Pediatric urinary disorders

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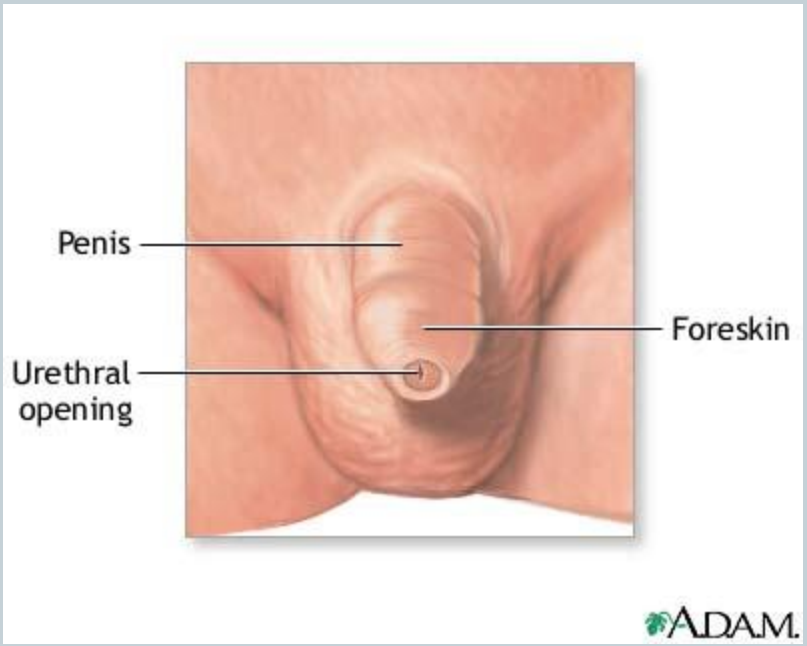
Congenital anomalies of the urogenital system

- Most common of all organ system.
- 10% of population has some type of urogenital anomaly.
- 14:1000 birth has antenatal diagnosis of urogenital anomaly.
- Antenatal ultrasound after 28 weeks gestation.

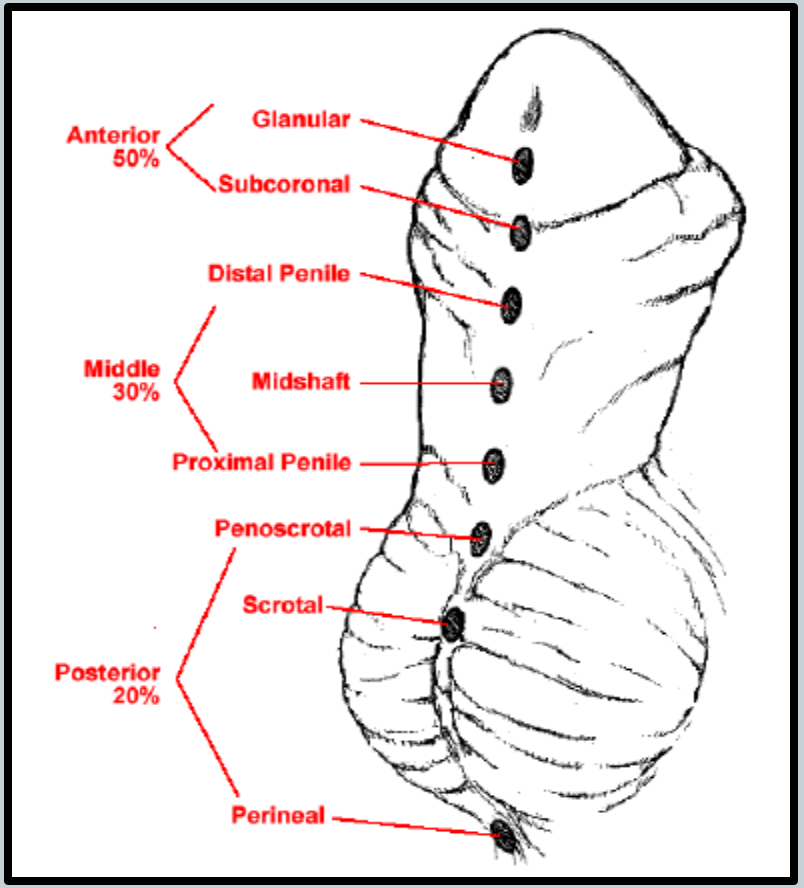
Congenital anomalies of the urogenital system…

- Antenatal Hydronephrosis
- Anomaly of position, number and rotation
- Cystic abnormalities
- Prune Belly Syndrome
- Hypospadias
- Epispadias
- Bladder e Exstrophy

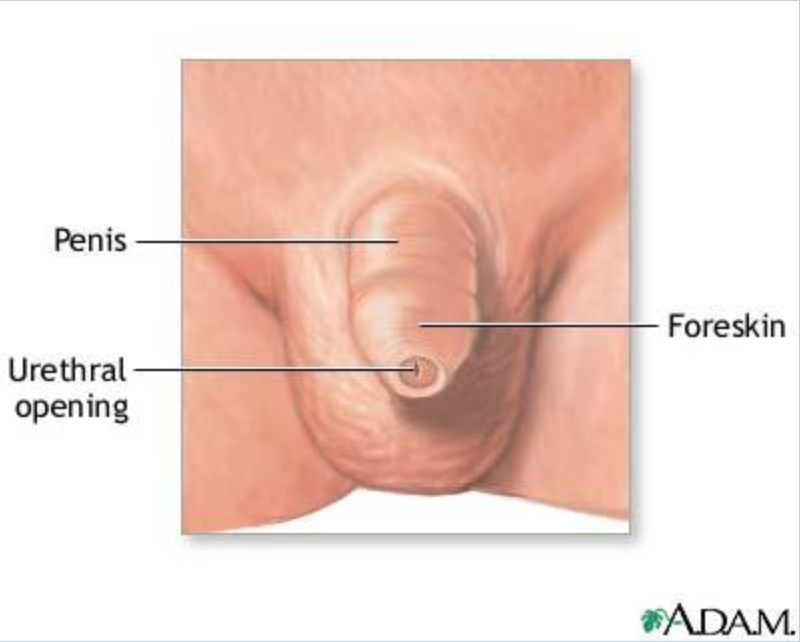

Penis
Foreskin
Urethral opening
A.D.A.M.

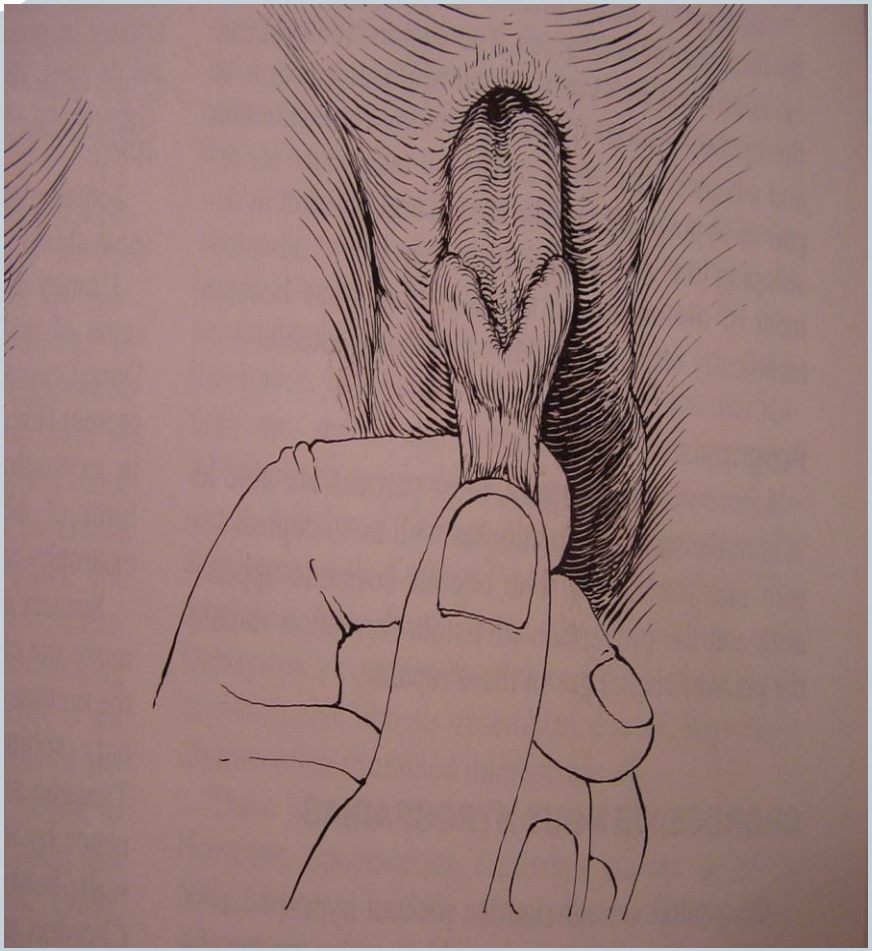
Hypospadias

- Abnormal position of the EUM
- Distal hypospadias
- Proximal hypospadias
- NO Circumcision
- 6 to 9 months repair

