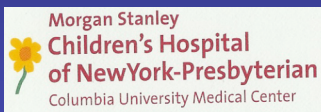


MALFUNCTIONS OF THE GENITOURINARY SYSTEM

Richard Schlüssel, M.D.
Assistant Professor
Pediatric Urology

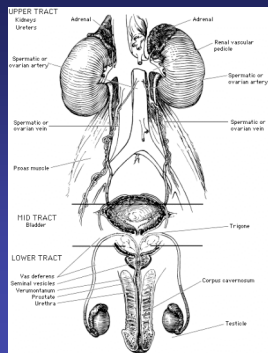


MALFUNCTIONS OF THE GENITOURINARY SYSTEM

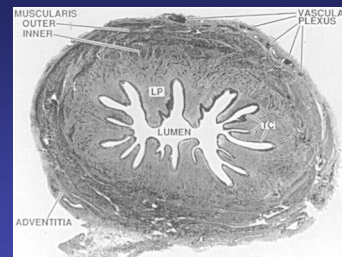
- Ureteropelvic junction obstruction
- Megaureter
- Reflux
- Ectopic ureter
- Undescended testis
- Hypospadias
- Intersex

Uretero Pelvic Junction (UPJ) obstruction

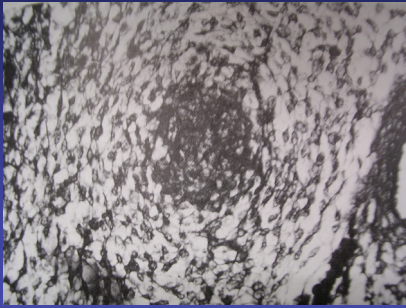
- Normal
 - Lumen develops
 - Muscular peristalsis
- Abnormal
 - Lumen occluded
 - No peristalsis



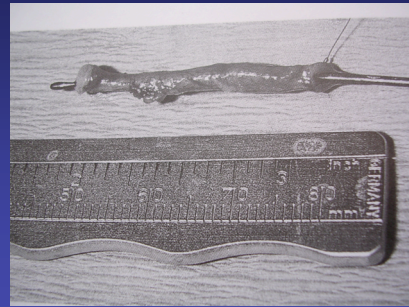
Uretero Pelvic Junction (UPJ) obstruction



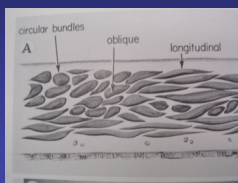
Uretero Pelvic Junction (UPJ) obstruction



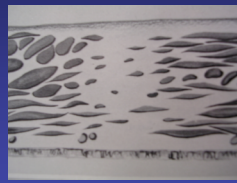
Uretero Pelvic Junction (UPJ) obstruction



Uretero Pelvic Junction (UPJ) obstruction



NORMAL

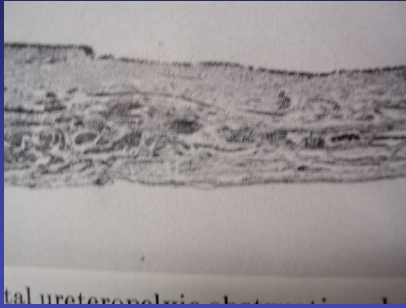


FUNCTIONAL OBSTRUCTION

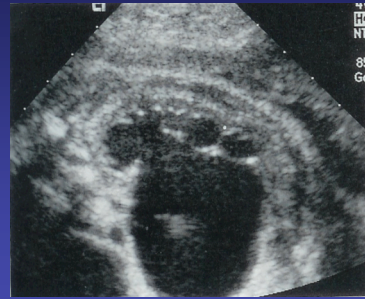
Uretero Pelvic Junction (UPJ) obstruction



Uretero Pelvic Junction (UPJ) obstruction



Uretero Pelvic Junction (UPJ) obstruction



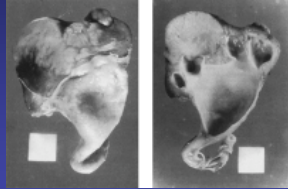
Uretero Pelvic Junction (UPJ) obstruction



