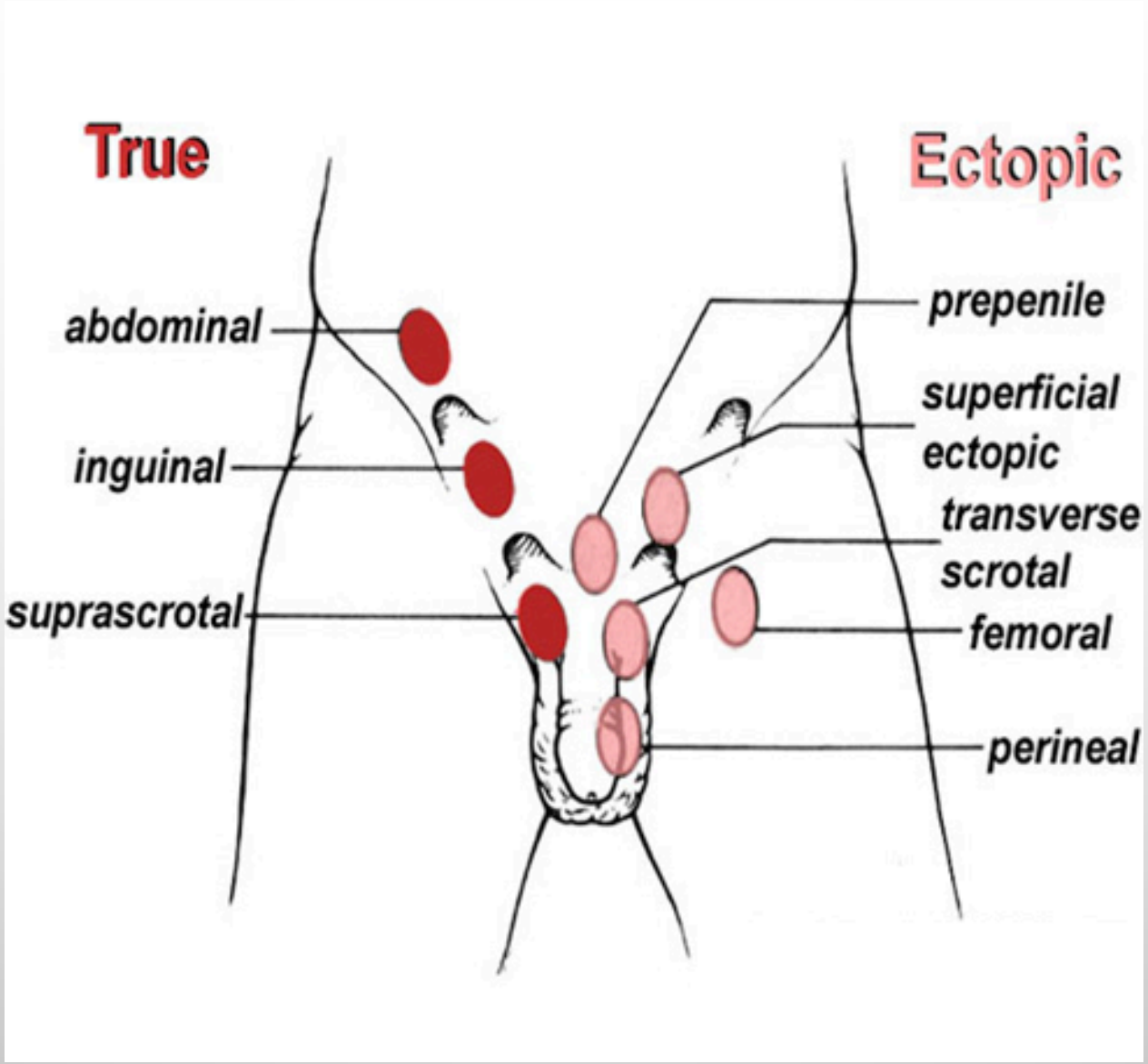
ILH-3
MIF
CGRP
Androgen

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
abdominal
inguinal
suprascrotal
prepenile
superficial ectopic
transverse scrotal
femoral
perineal

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

HORMONES (LH-RH AGONIST)