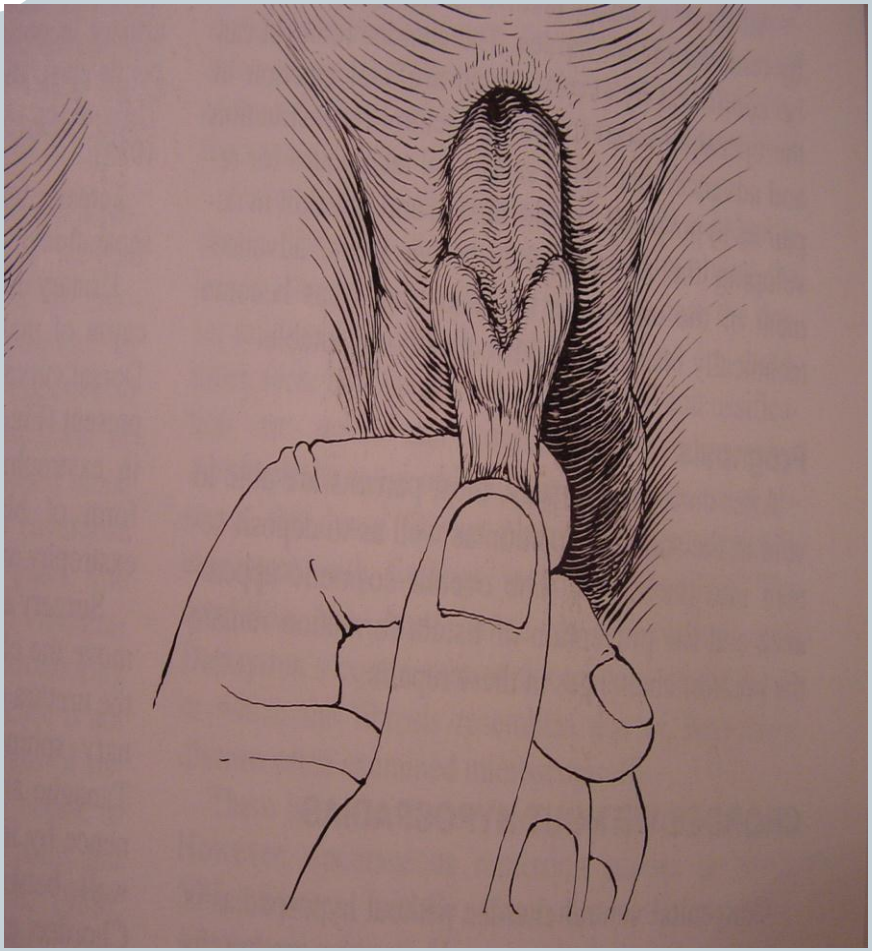


Hypospadias

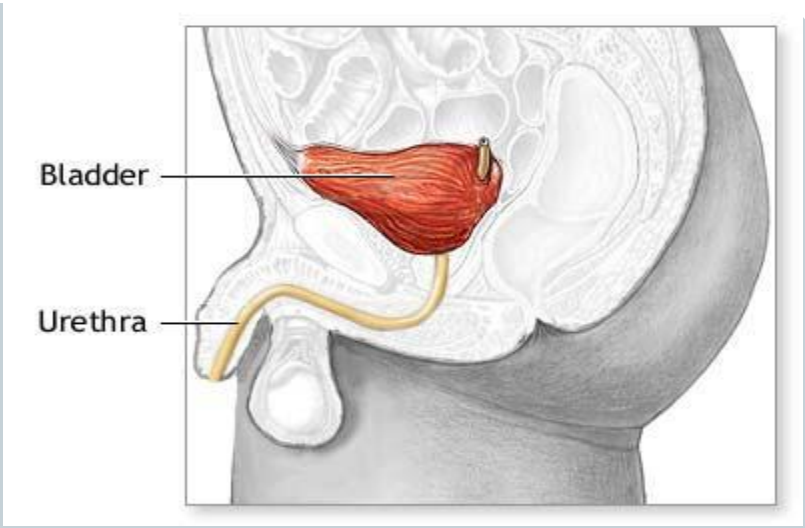


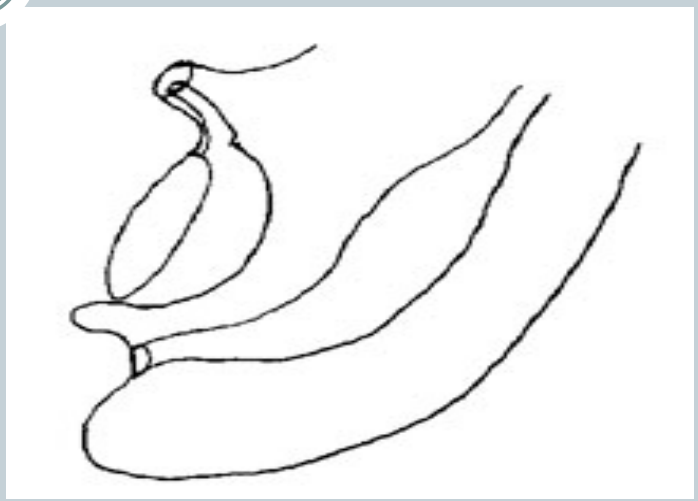


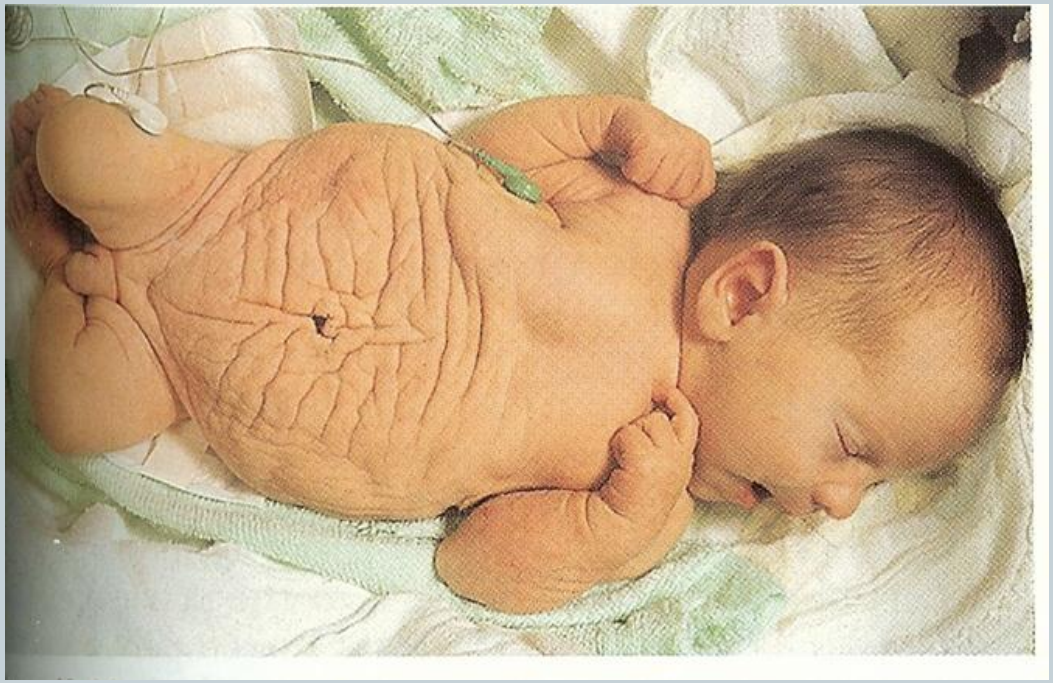
Epispadias



Bladder Exstrophy

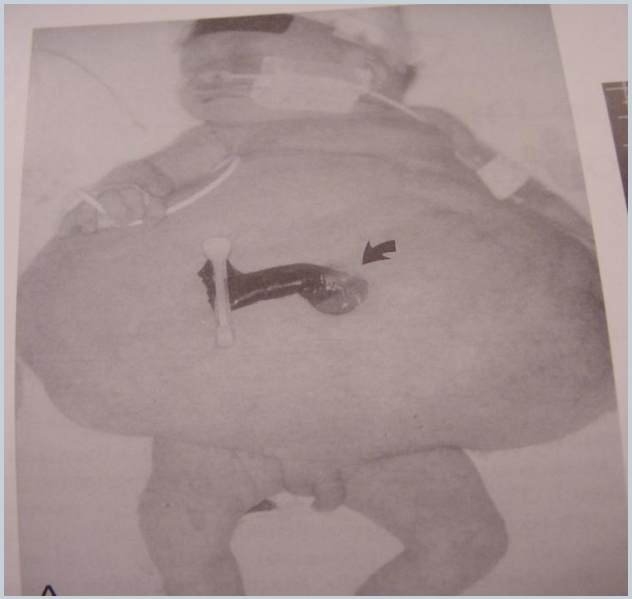




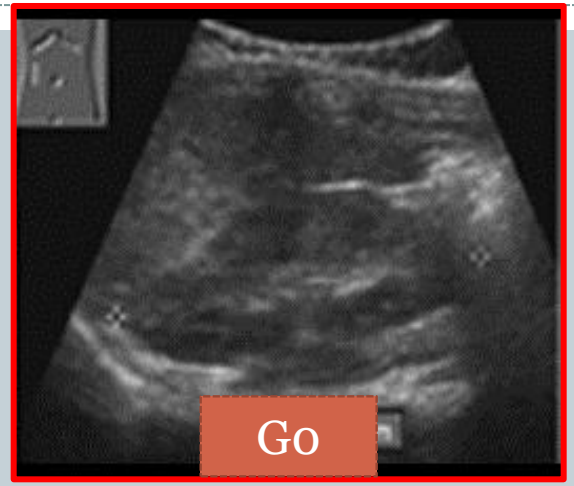


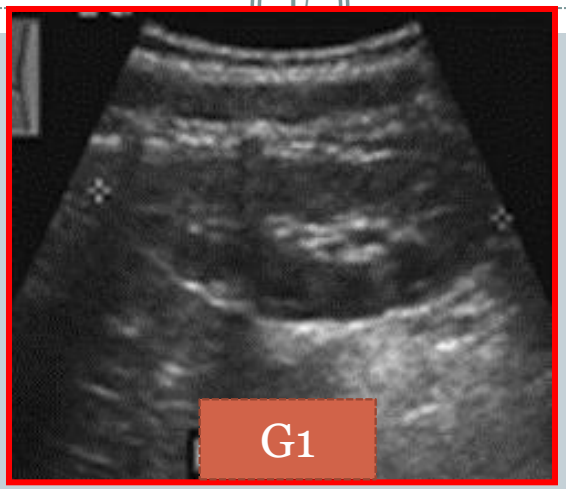
