

Genitourinary Anomalies Outline - Newborn

A&P Variance Overview for the Newborn

- Immature renal system, Low GFR
- Inability to concentrate urine and cope with electrolyte and fluid stress
- NB urine output on day 1-averages at 15ml
- NB urine output increases to about 50-300ml by end of week 1

I. Hydrocele

- A. Definition – painless swelling in the scrotum that occurs when fluid collects in the sheath surrounding a testicle (between the parietal and visceral layers of the tunica vaginalis which comprises the serous layer that covers the testes). Two types:
1. Non-communicating hydrocele – all layers have closed appropriately-fluid just can't drain or doesn't reabsorb like it should and accumulates in the scrotum.
 2. Communicating hydrocele - process vaginalis which formed during embryonic development remains open from scrotum to abdominal cavity allowing abdominal fluid to pass into the sac around testes causing a mass.
- B. Therapeutic Management
1. educate and reassure parents
 2. repair hernia if present with hydrocele
 3. Surgical management may be necessary if persists

II. Hypospadias/ Epispadias

- A. Definitions
1. Hypospadias - urethral defect where the urethral opening is not at the end of the penis but is on the ventral (lower) aspect of the penis
 2. Epispadias – urethral opening is on the dorsal surface
- B. Therapeutic management
1. Avoid circumcision initially
 2. Surgical correction to achieve optimal toileting
 3. If uncorrected- could have fertility issues and urination function issues

III. Polycystic Kidneys

- A. Definition
1. large fluid filled cysts form in place of normal kidney tissue
 2. Autosomal recessive (inherited) disorder
- B. Diagnosis
1. kidneys are large and feel soft and spongy
 2. anuria or oliguria can occur
 3. Transillumination that shows fluid glowing in light
 4. Ultrasound to look for enlarged kidneys with cysts
- C. Treatment
1. unilateral
 2. bilateral
 3. genetic counseling for parents as this is inherited

IV. Patent Urachus

- A. When the bladder first forms in utero it is joined to the umbilicus by a narrow tube (urachus). When this fails to close properly during embryonic development a fistula is left between the bladder and umbilicus = patent urachus
- B. Incidence- more common in males

- C. Diagnosis-can be seen on ultrasound
- D. Clinical manifestations
 - 1. clear odorless fluid draining from base of the cord
 - 2. Granuloma to umbilicus can be present
- E. Treatment is surgery to close bladder wall and remove urachus tube

V. Exstrophy of the Bladder

- A. Overview
 - 1. deficiency in the development of the anterior abdominal wall, symphysis pubis, bladder and urethra during early embryonic development
- B. Incidence- Rare, higher incidence in males
- C. Diagnosis/ Clinical Manifestations
 - 1. fetal ultrasound can show this defect
 - 2. bladder lies open and exposed on the abdomen
 - 3. pelvic bone deficits
 - 4. female- displaced vaginal opening or absent vagina. Separated labia
 - 5. male-penis short and curved upward. Testicles may not be in normal position
- D. Treatment
 - 1. Surgery
 - a. repair abdominal wall & create closed system
 - b. may need to be done in stages or can be primary done in 1 surgery
 - c. orthopedic surgery to fix pubic bone defects
 - 2. Pre-op
 - a. Protect exposed bladder from injury
 - b. Non-adherent, moist covering
 - c. Place on side for free flow of urine
 - d. No tub bath
 - 3. Post-op
 - a. keep area free of infection
 - b. cath care/drain care prn
 - c. pain management/bladder spasm medications
 - d. external fixation device for pubic bones may be used-immobilization