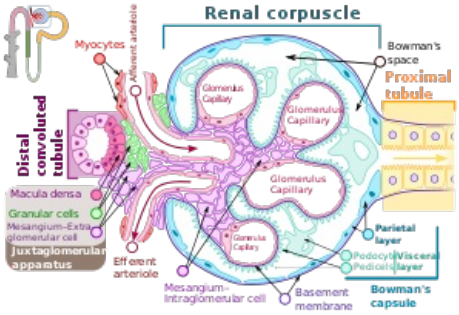
Kidney (histological preparation)

In the kidney preparation, we can distinguish between the **cortex** and the **medulla**. In the cortex, it is necessary to identify the **nephron** and its urinary and vascular pole. Also, the **proximal** and **distal tubules** should be found and differentiated from the vessels. The **vessels and branches of the loop of Henle** must be safely identified in the medulla.

Cortex



Cortex of the kidney

The basic structural and functional structure of the cortex is the **nephron**. Its part is the glomerulus (vascular ball) inside Bowman's capsule, the so-called (no. kidney) corpuscle. This covers the parietal and visceral leaves. The parietal sheet is covered by a single layer of squamous epithelium that rests on the basement membrane. Beneath this layer is a network of reticular fibers. Podocytes cover the visceral sheet. An afferent enters the glomerulus and an efferent capillary leaves it. Arteriae arcuatae are located at the bottom of the cortex. The renal corpuscle is connected by a tubule, which opens into the collecting duct. It collects urine from approximately 11 tubules. The collecting ducts flow into the ductus papillares opening onto the surface of the papilla.

Tubules near Malpighian corpuscles

- **The proximal tubule** consists of the initial coiled part − pars convoluta lying in the cortical region and the distal part − pars recta lying in the medullary part. This tubule is covered by a single-layered cuboidal epithelium with a basal annealing and a high brush border. The cells are larger than in the case of the distal tubule. The boundaries between cells are not distinct due to the presence of plasma membrane interdigitations.
- **The intermedial tubule** is thin with a low or flat single-layered epithelium.
- **The distal tubule** is covered by a single-layer cuboidal epithelium. The cells are flatter than those of the proximal tubule.
    - **The macula densa** is the part of the distal tubule that insists on the modified myocytes of the a. efferens. Together they form the **juxtaglomerular apparatus**, whose function is, for example, the production of renin.

Medulla

The medulla contains sections of collecting ducts and loops of Henle. We also divide the pith into inner and outer. The border between them is determined by the beginning of the straight sections of the distal tubules. The drainage system of the renal corpuscle includes:

- Collecting ducts and ducts: their cells are bright and luminally sharply demarcated, with clear cell boundaries;
- Thick (no. thick) branches of the loop of Henle: they are covered by **cuboidal epithelium**;
- Thin arms of the loop of Henle: **single-layered flat epithelium**, has an empty lumen (unlike blood vessels).

- In addition, there are blood vessels, vasa recta: they are very thin, they contain erythrocytes in the lumen.

Weigert Van Gieson (WvG) staining - vessels are easily recognizable due to the yellow colored erythrocytes in them.

Links

Related links

- kidney
- Nephrone
- Mesangial cells
- Histological slides atlas - urinary system

References

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