Prune Belly Syndrome

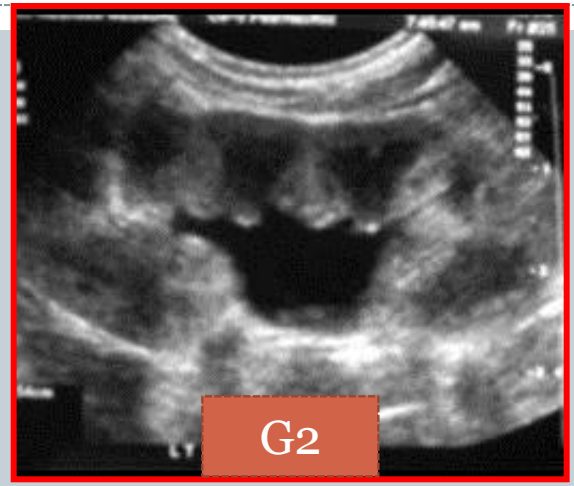
- Triad syndrome
- Absent abdominal wall muscle, Bilateral undescended testis

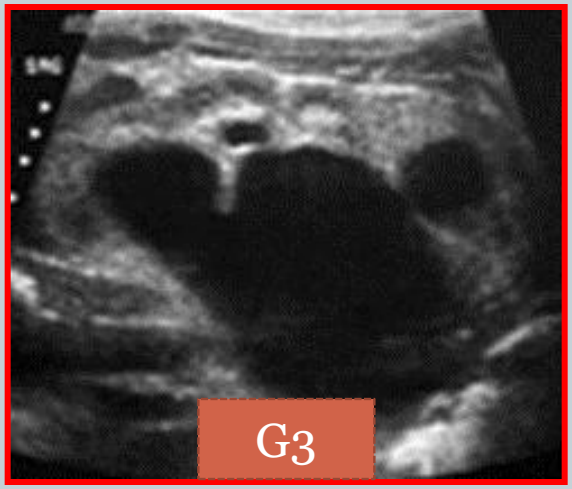


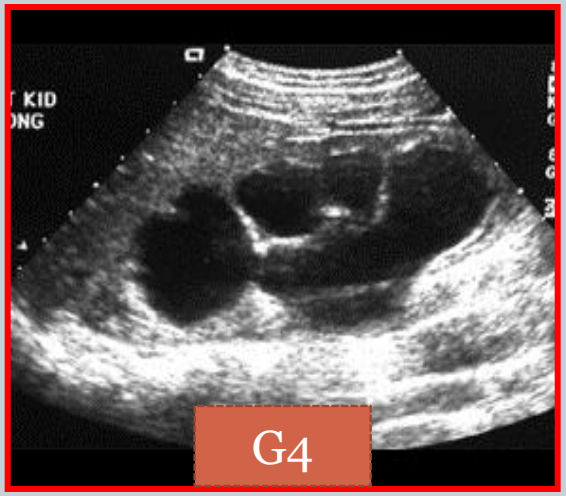
SFU Grading









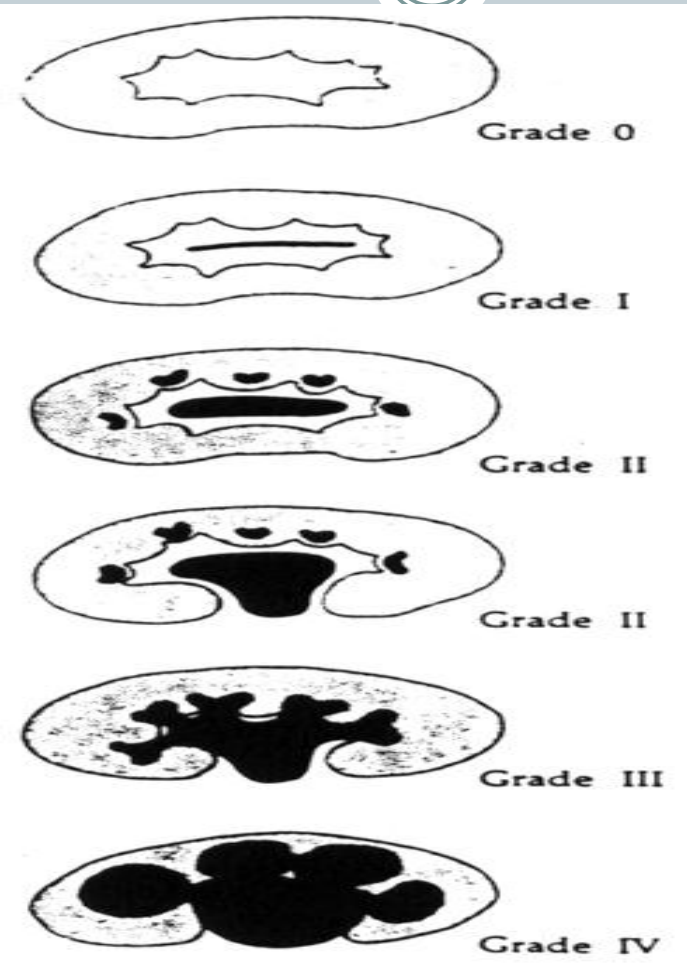


Antenatal Hydronephrosis(ANH)