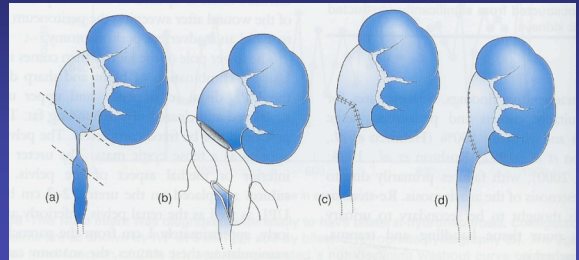
Uretero Pelvic Junction (UPJ) obstruction

- Consequences
 - Abdominal pain
 - Infection
 - Decreased renal function

Uretero Pelvic Junction (UPJ) obstruction



Uretero Pelvic Junction (UPJ) obstruction

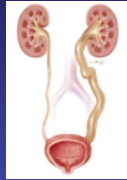


I Robot !!

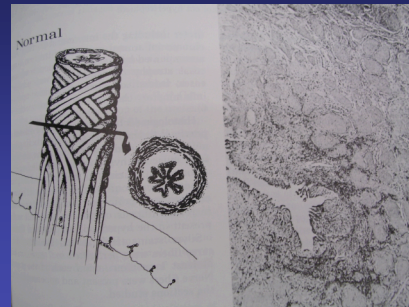


Megaureter

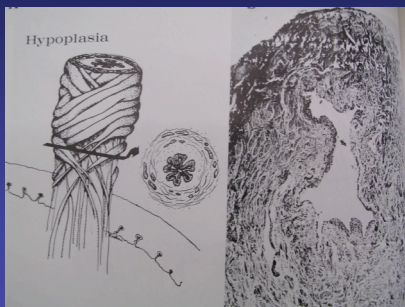
- Normal
 - Patent lumen
 - Muscular peristalsis
- Abnormal
 - Obstructing membranes
 - Lack of musculature, aperistaltic



Megaureter



Megaureter



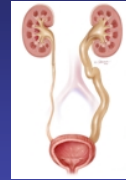
Megaureter



Megaureter

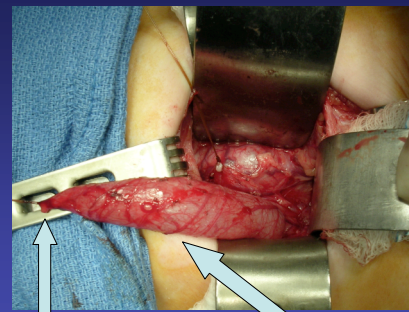


Megaureter



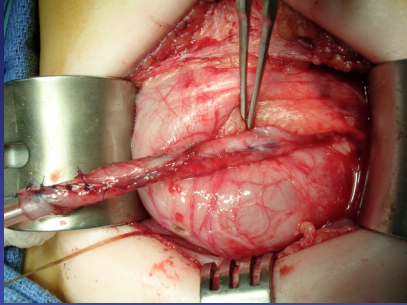
Megaureter

- Consequences
 - Abdominal pain
 - Infection
 - Decreased renal function



DISTAL OBSTRUCTING URETER

DILATED URETER

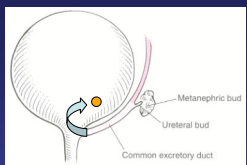


- DISTAL URETER EXCISED
- URETER TAPERED

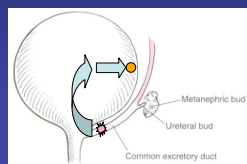
Reflux

- Normal
 - Ureter compressed between mucosa and muscle
- Abnormal
 - No tunnel, no compression

