



MED437
KING SAUD UNIVERSITY

OSPE file (Renal block)



HISTOLOGY
TEAM 437

Red: questions.

Dark red: very important.

Black: complete answers.

Gray: notes | extra.

➤ You should know before the exam:

- The diagrams in these slides are going to be the **same** in the exam however, it may not be coloured.
- You have to **mention the full name** always and **don't use shortcuts** you could lose marks because of that.
- The **Arrows** in the diagrams are **very important** .
- So please study them well.



Cortex of the Kidney

Q1: Identify the structure?

Cortex of the Kidney

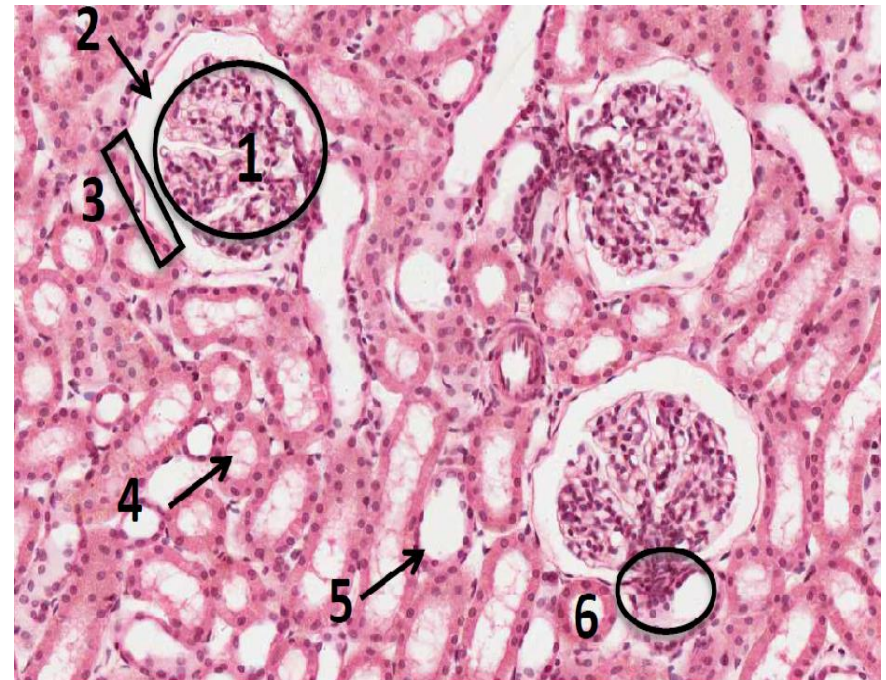
Q2: Identify labeling:

1. Glomerulus of renal corpuscle.
2. Urinary space (or capsular space).
3. Parietal layer of Bowman's capsule.
4. Proximal convoluted tubules with brush border.
5. Distal convoluted tubules.
6. Juxta-glomerular apparatus.

Q3: How to differentiate between the proximal and distal convoluted tubules?

PCV: Has an ill defined lumen because it is filled with brush border (microvilli) “من جوا لونها وردي”

DCV: Has a well demarcated and clear lumen. “من جوا لونها أبيض”



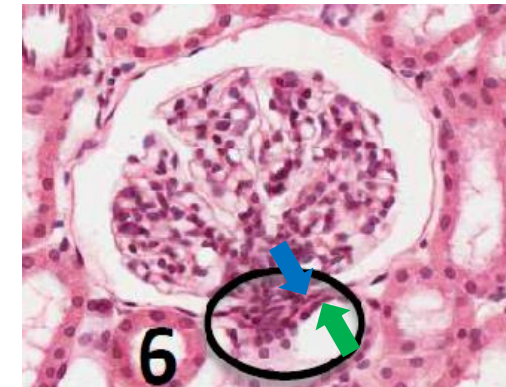
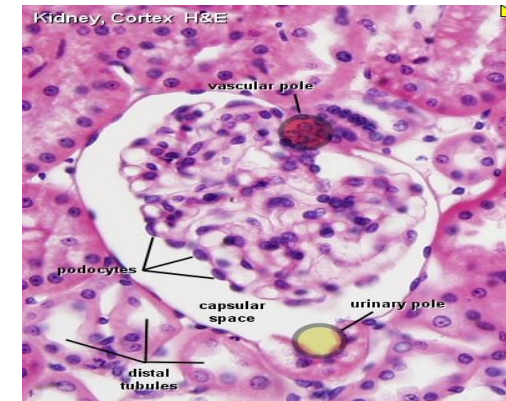
Juxtaglomerular apparatus

