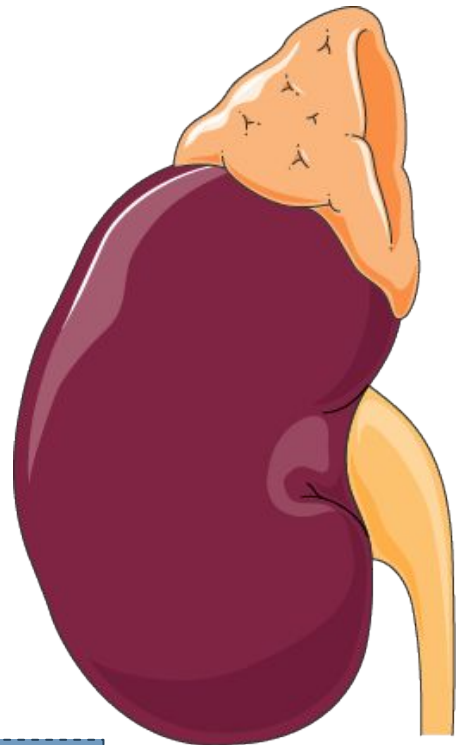


# Adrenal Gland



[ Endocrinology Block | Histology ]

## Editing File

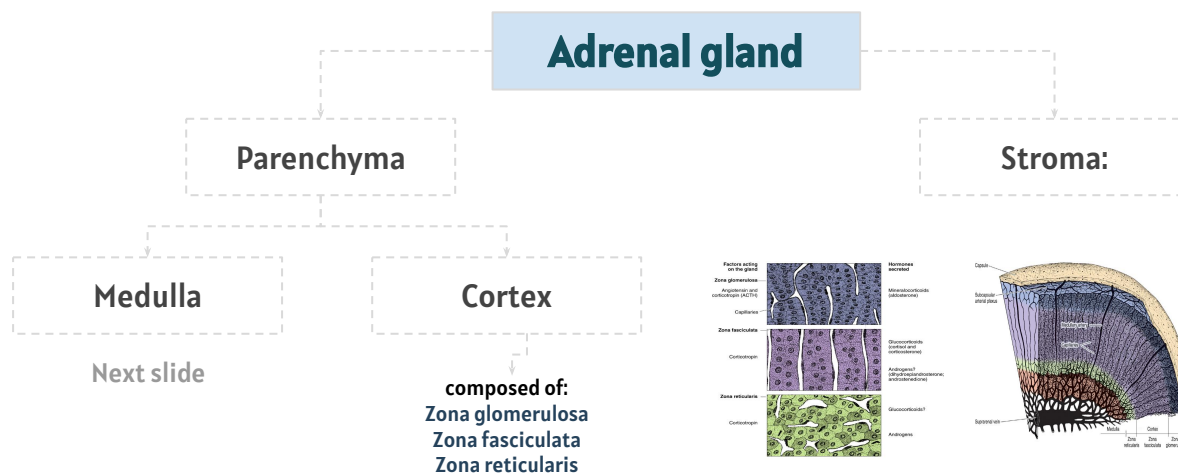
- Color index:
- Main text
  - important
  - female slides
  - male slides
  - Dr.note
  - Extra

# Objective

- 01** Differentiate between adrenal cortex and medulla.
- 02** Identify the histological features of each cortical zone and its cells.
- 03** Identify the histological features of the medullary cells.

This lecture was presented by:  
**Dr. Aly Mohammed    Prof. Raesa Abdultawab**

# Adrenal Glands



## Adrenal Cortex

Microscopic features of steroids hormone secreting cells:

- 1 **Cytoplasm: Acidophilic (Because it's rich of sER)**
- 2 **Smooth Endoplasmic Reticulum (SER): Abundant (Main site for lipid synthesis, since the gland secretes steroid hormones)**
- 3 **Mitochondria:**
  - Count: Numerous
  - Tubular cristae of mitochondria, Cristae: Tubular
- 4 **Fat droplets**

