UNIT 7
Urinary System
Pathological Conditions
AZOTURIA

- Increase of nitrogenous substances, especially urea, in urine.
DIURESIS

- Increased formation and secretion of urine.
DYSURIA

- Painful or difficult urination, symptomatic of cystitis and other urinary tract conditions.
Kidney disease that has advanced to the point that the kidneys can no longer adequately filter the blood and, ultimately, requires dialysis or renal transplantation for survival; also called chronic renal failure.

- Common diseases leading to ESRD include malignant hypertension, infections, diabetes mellitus, and glomerulonephritis. Diabetes is the most common cause of kidney transplantation.
ENURESIS

- Involuntary discharge of urine after the age at which bladder control should be established; also called bed-wetting at night or nocturnal enuresis.
  - In children, voluntary control of urination is usually present by age 5.
HYPOSPADIAS

- Abnormal congenital opening of the male urethra on the undersurface of the penis.
INTERSTITIAL NEPHRITIS

- Condition associated with pathological changes in the renal interstitial tissue that may be primary or due to a toxic agent, such as drug or chemical, which results in destruction of nephrons and severe impairment in renal function.
RENAL HYPERTENSION

- High blood pressure that results from kidney disease.
UREMIA

- Elevated level of urea and other nitrogenous waste products in the blood, as occurs in renal failure; also called azotemia.
WILMS TUMOR

- Malignant neoplasm of the kidney that occurs in young children, usually before age 5.
  - The most common early signs of Wilms tumor are hypertension, a palpable mass, pain, and hematuria.
WILMS TUMOR
Diagnostic Procedures
BLOOD UREA NITROGEN (BUN)

- Laboratory test that measures the amount of urea (nitrogenous waste product) in the blood and demonstrates the kidneys’ ability to filter urea from the blood for excretion in urine.
  - An increase in BUN level may indicate impaired kidney function.
COMPUTED TOMOGRAPHY (CT)

- Radiographic technique that uses a narrow beam of x-rays that rotates in a full arc around the patient to acquire multiple views of the body that a computer interprets to produce cross-sectional images of that body part.
  - CT scanning is used to diagnose kidney, ureter, and bladder tumors, cysts; inflammation; abscesses; perforation; bleeding; and obstructions. It may be administered with or without a contrast medium.
Radiographic examination to determine the location, size, shape, and malformation of the kidneys, ureters, and bladder.

- KUB radiography may also detect stones and calcified areas.
Radiographic study of the kidney, ureters, and usually the bladder after an injection of a contrast agent.

- A contrast medium is injected into a vein (intravenous pyelography) or through a catheter placed through the urethra, bladder, or ureter and into the renal pelvis (retrograde pyelography).
Radiographic imaging in which a contrast medium is injected intravenously and serial x-ray films are taken to provide visualization of the entire urinary tract; also called *intravenous urography* (IVU) or *excretory urography* (EU).

In IVP, the x-ray image produced is known as a pyelogram or urogram.
RETOGRADE PYELOGRAPHY (RP)

Radiographic imaging in which a contrast medium is introduced through a cystoscope directly into the bladder and ureters using small-caliber catheters.

- RP provides detailed visualization of the urinary collecting system (pelvis and calices of the kidney as well as the ureters). It is useful in locating urinary tract obstruction. It may also be used as a substitute for IVP when a patient is allergic to the contrast medium.
RENAL SCAN

- Nuclear medicine imaging procedure that determines renal function and shape through measurement of a radioactive substance that is injected intravenously and concentrates in the kidney.
URINALYSIS

- Physical, chemical, and microscopic evaluation of urine.
VOIDING CYSTOURETHROGRAPHY

- Radiography of the bladder and urethra after filling the bladder with a contrast medium and during the process of voiding urine.
Medical and Surgical Procedures
Insertion of a catheter (hollow flexible tube) into a body cavity or organ to instill a substance or remove fluid, most commonly through the urethra into the bladder to withdraw urine.

- Catheters are available in two basic types: straight and indwelling, with many variations in shape, coatings, and so forth.
DIALYSIS

- Mechanical filtering process used to cleanse blood of high concentrations of metabolic waste products, draw off excess fluids, and regulate body chemistry when kidneys fail to function properly.
  - Two primary methods are used to dialyze the blood: hemodialysis and peritoneal dialysis.
HEMODIALYSIS

Process of removing excess fluids and toxins from the blood by continually shunting (diverting) the patient’s blood from the body into a dialysis machine for filtering, and then returning the clean blood to the patient’s body via tubes connected to the circulatory system.
Dialysis in which the patient’s own peritoneum is used as the dialyzing membrane.

- In peritoneal dialysis, dialyzing fluid passes through a tube into the peritoneal cavity and remains there for a prescribed period. During this time, wastes diffuse across the peritoneal membrane into the fluid. Contaminated fluid then drains out and is replaced with fresh solution. This process is repeated as often as required and may be continuous or intermittent.
RENAL TRANSPLANTATION

- Organ transplant of a kidney in a patient with end-stage renal disease; also called kidney transplantation.