Q1: Identify the structure?

Juxtaglomerular apparatus

Q2: What are the components(cells) that form this structure?

- Juxtaglomerular cells of afferent glomerular arteriole (they secrete renin)
“تكون جهة ال afferent arteriole”
- The macula densa of distal tubule (tall columnar cells) “Distal tubule ال تكون جهة ال”
- The extraglomerular mesangial cells



Renal Corpuscle

Q1: Identify the structure?

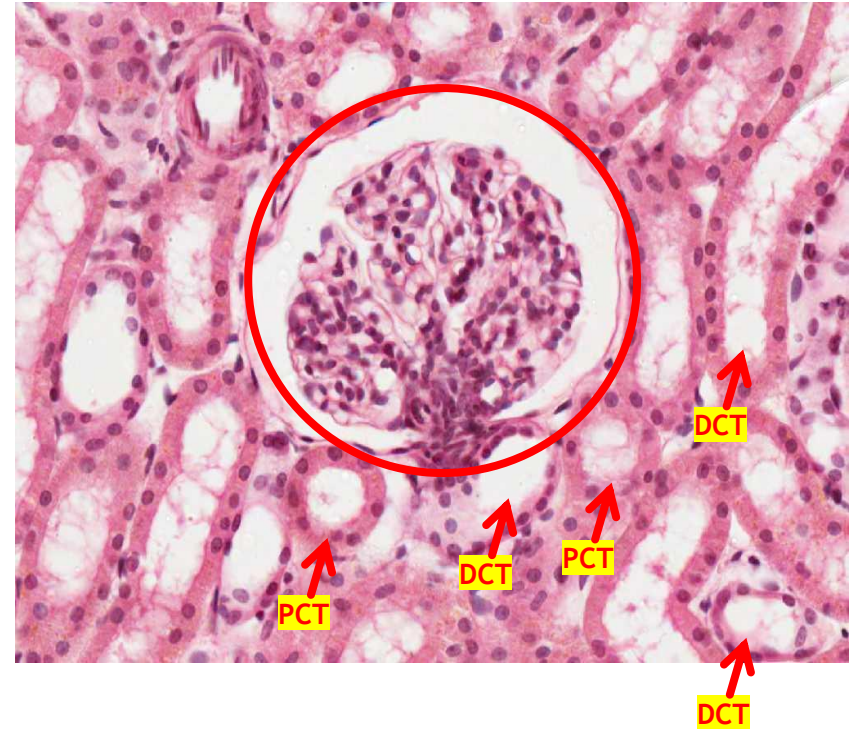
Renal Corpuscle

Q2: What are the components that form this structure?

- **Glomerulus** which contains fenestrated capillaries "without diaphragm"
- **Bowman's capsule**: Parietal layer, urinary space, and podocytes (visceral layer)
- **Mesangial cells**: Intra-glomerular cells

Q3: What are the cells that form this structure?

