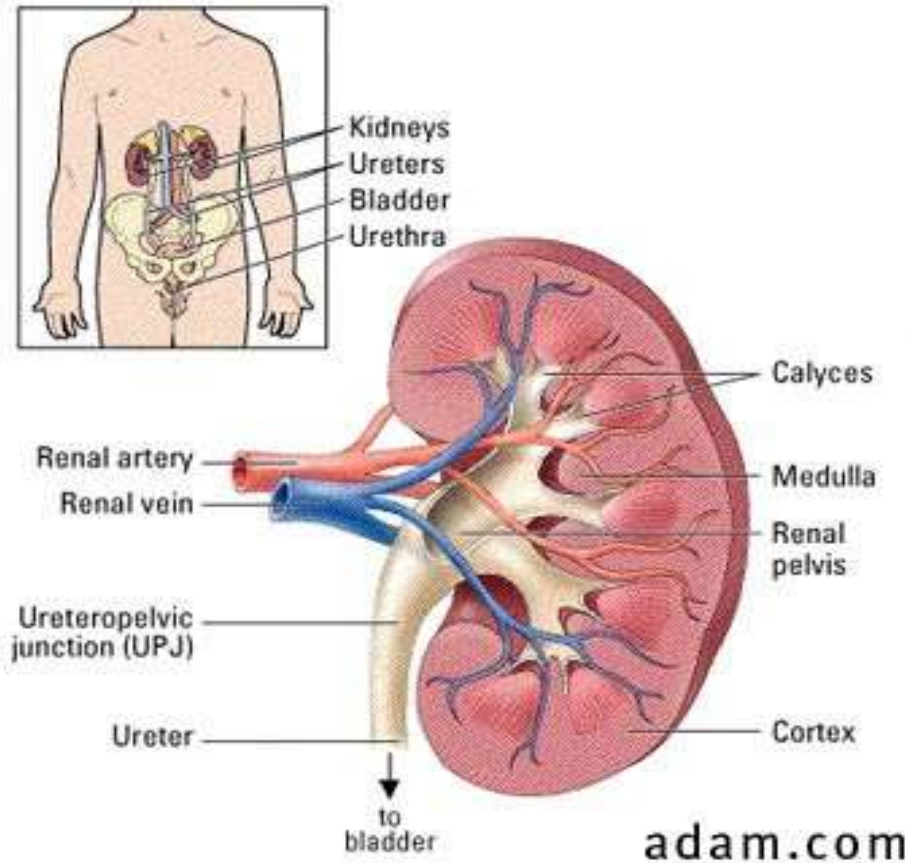


Genitourinary Assessment

Jan Bazner-Chandler
RN, MSN, CNS, CPNP

Alterations in Renal Function

The Kidneys



Developmental and Biological Variances

- ▶ All nephrons are present at birth
- ▶ Kidneys and tubular system mature throughout childhood reaching full maturity during adolescence.
- ▶ During first two years of life kidney function is less efficient.



Bladder

- ▶ Bladder capacity increases with age
- ▶ 20 to 50 ml at birth
- ▶ 700 ml in adulthood



Urinary Output

- ▶ Urinary output per kilogram of body weight decreases as child ages because the kidneys become more efficient.
- ▶ Infants 1-2 mL/kg/hr
- ▶ Children 0.5 – 1 mL/kg/hr
- ▶ Adolescents 40 – 80 mL/hr



Growth and Development

- ▶ Newborn = loss of the perfect child
- ▶ Toddler = toilet training
- ▶ Pre-school = curiosity
- ▶ School age = embarrassment
- ▶ Adolescent = body image / sexual function



Focused Health History

- ▶ Single umbilical artery
- ▶ Chromosomal abnormality
- ▶ Congenital anomalies
- ▶ Ear tags
- ▶ Toilet training history
- ▶ Family history
- ▶ Growth patterns



Urinalysis

- ▶ Protein
- ▶ Leukocytes
- ▶ Red blood cells
- ▶ Casts
- ▶ Specific Gravity
- ▶ Urine Culture for bacteria