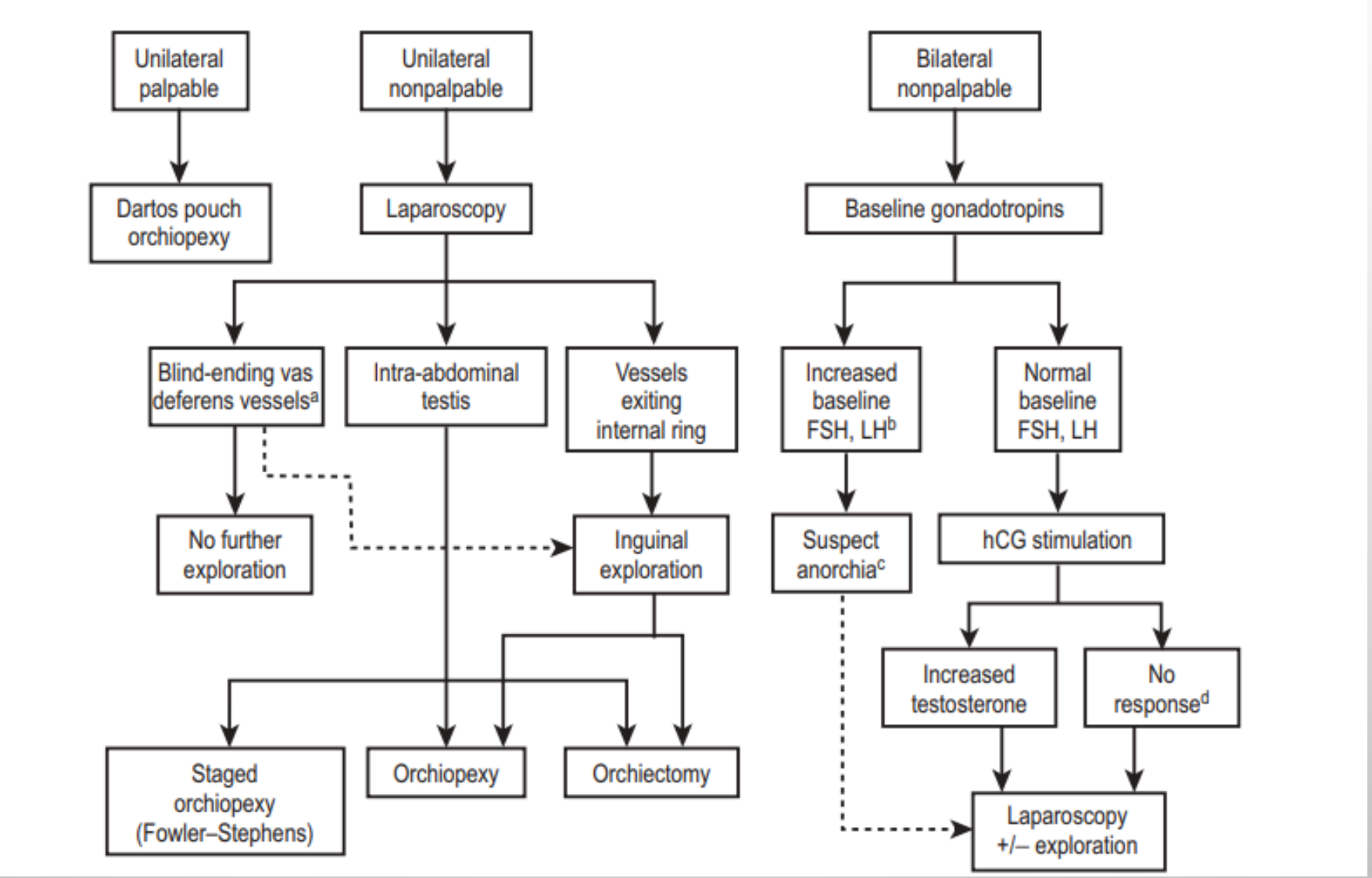
CONTROVERSIAL

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

MANAGEMENT


Unilateral palpable
Unilateral nonpalpable
Bilateral nonpalpable
Dartos pouch orchiopexy
Laparoscopy
Baseline gonadotropins
Blind-ending vas deferens vessels[a]
Intra-abdominal testis
Vessels exiting internal ring
Increased baseline FSH, LH[b]
Normal baseline FSH, LH
No further exploration
Inguinal exploration
Suspect anorchia[c]
hCG stimulation
Increased testosterone
No response[d]
Staged orchiopexy (Fowler–Stephens)
Orchiopexy
Orchiectomy
Laparoscopy +/– exploration