- Mesangial cells
- Glomerular endothelial cells
- Podocytes (epithelial cells)



Kidney (Medulla)

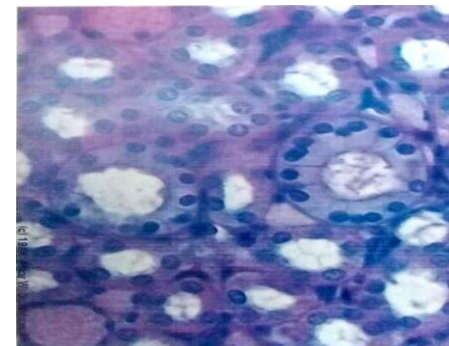
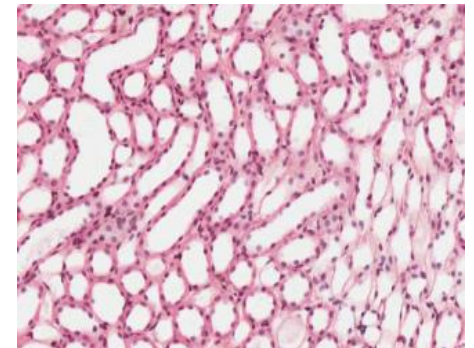
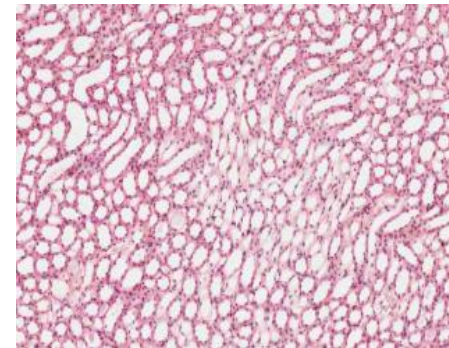
Q1: Identify the structure?

Kidney (Medulla)

Q2: What is the features of the structure?

Contains tubular structures:

- loop of Henle:
simple squamous epithelium
- collecting tubules and ducts:
simple cuboidal epithelium
- Papillary ducts (ducts of Bellini):
Simple Columnar epithelium



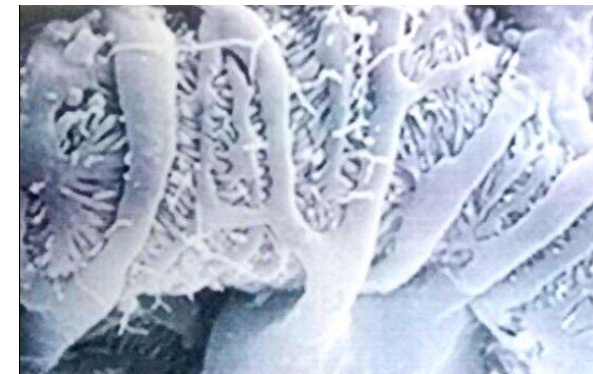
Blood renal Barrier

Q1: Identify the structure?

Blood renal Barrier (Glomerular Filtration Barrier)

Q2: What are the components that form this structure?

1. Endothelial wall of the glomerular capillaries.
2. The **glomerular basal lamina** (inner and outer laminae rarae and middle lamina densa).
3. Visceral layer of Bowman's capsule (**podocytes**).



Ureter

Q1: Identify the structure?

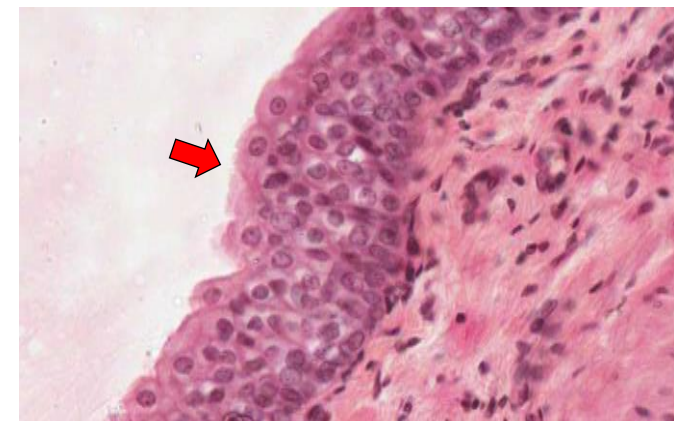
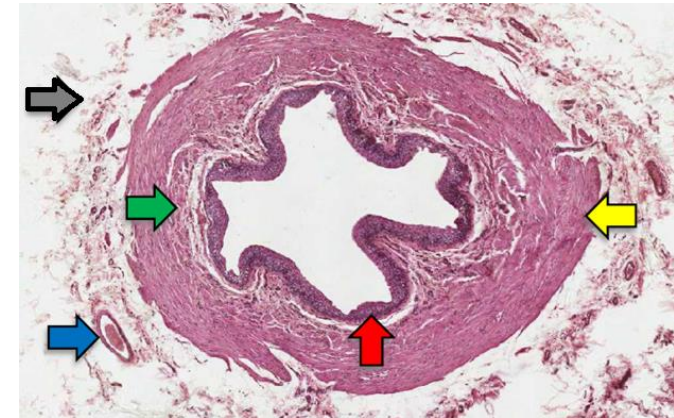
Ureter