Urine Specific Gravity

- ▶ **1.010 Normal value**

- ▶ Increased Urine SG

- ▶ Dehydration – diarrhea – excessive sweating - vomiting

- ▶ Decreased Urine SG

- ▶ Excessive fluid intake – pyelonephritis - nephritis



Laboratory Values

- ▶ CBC with WBC count
- ▶ Hemoglobin / hematocrit
- ▶ Clotting studies
- ▶ BUN
- ▶ Creatinine
- ▶ Cholesterol
- ▶ Erythrocyte sedimentation rate (ESR)
- ▶ C-Reactive protein (CRP)



Urea or BUN

- ▶ Urea is normally freely filtered through the renal glomeruli, with a small amount reabsorbed in the tubules and the remainder excreted in the urine.
- ▶ Decrease or increase in the value does not tell the cause: pre-renal, post-renal or renal.
- ▶ Elevated BUN just tells you the urea is not being excreted by the kidney not why.



Creatinine

- ▶ Creatinine is a very specific indicator of renal function.
- ▶ If kidney function is decreased / creatinine level will be increased
- ▶ Conditions that will increase levels: glomerulonephritis, pyelonephritis or urinary blockage



Diagnostic Tests

- ▶ Urinalysis
- ▶ Ultrasound
- ▶ VCUG – Voiding cysto urethrogram
- ▶ IVP – Intravenous pyelogram
- ▶ Cystoscopy
- ▶ CT Scan
- ▶ Renal Biopsy