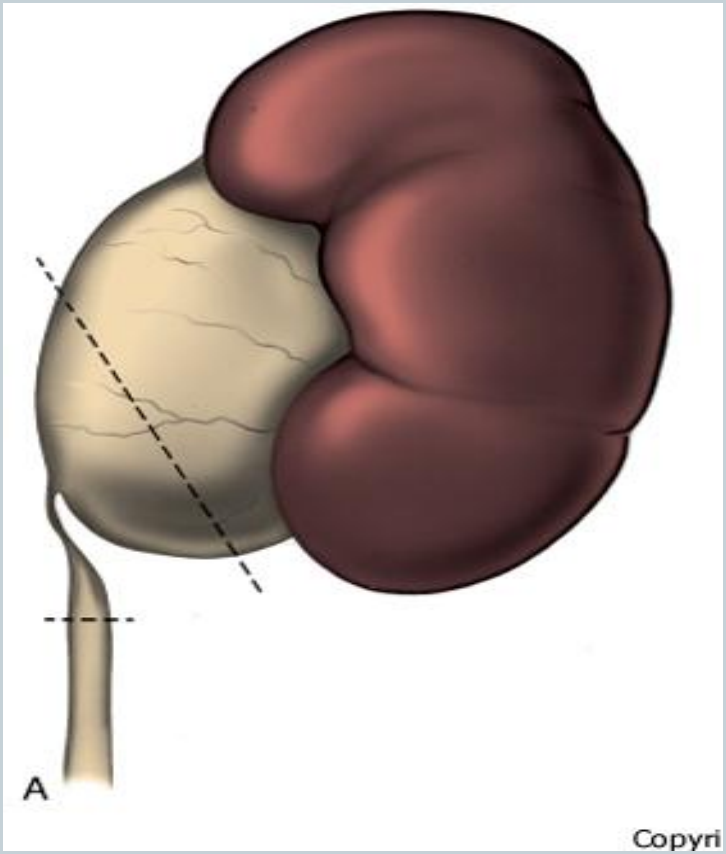
Causes:

- Pelviureteric junction obstruction (41%)
- Ureterovesical junction obstruction (23%)
- Vesicoureteric reflux(7%)
- Duplication anomalies (13%)
- Posterior urethral valves (10 %)
- MCDK
- Others (6%)

ANH



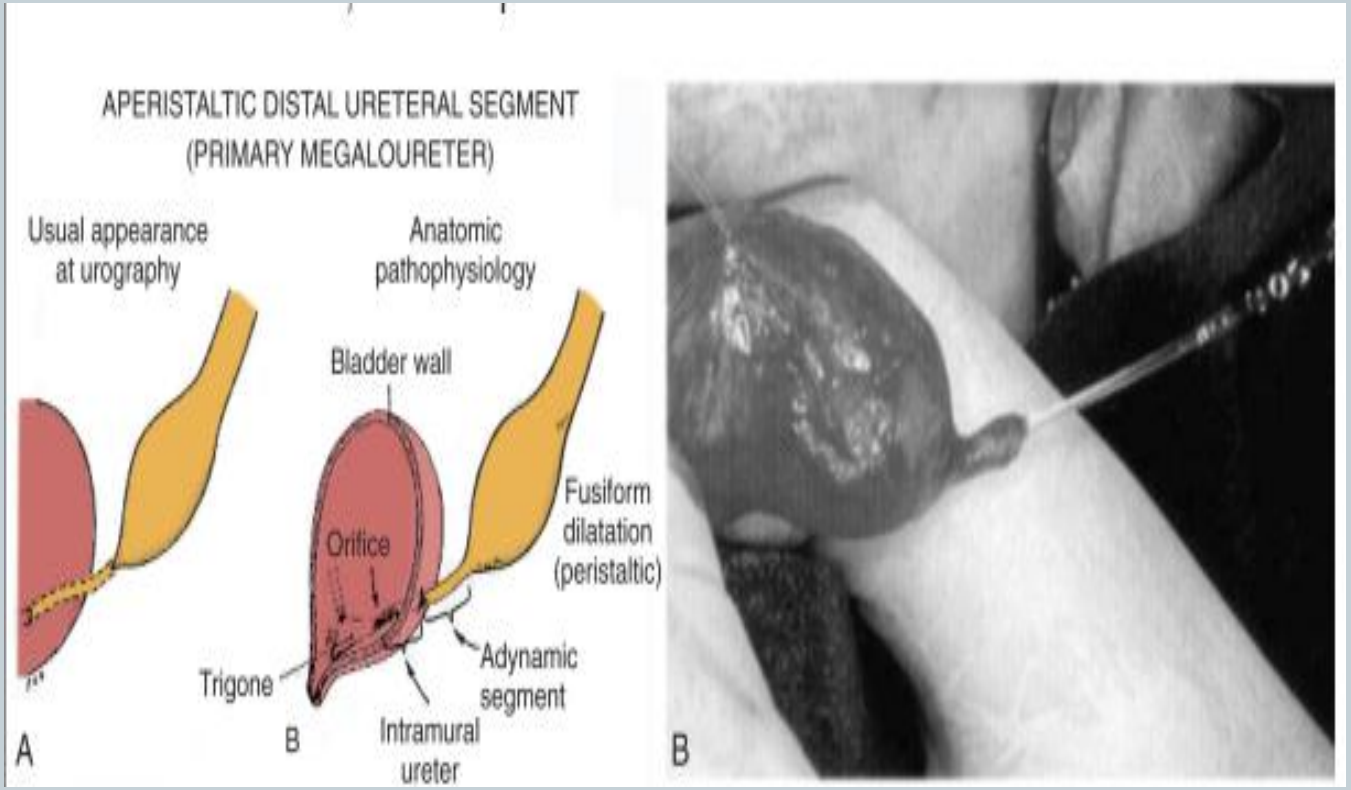
Pelviureteric junction obstruction(PUJO)



Presentation:

- Incidental in Neonates
- Incidental in Children
- Symptomatic:
  - UTI
  - Pain
  - Mass
  - Hematuria
  - Stone