Q2: What is the type of epithelium in this structure?

Transitional epithelium

Q3: What is the features of the structure?

- Transitional epithelium
- Inner longitudinal layer
- Outer circular
- Blood vessels
- Adventitia



Urinary bladder

Q1: Identify the structure?

Urinary bladder

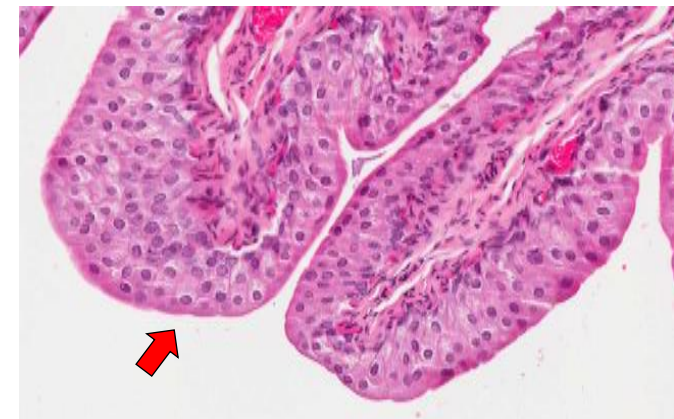
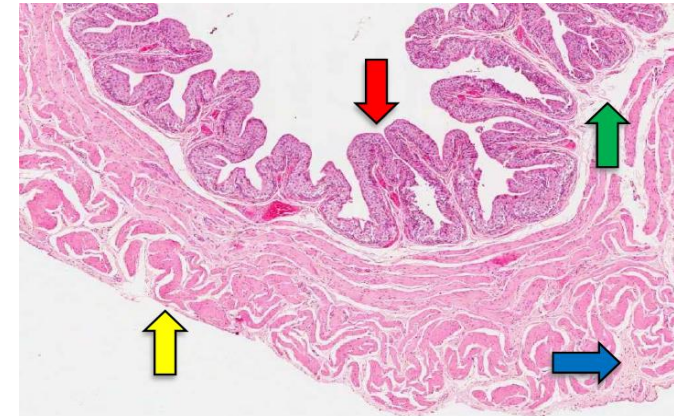
Q2: What is the type of epithelium in this structure?

Transitional epithelium

Q3: What is the features of the structure?

- Transitional epithelium
- Lamina propria
- Connective tissue
- Mesothelium

*It is a continuation of the lower third of the ureter, has the same structure except that it has serosa.



Layers

	Mucosa	Muscularis	Adventitia
Ureter	<ul style="list-style-type: none"> • Transitional Epithelium • Lamina Propria 	Upper 2/3: <ul style="list-style-type: none"> • Inner Longitudinal • Outer Circular Lower 1/3: <ul style="list-style-type: none"> • Inner Longitudinal • Middle Circular • Outer Longitudinal 	NO Serosa
Urinary bladder	<ul style="list-style-type: none"> • Transitional Epithelium • Lamina Propria 	3 layers of smooth muscle coat” <ul style="list-style-type: none"> • Inner Longitudinal • Middle Circular • Outer Longitudinal 	*The name of this layer is urinary bladder is “serosa or adventitia” Serosa

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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