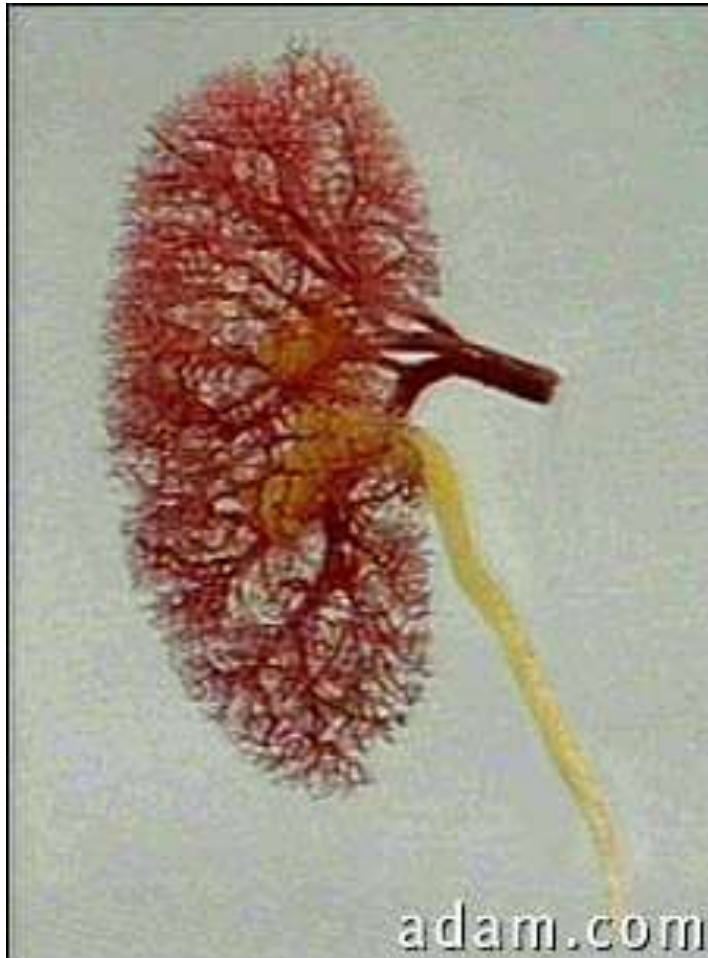
VCUG



IVP



Intra Venous Pyelogram

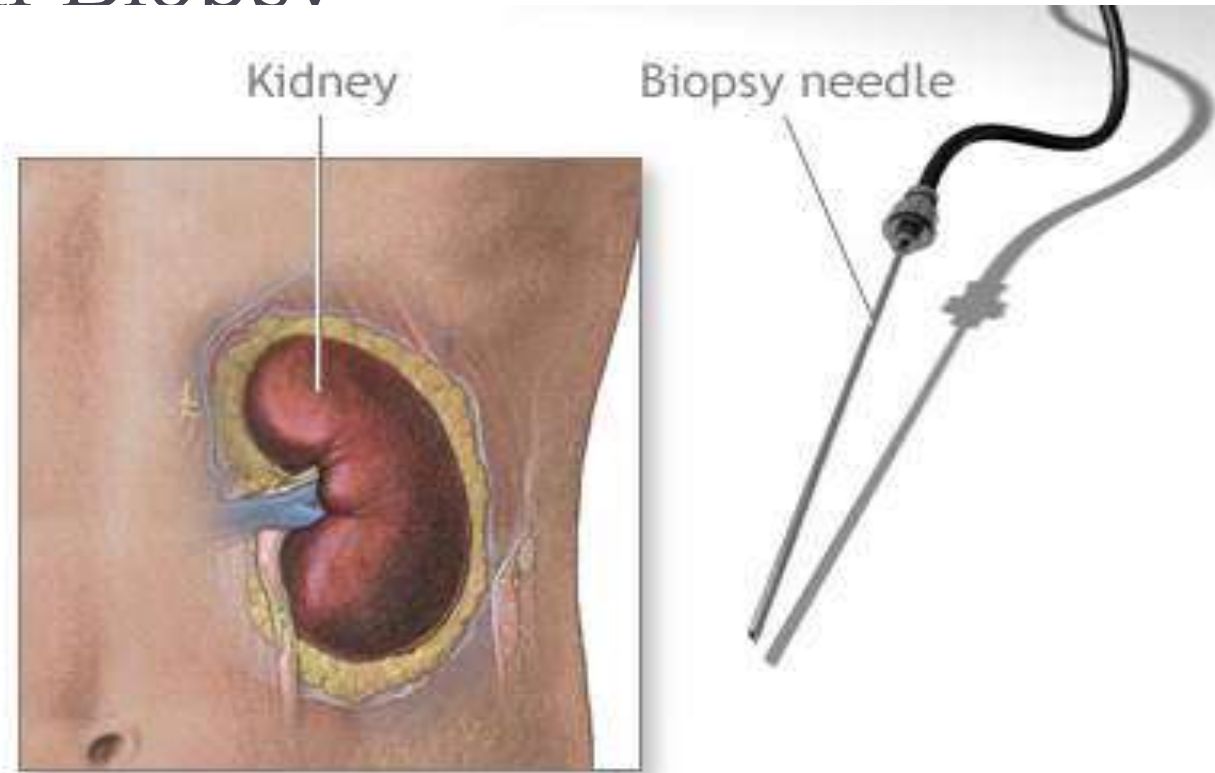


Kidney function analyzed

Watch for allergic reaction
to dye.