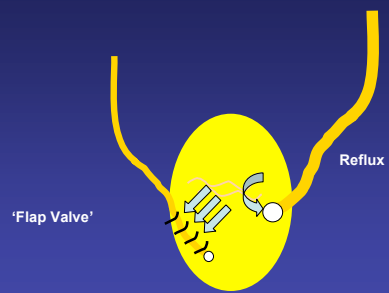
● = FINAL URETERAL ORIFICE POSITION

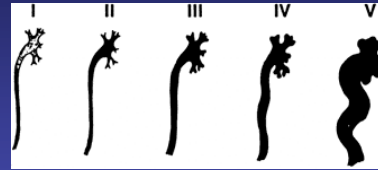
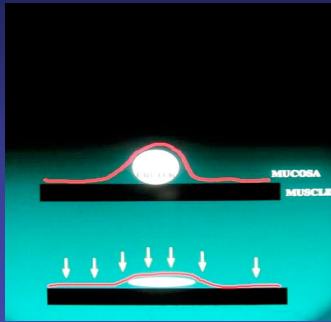


Normal



Reflux

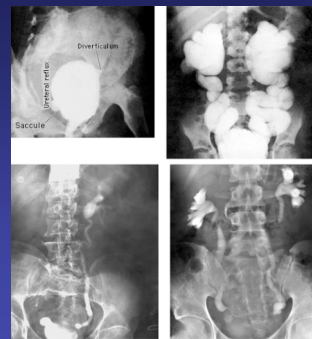




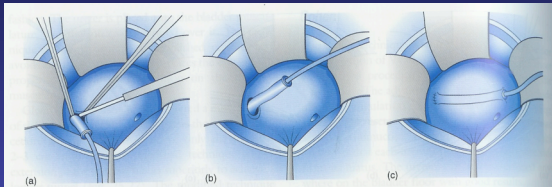
Grades of Reflux

Reflux

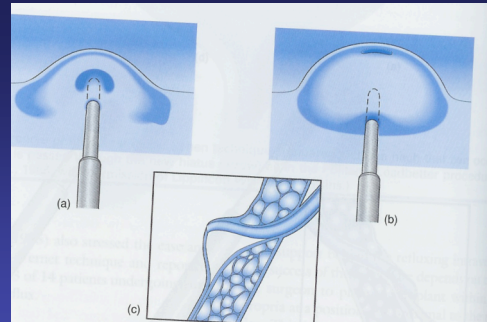
- Consequences
 - Infection
 - Decreased renal function
 - Voiding dysfunction



Reflux

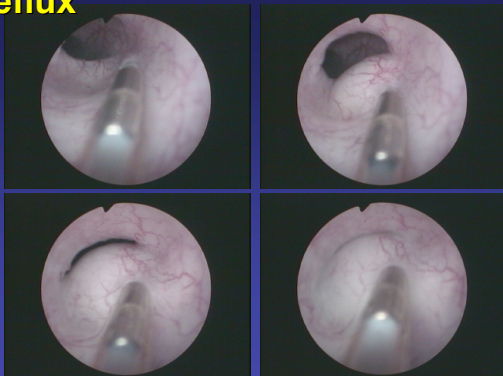


URETERAL REIMPLANTATION



SUB-URETERIC INJECTIONS

Reflux

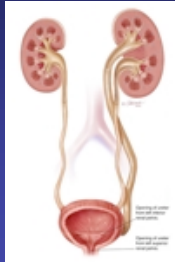


SUB-URETERIC INJECTIONS

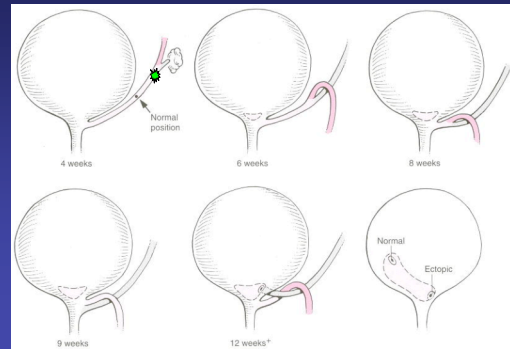
Ectopic Ureter

- Consequences
 - Abdominal pain
 - Infection
 - Decreased renal function
 - Incontinence (females)
 - Normal voiding with continuous dribbling