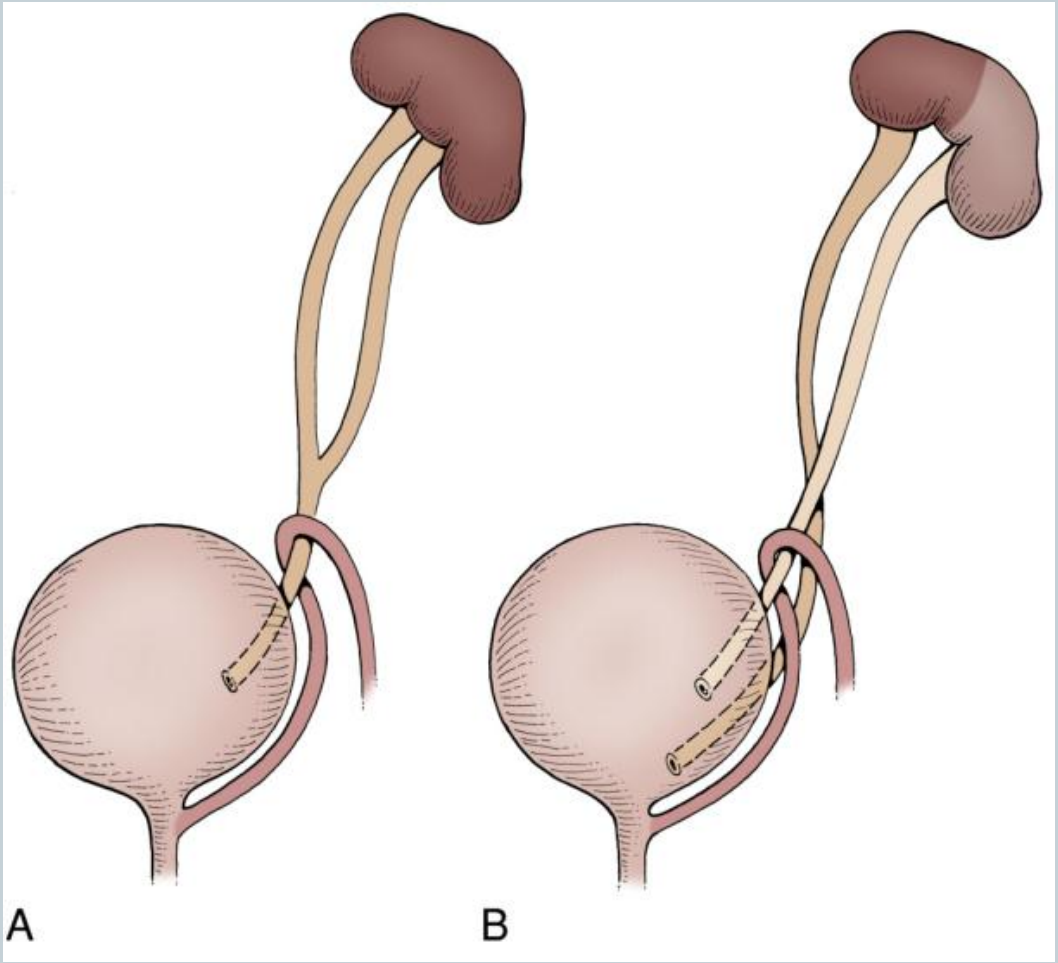
Megaureter

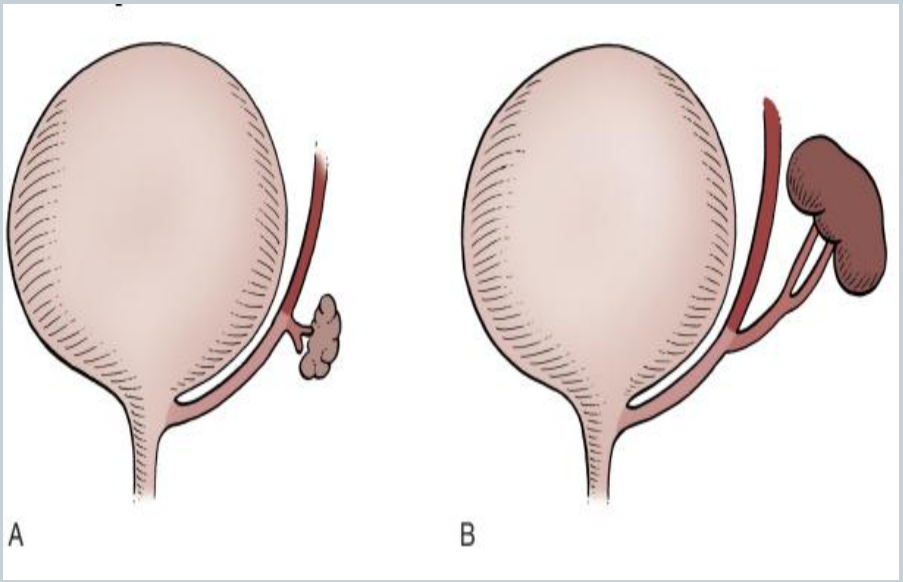

APERISTALTIC DISTAL URETERAL SEGMENT
(PRIMARY MEGALOURETER)
Usual appearance at urography
Anatomic pathophysiology
Bladder wall
Orifice
Fusiform dilatation (peristaltic)
Trigone
Adynamic segment
Intramural ureter
A
B
B

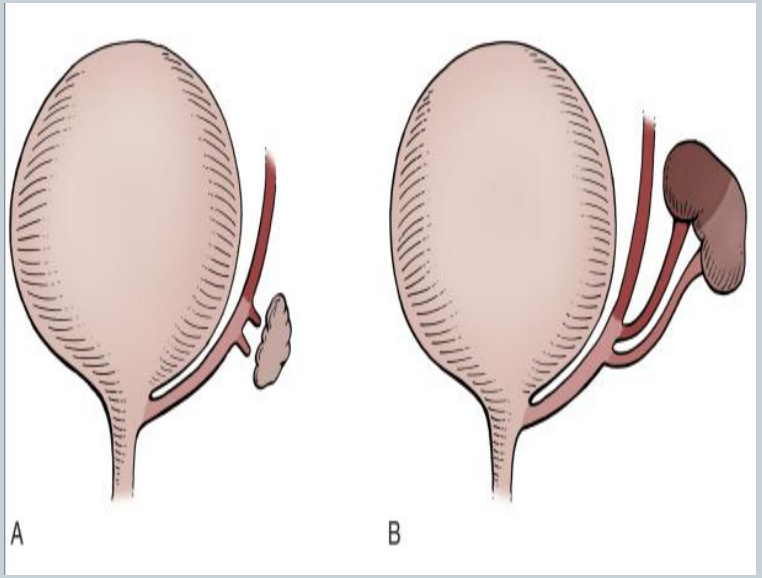
Duplication Anomalies

Renal and ureteric duplication

- 1%, 1.6:1 F:M, 85% unilateral.
- Either two urethral buds meeting the meta-nephros or one ureteric bud that bifurcates.
- Associated with: reflux 43%, renal dilatation 29%, ectopic insertion 3%, infections and ureterocele.
- Duplication per se is of no clinical significance, but the associated anomalies may require intervention


A
B


A
B


A
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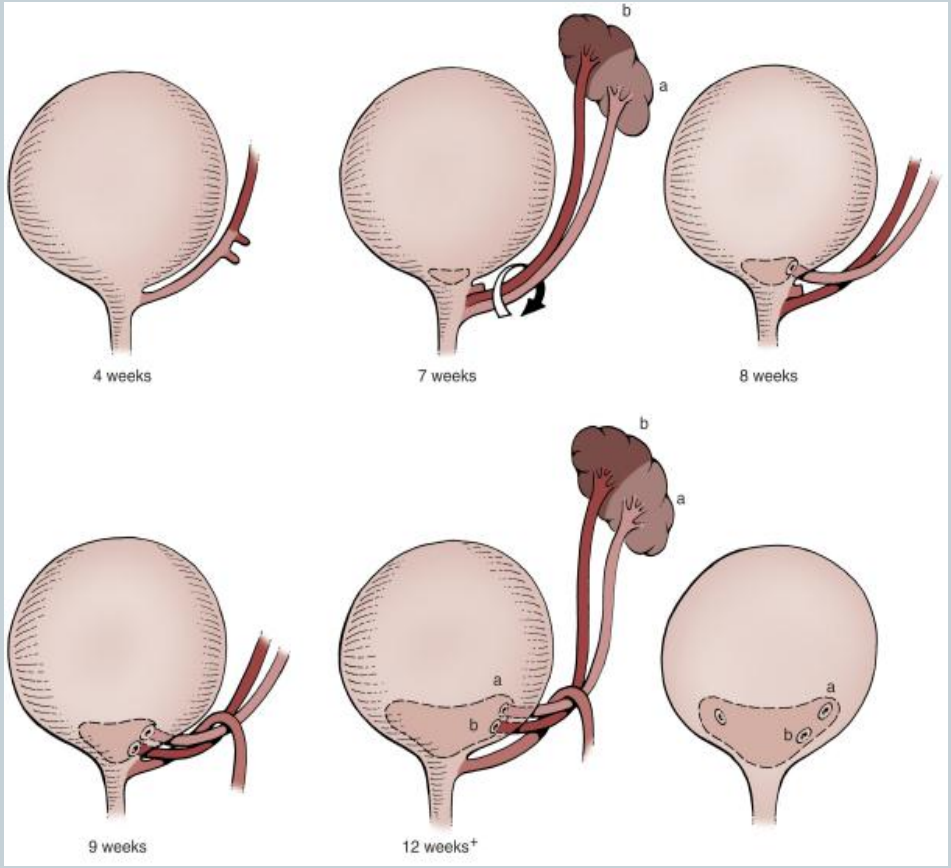


