



THE URINARY PASSAGE

RENAL BLOCK

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OBJECTIVES:

By the end of this lecture, the student should be able to describe:

- 1. The microscopic structure of the Renal pelvis and ureter.**
- 2. The microscopic structure of the urinary bladder and male and female urethra**

JUXTAGLOMERULAR APPARATUS

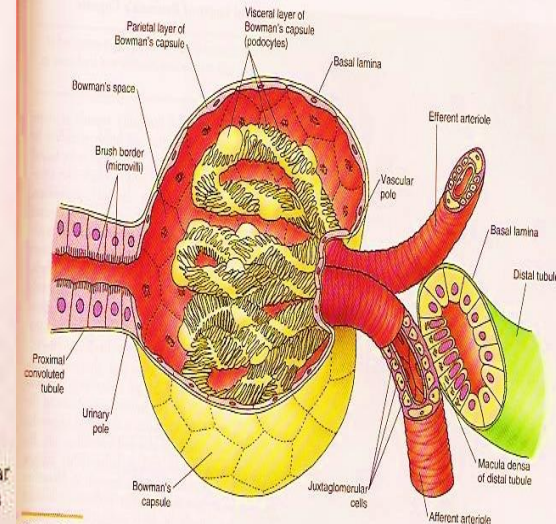
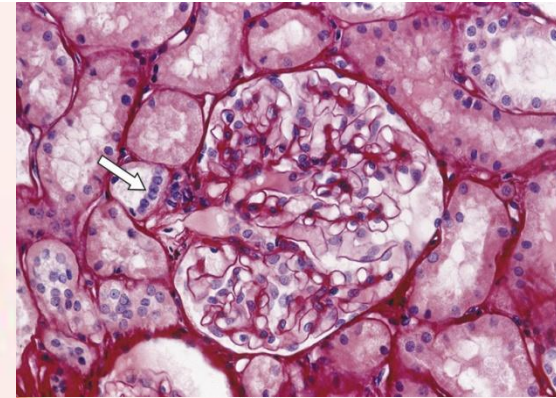
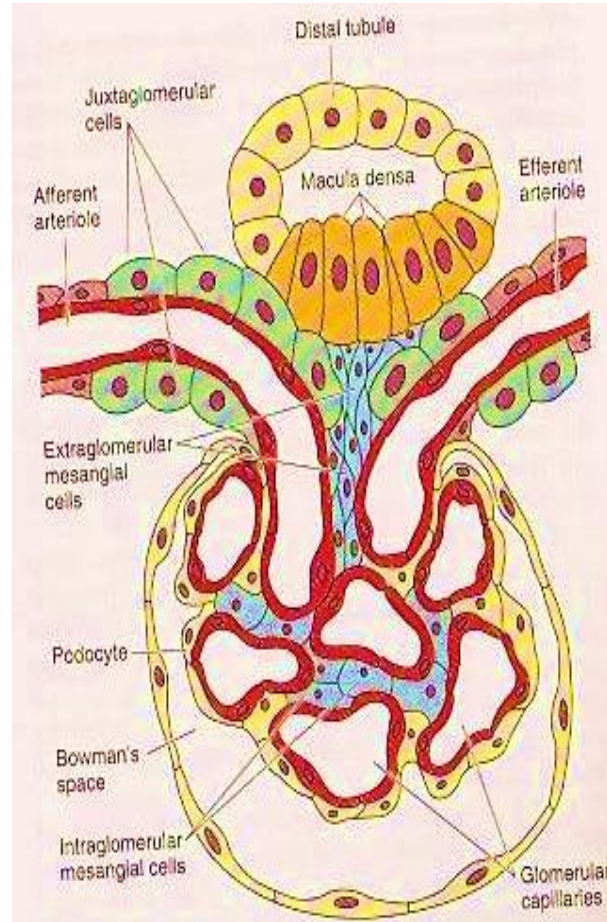
It has 3 components:

A-The macula densa of distal tubule: Tall cells with centrally-placed nuclei

B-Juxtaglomerular cells of afferent glomerular arteriole (modified smooth muscle of tunica media). Nuclei are round with granular cytoplasm.

*They secrete renin, and angiotensin.

C-The extraglomerular mesangial cells. (Lacis cells)



THE URINARY PASSAGE

Renal Calyces

- lined with transitional epith., lamina propria and smooth muscle.
- Each calyx accepts urine from the renal papilla

Urinary bladder

Same structure as lower 1/3 of ureter.
Superficial layer of T.E has dome-shaped cells
Its outer covering is adventitia or serosa.

Ureter

1. Mucosa

transitional epith. and lamina propria.

2. Muscularis

upper 2/3

A- Inner longitudinal.

B- Outer circular.

lower 1/3

A- Inner longitudinal .

B- Middle circular.

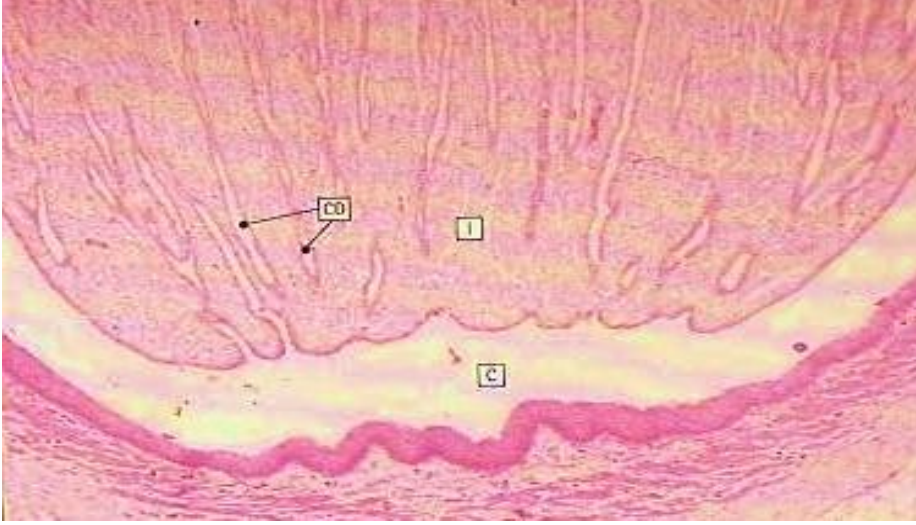
C- Outer longitudinal.