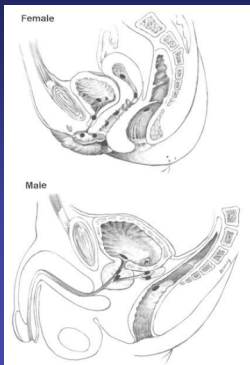
Ectopic Ureter



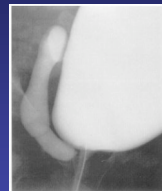
Ectopic Ureter



Ectopic Ureter



Ectopic Ureter



Ectopic Ureter

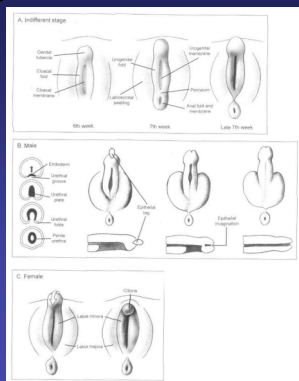


Hypospadias

- Ventral urethral meatus
- Penile curvature
- Incomplete foreskin



Hypospadias



Androgens
- Testosterone
- DHT
Androgen receptors

Hypospadias



Endocrinopathies
Receptor deficiencies
Arrested maturation

Hypospadias

- Consequences
 - Voiding difficulties
 - Curvature: intercourse issues
 - Possible infertility
 - Cosmesis

Hypospadias

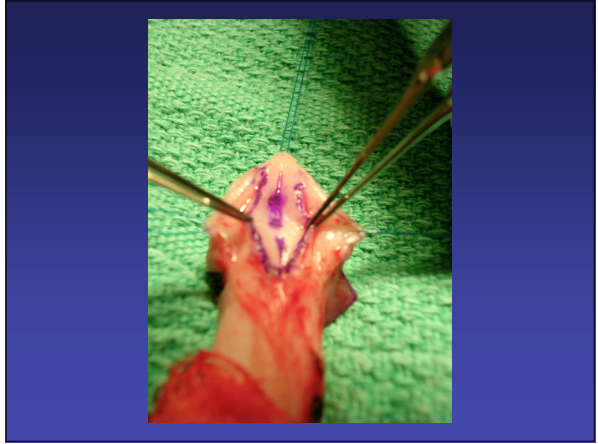
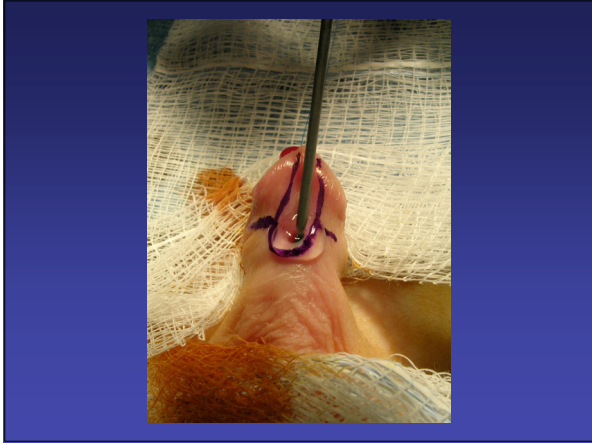


Hypospadias



Hypospadias





Undescended Testes

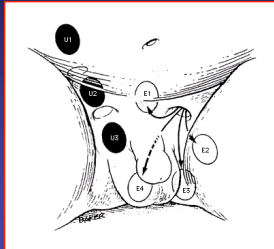
3 MONTHS



7 MONTHS



9 MONTHS

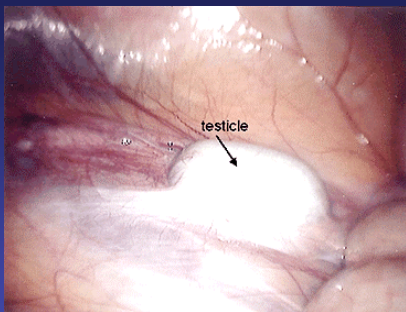


-gubernaculum
-Endocrine
-Genitofemoral nerve
- CGRP (calcitonin gene Related Protein)