Weiger - Meyer Law

Ureterocele

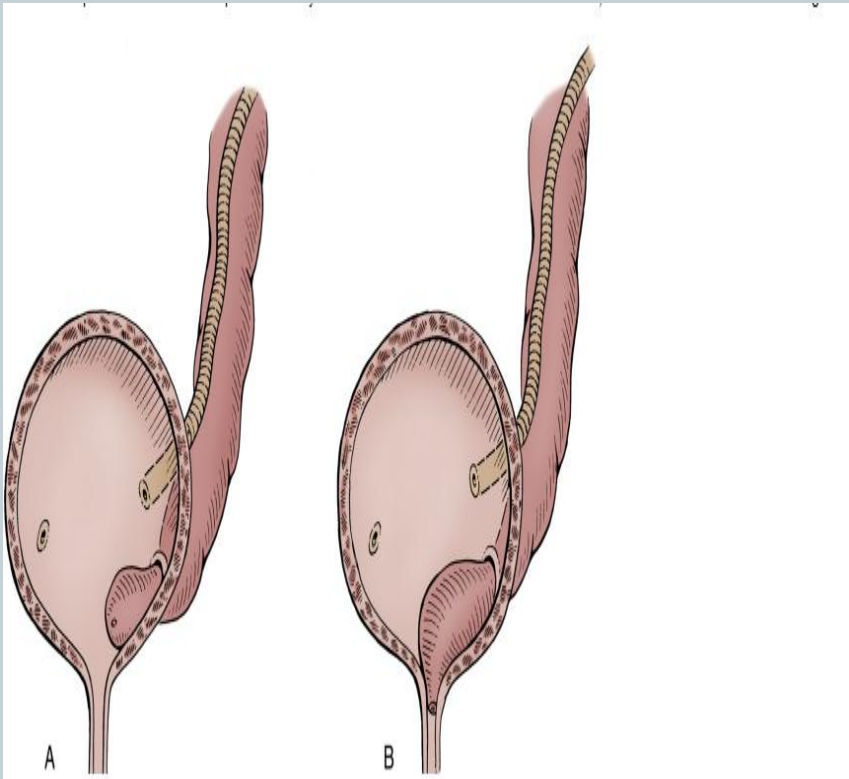
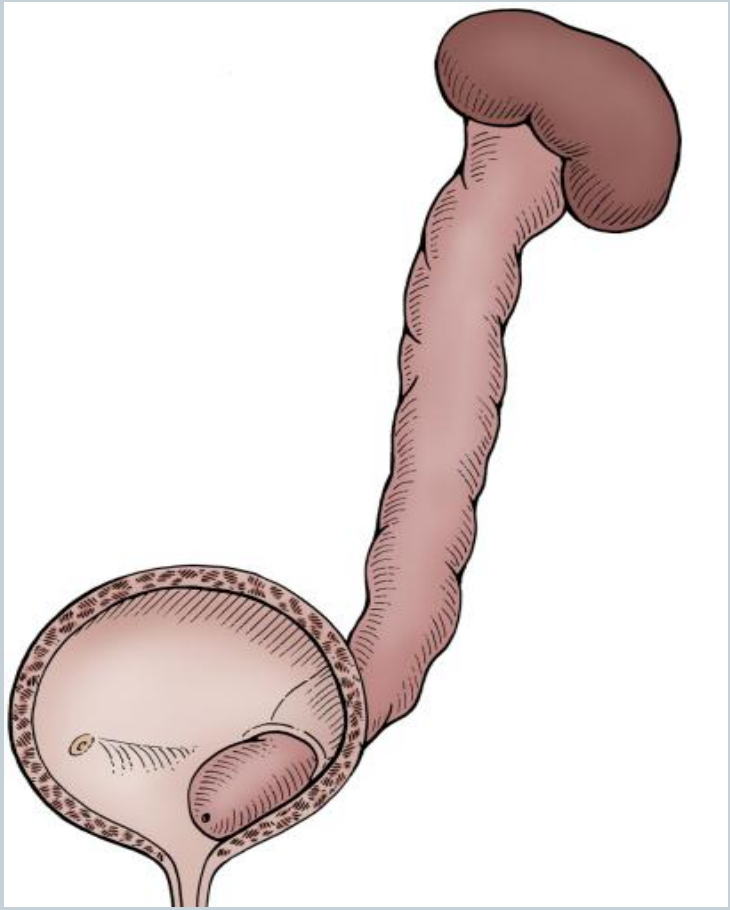


Figure 116-5 A, An intravesical ureterocele located entirely within the bladder. B, The distal portion of an ectopic ureterocele extends outside the bladder and into the urethra.



Ureterocele

- Sacculation of the terminal portion of the ureter.
- Orthotopic = intravesical=simple=adult type ureterocele.
- Ectopic = extravesical=duplex system= infant type ureterocele.
- In ectopic ureterocele it involve the upper pole system.
- 7:1 F:M, 10% bilateral, ectopic: orthotopic 4:1
- Commonest cause of urine retention in female infants.

Ureterocele

- Presentation:
  - Antenatal (U/S)
  - Urine retention
  - Infection
  - Calculus formation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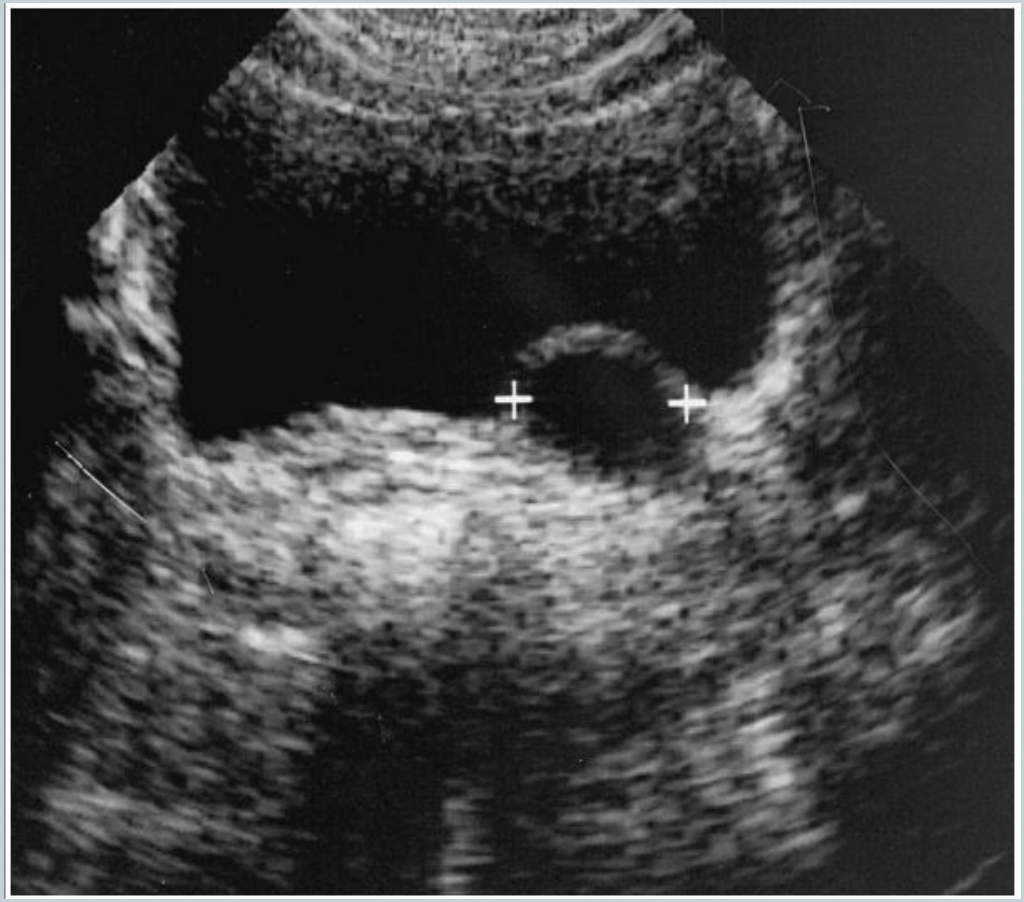
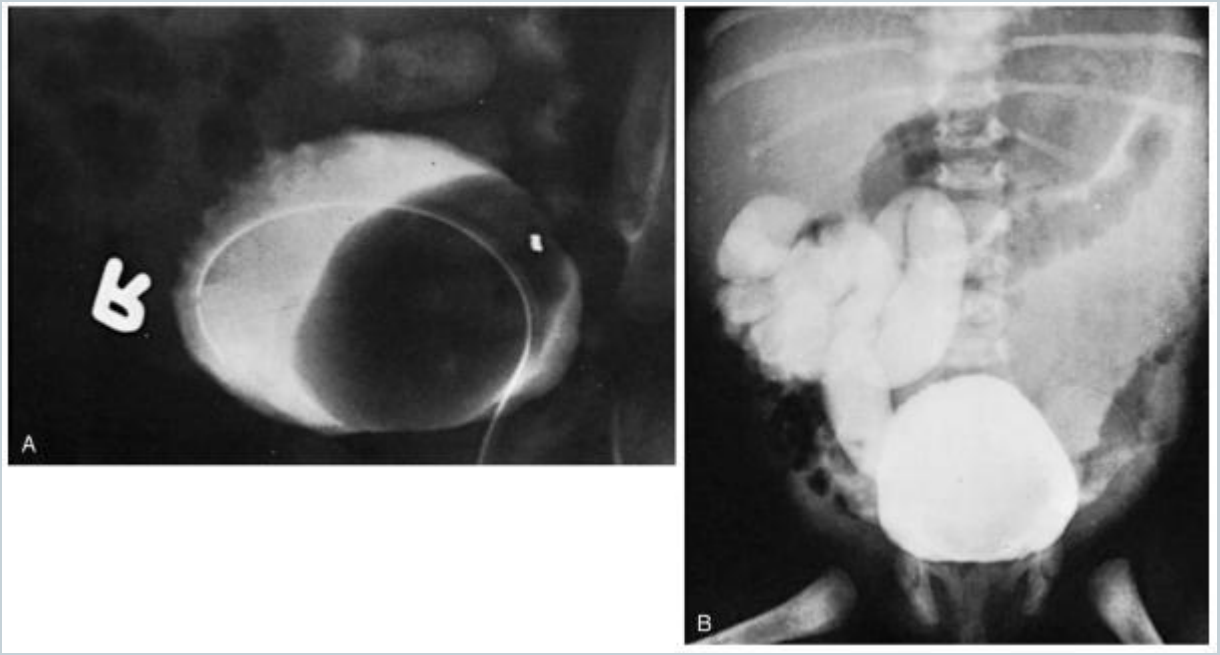
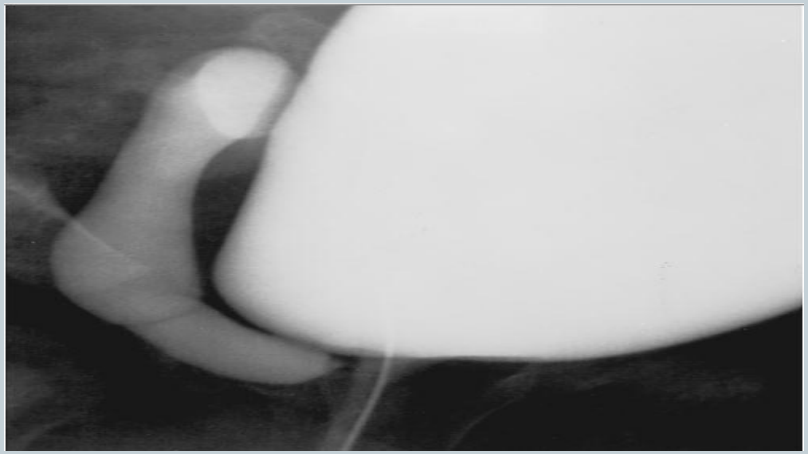