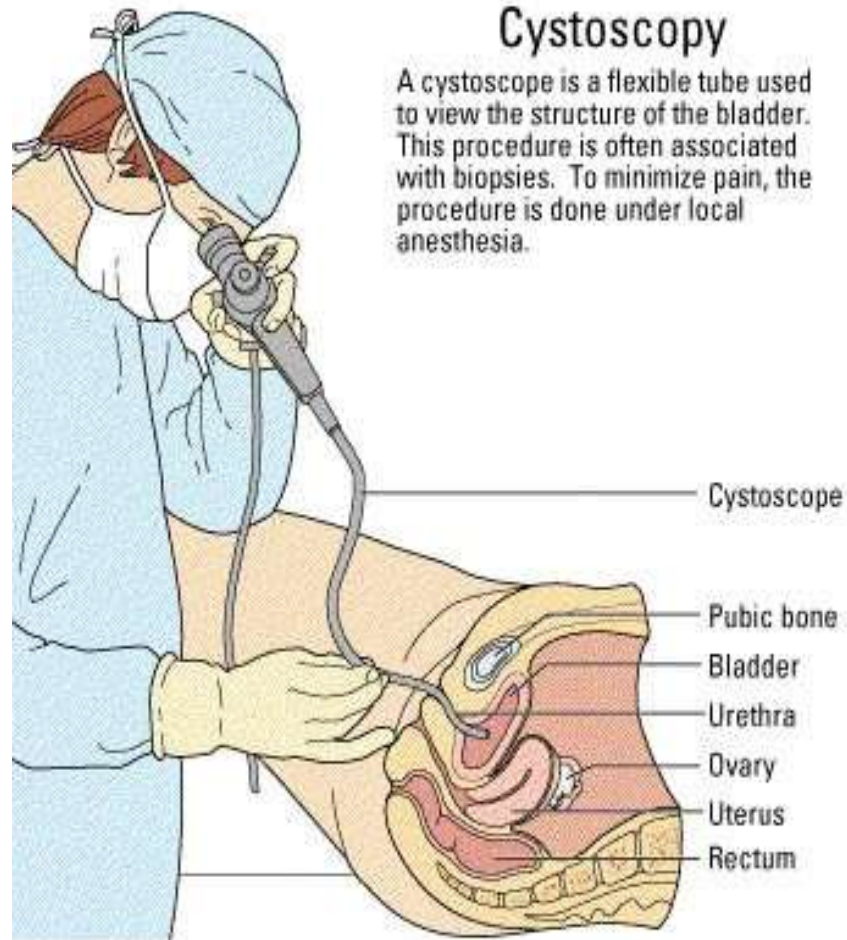
Renal Biopsy



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Cystoscopy



Cystoscopy

A cystoscope is a flexible tube used to view the structure of the bladder. This procedure is often associated with biopsies. To minimize pain, the procedure is done under local anesthesia.

CT Scan

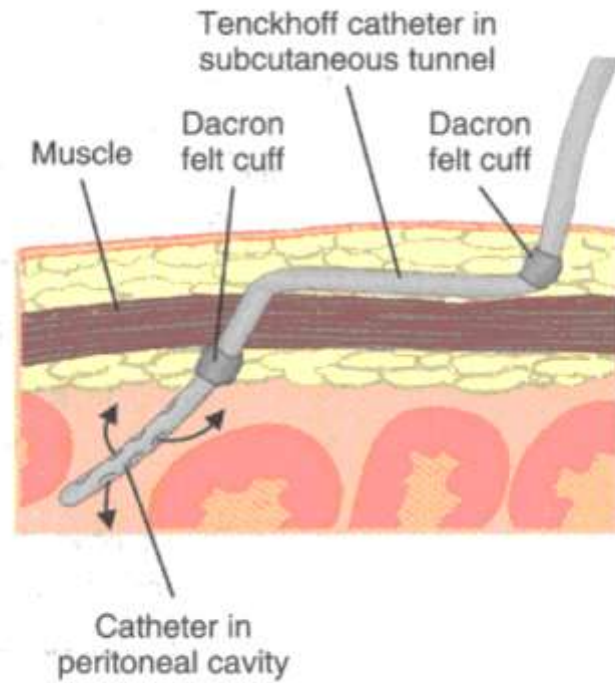
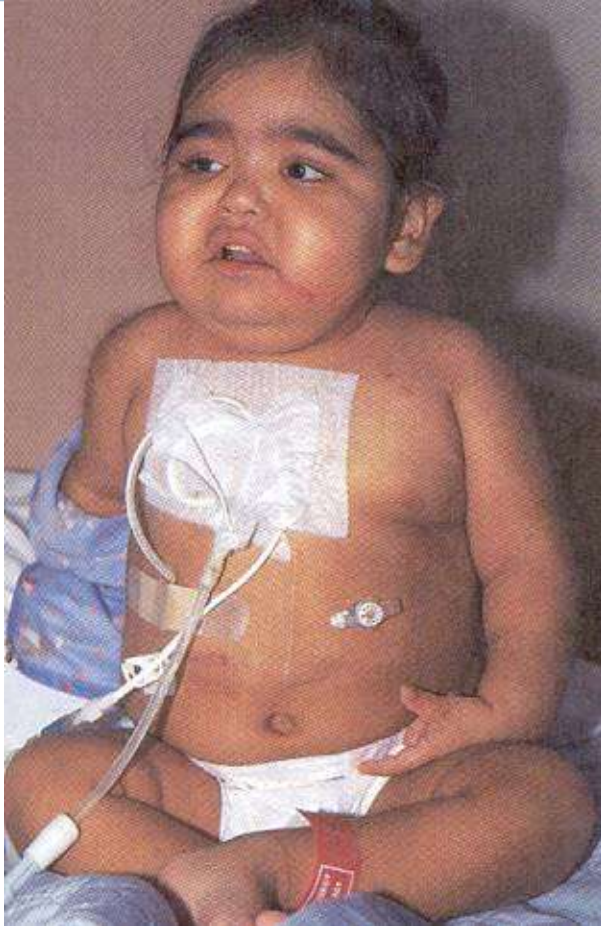