Ectopic testes Locations of undescended (U) and ectopic (E) testes: U1: intra-abdominal, U2: intracanalicular, U3: suprascrotal, E1: suprapubic, E2: femoral, E3: perineal, E4: contralateral. Reproduced with permission from Pillai, SB, Bhasner, GE. Pediatric testicular problems. *Pediatr Clin North Am* 1998; 45:613. Copyright © 1998 Pediatric Clinics of North America

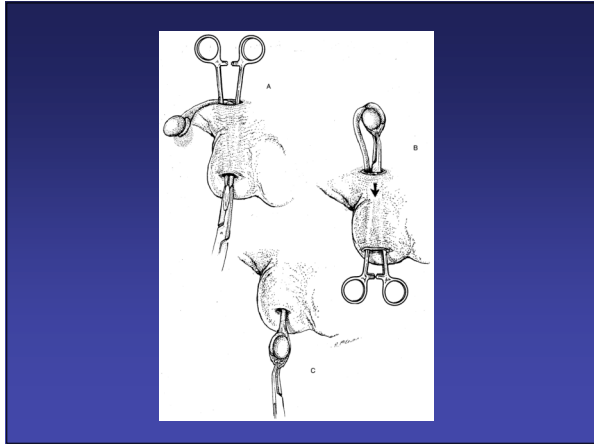
Undescended Testes

- Infertility
- Neoplasia
- Cosmesis
- Testis torsion



Undescended testicle Laparoscopic view of intra-abdominal right-sided undescended testicle. Courtesy of Christopher S Cooper, MD and Steven G Docimo, MD.





Ambiguous Genitalia

Ambiguous Genitalia

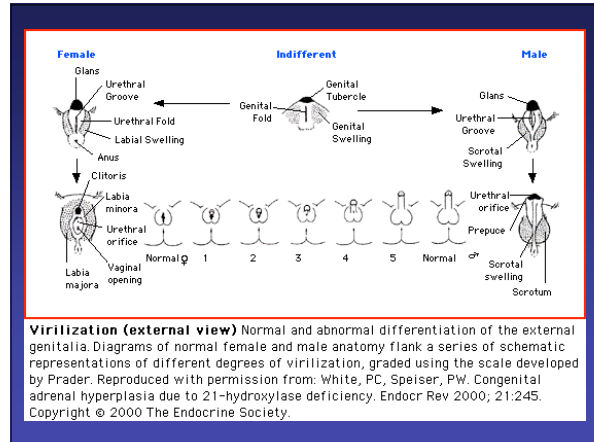
Virilization (external view) Normal and abnormal differentiation of the external genitalia. Diagrams of normal female and male anatomy flank a series of schematic representations of different degrees of virilization, graded using the scale developed by Prader. Reproduced with permission from: White, PC, Speiser, PW. Congenital adrenal hyperplasia due to 21-hydroxylase deficiency. *Endocr Rev* 2000; 21:245. Copyright © 2000 The Endocrine Society.

Ambiguous Genitalia

Congenital Adrenal Hyperplasia

Ambiguous Genitalia

- Female Pseudohermaphrodite
 - Congenital Adrenal Hyperplasia (CAH)
 - 46 XX
 - Normal ovaries, uterus and upper vagina
 - Virilized external genitalia
 - Due to in utero exposure to testosterone
- Normal potential for sexual and reproductive function as females



- Nonpalpable testes
- Hypospadias
- small phallus with curvature

-ALERT !!
-ALERT !!
-ALERT !!