A
B

Ectopic ureter

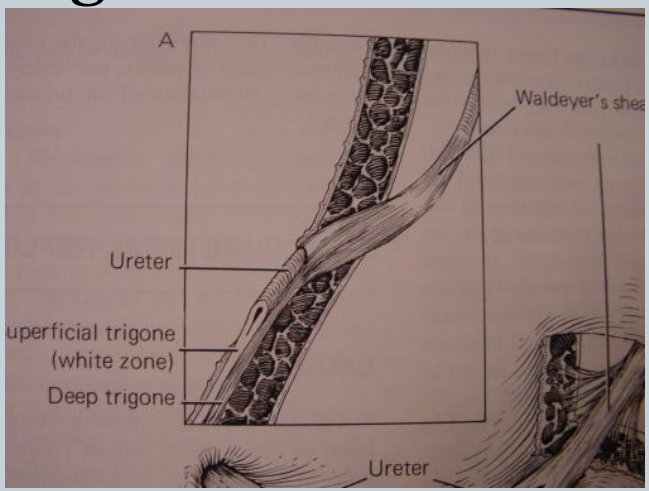
- Most commonly associated with duplex system and with ureterocele.
- Clinical picture depend on: associated anomalies, site and sex of the patient.

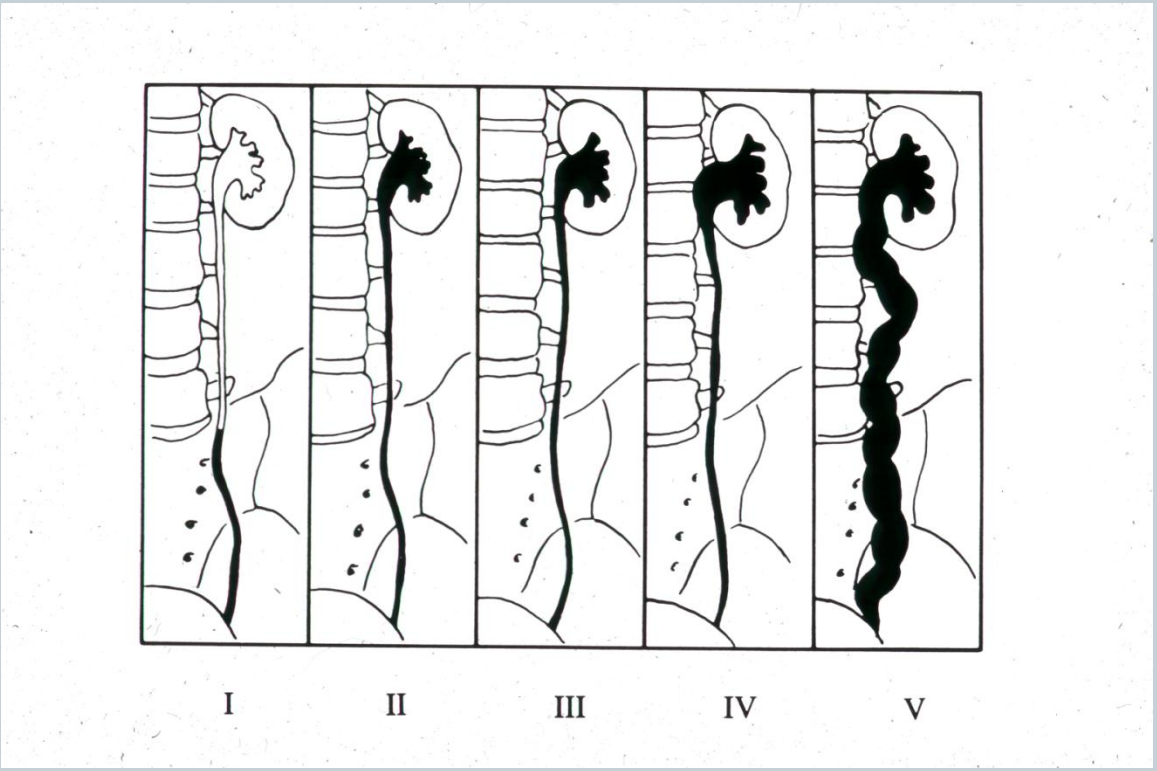


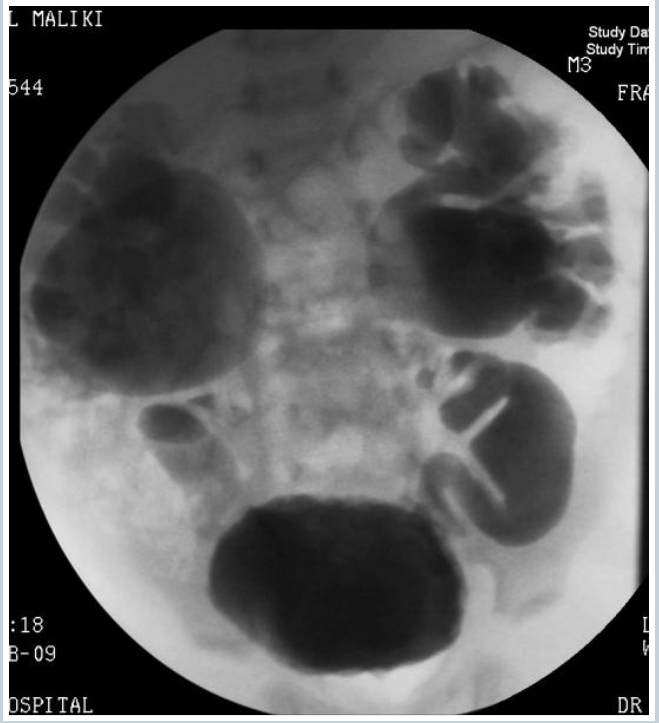
Vesicoureteric Reflux

Normal anti-reflux mechanism “Flap valve”

1. Oblique course as it enters the bladder.
2. Proper muscular attachments to provide fixation.
3. Posterior support to enable its occlusion.
4. Adequate submucosal length.

