Urinary System

Dr Navneet Kumar
Professor

Department of Anatomy
K.G. Medical University
Urinary System

- Kidney
- Ureter
- Urinary bladder
- Urethra
kidney

- Uriniferous tubule and Nephron
  1. Renal/Malpighian corpuscles
    - Bowman's capsules
    - Glomerulus
  2. Tubules
    - Proximal convoluted tubules
    - Loop of Henle
    - Distal convoluted tubule
    - Collecting tubule
    - Collecting ducts
  3. Blood vessels
1. Renal corpuscles

**Bowman's capsules**
Cup shaped, two layers
**Parietal layer**
- simple squamous epithelium
Continues cuboidal with PCT
**Visceral layer**
- podocytes adherent to Glomerulus
- Urinary pole, vascular pole Urinary space

**Glomerulus**
- Fenestrated endothelial capillary
- Mesangial cells
(c) The renal corpuscle
2. Tubules

- **Proximal convoluted tubule**
- **Simple cuboidal epithelium, brush border, basal striations, dark pink**
- **Loop of henle**
- **Thick segment- Simple cuboidal epithelium**
- **Thin segment- Simple squamous epithelium**
- **Distal convoluted tubule**
- **Simple cuboidal epithelium, less stained, large lumen**
- **Collecting ducts- Simple cuboidal epithelium, larger duct**
renal corpuscles with glomeruli
Kidney H&E

proximal tubules

macula densa

capsular space
distal tubule with macula densa
mesangial matrix
epithelium of Bowman’s capsule
basement membrane of Bowman’s capsule
Bowman’s space
start of proximal tubule
filtration membrane (capillary / podocyte basement membrane)
PCT

THICK LOOP OF HENLE

DCT

THIN LOOP OF HENLE

COLLECLING DUCT

Dr Navneet Kumar Professor
Anatomy KGMU LKO
Ureter

- **Mucosa**
  - Transitional epithelium
  - Lamina propria
  - mucosal folds, *star shaped lumen*
- **Muscle coat**
  - Inner longitudinal, outer circular
- **Adventitia**
Ureter H&E

transitional epithelium

lamina propria

capillaries
Slide 36 Ureter
Urinary bladder

- **Mucosa**
- **Transitional epithelium**
- **Lamina propria**
- **Mucosal folds**
- **Muscle coat (detrusor muscle)**
  - ill defined, loosely arranged smooth muscles layers
  - Inner longitudinal, middle circular outer longitudinal
- **Adventitia**
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Transitional epithelium
Bladder H&E

dome-shaped 'relaxed' surface cells

transitional epithelium

basal cells

capillaries

connective tissue
Urethra

Male urethra -

Mucosa – Epithelium
- prostatic Transitional epithelium
- penile part & membranous part
  pseudostratified columnar epithelium

Stratified squamous epithelium (terminal part)

Sub mucosa - connective tissue urethral glands

Muscle layer – only in membranous part & prostatic part
Corpus cavernosum penis

Tunica albuginea

Urethra
female urethra