Parenchyma of the Adrenal Cortex:

| Zona glomerulosa   | Zona fasciculata (spongiocytes)  | Zona reticularis  |
|--|--|---|
| <ul style="list-style-type: none"> <li>○ Is formed of clusters of small columnar cells that are rich in SER &amp; mitochondria.</li> <li>○ Produces mineralocorticoids e.g. aldosterone hormone (Reabsorb all the remaining sodium, and passively the chloride, from the lumen of the distal renal tubules into the renal interstitium. In addition, potassium and hydrogen ions are actively secreted into the lumen).</li> </ul> | <ul style="list-style-type: none"> <li>○ It is the intermediate and the largest layer of the cortex.</li> <li>○ It is formed of columns of large polyhedral cells that are separated by longitudinal sinusoidal capillaries.</li> <li>○ Its cells are rich in lipids so they appear empty in sections (spongiocytes).</li> <li>○ Its cells are rich in mitochondria (with tubular cristae), SER and lipofuscin pigments.</li> <li>○ Its cells secrete glucocorticoids.</li> <li>○ It is regulated by ACTH of pituitary.</li> </ul> | <ul style="list-style-type: none"> <li>○ It is the innermost layer of adrenal cortex.</li> <li>○ It is formed of anastomosing cords of deep acidophilic cells.</li> <li>○ Its cells contain few lipofuscin and lipid droplets.</li> <li>○ The cells secrete androgens.</li> </ul> |
|  |  |   |

# Adrenal Glands

## Adrenal Medulla

It is the central portion of the adrenal gland.

It is completely invested with adrenal cortex (not separated from it by CT. septa)

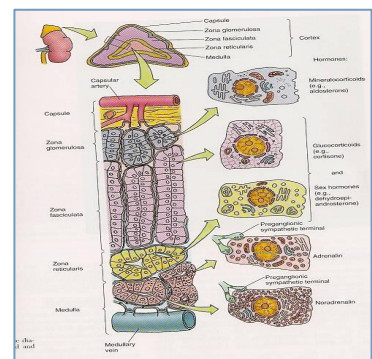
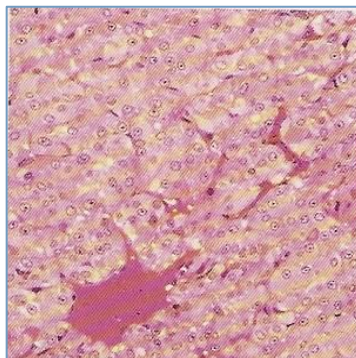
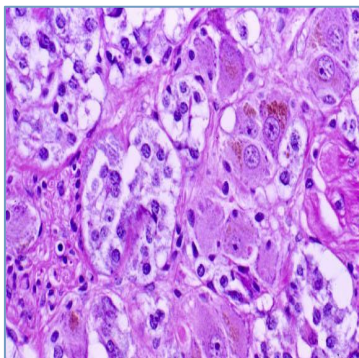
Adrenal Medulla contains :

### Sympathetic ganglion cells

are sympathetic nerve cells.

### Chromaffin cells (Pheochromocytes)

- Contains granules of catecholamine as that of sympathetic nervous system.
- They produce epinephrine and norepinephrine.
- They stain deep brown with chromic salts.



# MCQs

**01 Which cell type is found in adrenal medulla?**

|                  |                |                       |                   |
|------------------|----------------|-----------------------|-------------------|
| A-Principal cell | B-Oxyphil cell | C-Parafollicular cell | D-Chromaffin cell |
|------------------|----------------|-----------------------|-------------------|

**02 which gland secrete epinephrine?**

|                         |            |                        |                |
|-------------------------|------------|------------------------|----------------|
| A-Adrenal gland medulla | B-pancreas | C-Adrenal gland cortex | D-pineal gland |
|-------------------------|------------|------------------------|----------------|

**03 What does Pheochromocytes in adrenal medulla produce?**

|               |            |                  |            |
|---------------|------------|------------------|------------|
| A-epinephrine | B-cortisol | C-norepinephrine | D-both A&C |
|---------------|------------|------------------|------------|

**04 5-Which of the following is a feature of the adrenal cortex?**

|                |                    |                             |                               |
|----------------|--------------------|-----------------------------|-------------------------------|
| A-Spongiocytes | B-Chromaffin cells | -Sympathetic ganglion cells | D-Secretion of catecholamines |
|----------------|--------------------|-----------------------------|-------------------------------|

**05 Which of the following is feature detected in cells of zona glomerulosa?**

|                  |                         |                      |                             |
|------------------|-------------------------|----------------------|-----------------------------|
| A-Squamous cells | B-They secrete cortisol | C-They form clusters | D-They are found in medulla |
|------------------|-------------------------|----------------------|-----------------------------|

Answer key:  
1-D, 2-A, 3-D, 4-A, 5-C

# Leaders



**Mohammed Alqutub**



**Waad alqahtani**

# Members

- **Mansour Alotaibi**

- **Nazmi M Alqutub**

-  **Nazmi A Alqutub**

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