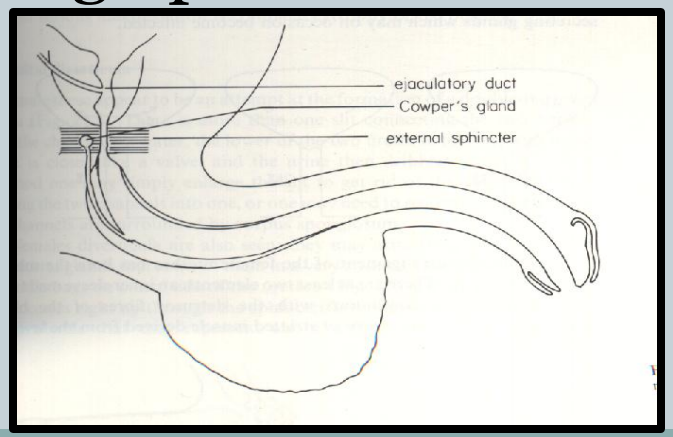



I
II
III
IV
V


L MALIKI
544
M3
FRA
:18
B-09
OSPITAL
DR

Posterior urethral valves

- 1:5000 male infants.
- most common cause of urine retention in male infants.
- 50% have renal impairment.
- The bladder and the kidneys developed under high pressure and resistance.



Posterior urethral valves

Associated findings

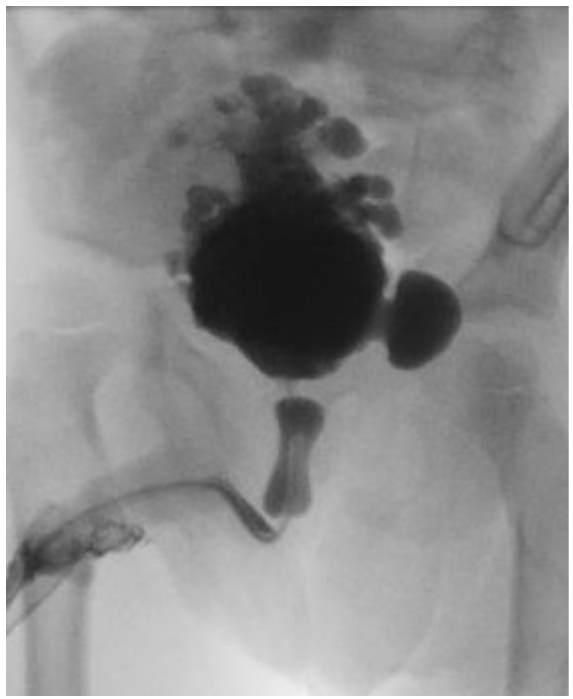
1. Oligohydramnios
2. Bilateral renal dilatation
3. VUR: 40%
4. Valve bladder
5. Renal impairment

Posterior urethral valves

Presentation

1. Antenatal
2. Urine retention
3. UTI
4. Poor urinary stream
5. CRF

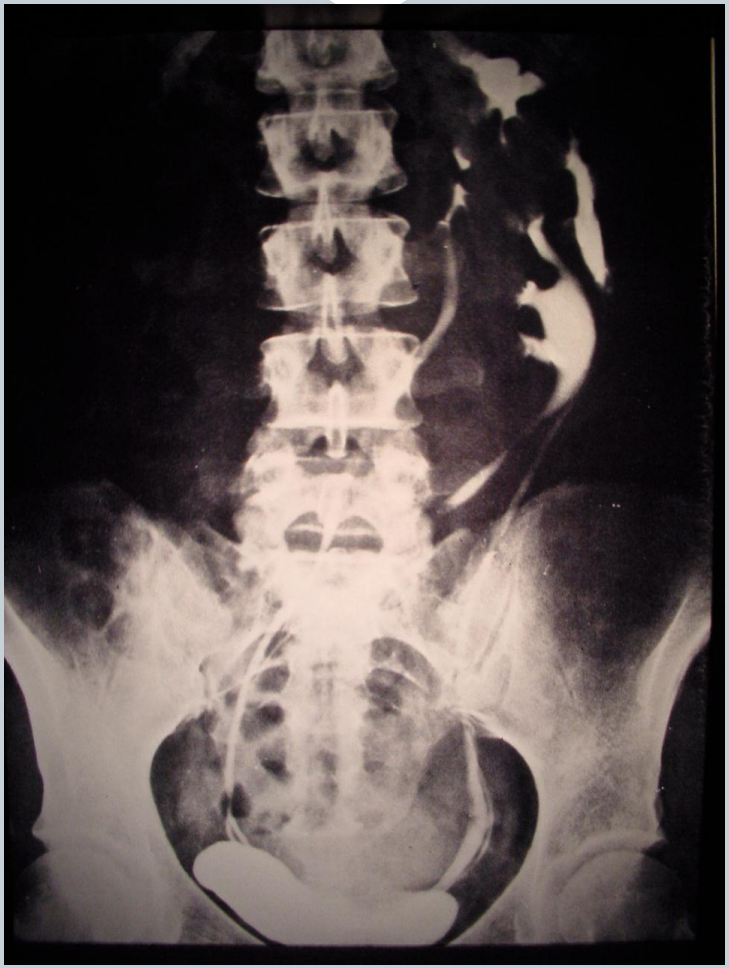
th ed Wein: Campbell-Walsh Urology,

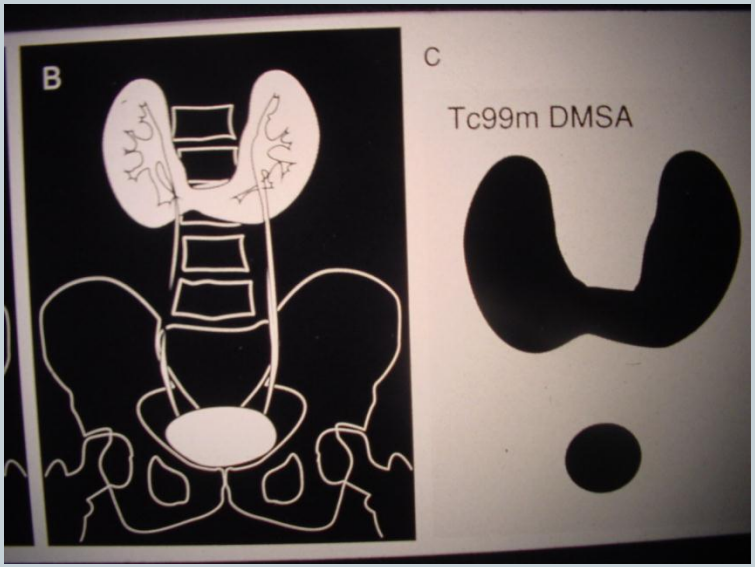


Kidney

Anomaly of position, number and rotation“

1. Simple ectopia:
   - A kidney that is outside the renal fossa.
   - Pelvic (commonest), lumbar, sacral.
2. Thoracic kidney.
3. Horseshoe kidney
4. Unilateral renal agenesis.
5. Bilateral renal agenesis.
6. Crossed renal ectopia with no fusion.
7. Crossed renal ectopia withfusion.
8. Malrotated kidney.




B
C
Tc99m DMSA

Kidney

Cystic abnormalities

1. Renal dysplasia
   A) congenital unilateral multicystic kidney.
   B) Segmental and focal renal dysplasia.
   C) Renal dysplasia associated with congenital lower tract obstruction.

2. Congenital polycystic kidney disease:
   A) Infantile type
   B) Adult type

3. Simple cyst
4. Calyceal cyst
5.Peripelvic cyst
6. Perinephric cyst