3. Adventitia

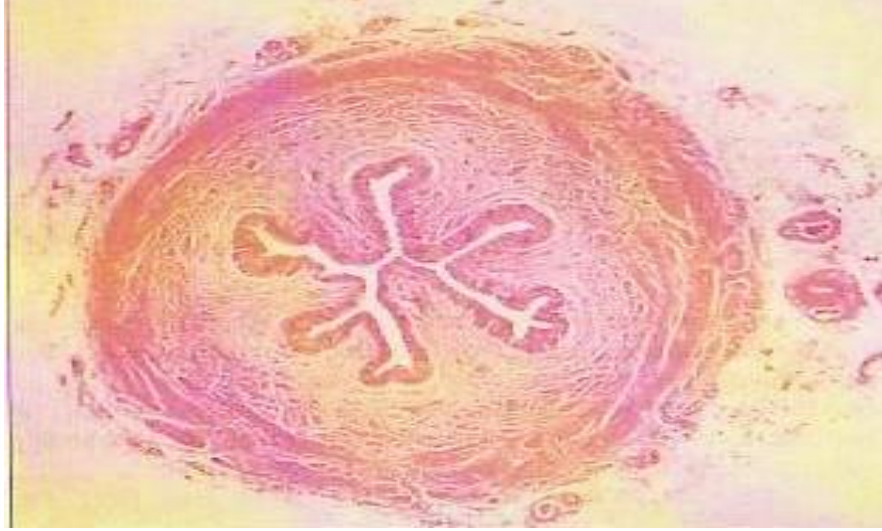
fibrous C.T. covering. (*No serosa*)

SECTIONS

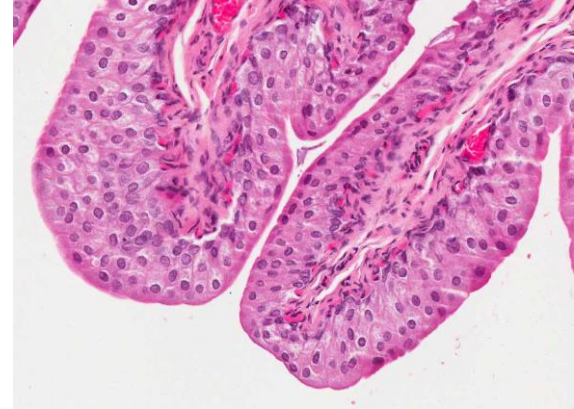
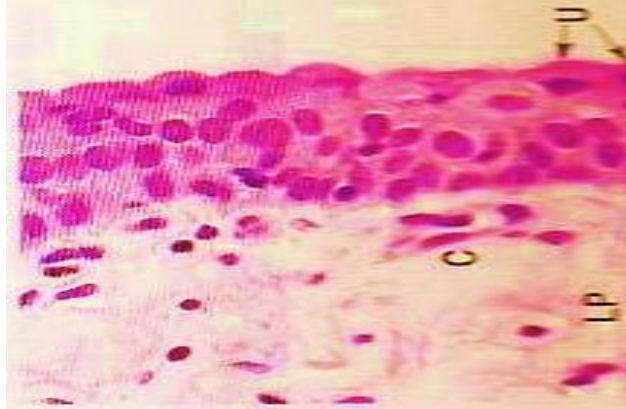
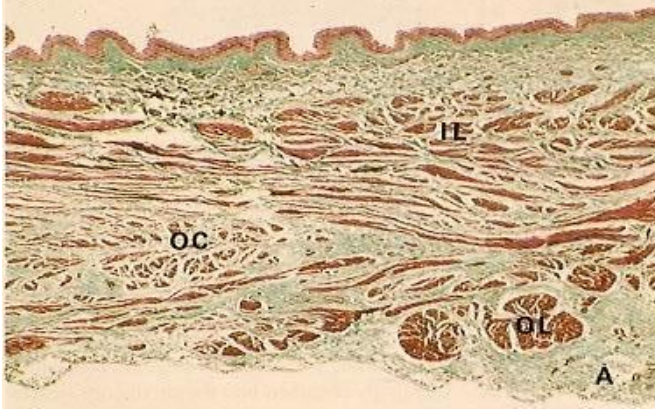
Renal Calyces



Ureter



Urinary bladder



FEMALE URETHRA

- **Short**
- **A- Epithelium:**
 - 1- Transitional epith. Near the bladder.
 - 2- Pseudostratified columnar epith.
 - 3- Stratified squamous non-keratinized epith.
- **B- Sub-epithelial fibroelastic CT**
 - glands of Littre (mucus-secreting glands).
- **C- Smooth muscle:**
 - inner longitudinal and outer circular layers.

MALE URETHRA

- long
- 1. **Prostatic urethra:** transitional epith.
- 2. **Membranous urethra:** Stratified columnar epith, patches of pseudostratified columnar epith.
- 3. **Penile (spongy) urethra:** Stratified columnar epith, patches of pseudostratified columnar epith.

Note: In navicular fossa (enlarged terminal portion):
Stratified squamous non-keratinized epith
The lamina propria contain glands of Littre

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