Treatment Modalities

- ▶ **Urinary diversion**
 - ▶ Stents
 - ▶ Drainage tubes
- ▶ **Intermittent catheterization**
 - ▶ Watch for latex allergies
- ▶ **Pharmacological management**
 - ▶ Antibiotics
 - ▶ Anticholinergic for bladder spasm



Peritoneal Dialysis

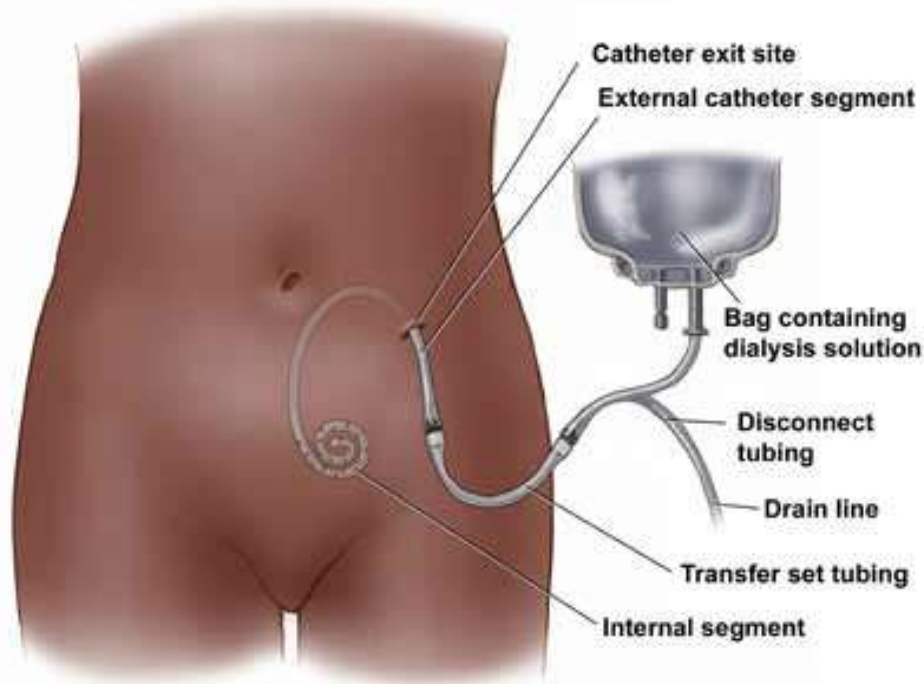


Peritoneal Dialysis

- ▶ The child's own peritoneal cavity acts as the semi-permeable membrane across which water and solutes diffuse.
- ▶ Often initiated in the ICU.
- ▶ Dialysis set-ups are available commercially.



Peritoneal Dialysis



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Peritoneal Dialysis

- ▶ Soft catheter is used to fill the abdomen with a dialysis solution.
- ▶ The solution contains dextrose that pulls waste and extra fluid into the abdominal cavity.
- ▶ Dialysis fluid is then drained.



Dialysis fluid

- ▶ High glucose concentrate: 2.5 to 4.25%
- ▶ The osmotic pressure of the glucose in solution draws the fluid from the vascular spaces into the peritoneum, making available for exchange and elimination of excess fluid.



Hemodialysis

- ▶ Used in treatment of advanced and permanent kidney failure.
- ▶ Blood flows through a special filter that removes waste and extra fluids.
- ▶ The clean blood is then returned to the body.
- ▶ Done 3 times a week for 3 to 5 hours.



Dialysis

