



Motivational Corner:

"The best is yet to come."

Please check out the [editing file](#) before starting the lecture.



Objectives:

The students should be able to:

1. Differentiate between adrenal cortex and medulla.
2. Identify the histological features of each cortical zone and its cells.
3. Identify the histological features of the medullary cells.

4-

Adrenal gland

Extra notes: Gray

Important notes: Red

Revised by

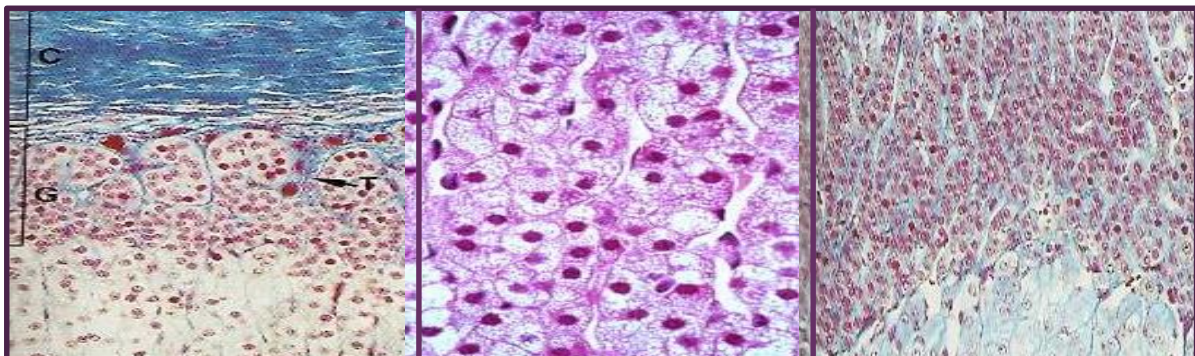
خولة العماري & هشام الفيلبي

Adrenal Gland

+ It is formed of: 1) Stroma 2) Parenchyma.

Parenchyma is divided into: 1) Cortex 2) Medulla

Parenchyma		
Cortex		
<p>Zona glomerulosa Outmost layer, named glomerulosa because it looks like glomerulus under the microscope.</p>	<p>Zona Fasciculata (spongiocytes)</p>	<p>Zona reticularis Cells are network like.</p>
<p>1. Is formed of clusters of small columnar cells that are rich in smooth endoplasmic reticulum and mitochondria.</p> <p>2. Produces mineralocorticoids e.g. aldosterone hormone.</p> <p>- Reabsorbs all the remaining Na, and passively the Cl, from the lumen of the distal renal tubules into the renal interstitium. In addition, K and H⁺ are actively secreted into the lumen.</p>	<p>1. It is the intermediate and the largest layer of the cortex.</p> <p>2. It is formed of columns of large polyhedral cells that are separated by longitudinal sinusoidal capillaries.</p> <p>3. ts cells are rich in lipids so they appear empty in sections (spongiocytes).</p> <p>4. Its cells are rich in mitochondria (with tubular cristae), smooth endoplasmic reticulum and lipofuscin pigments.</p> <p>5. Its cells secrete glucocorticoids.</p> <p>6. It is regulated by ACTH of pituitary.</p>	<p>1. It is the innermost layer of adrenal cortex.</p> <p>2. It is formed of anastomosing cords of deep acidophilic cells.</p> <p>3. Its cells contains lipofuscin and lipid droplets.</p> <p>4. The cells secrete androgen.</p>



+ Medulla of adrenal gland

- It is the **central** portion of the adrenal gland.
- It is **completely** invested with **adrenal cortex** (**not separated from it by CT. septa**)

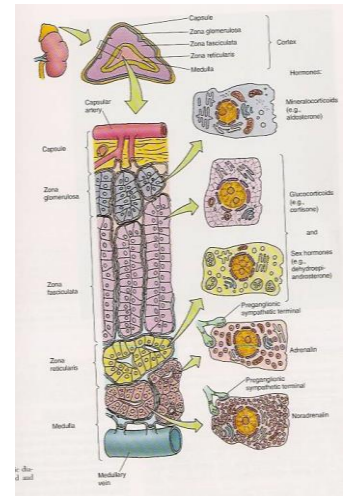
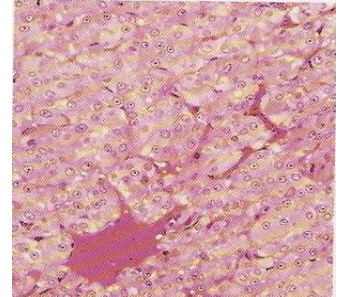
Medulla of adrenal gland contains:

Chromaffin cells (Pheochromocytes):

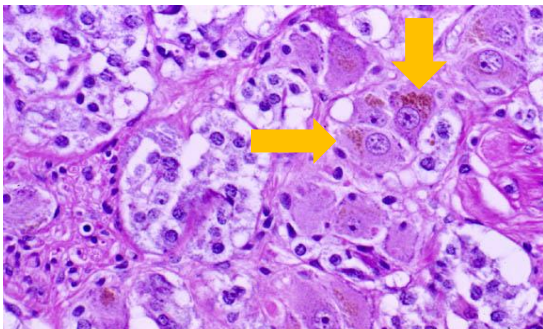
- Contains **granules of catecholamine** as that of **sympathetic** nervous system.
- (They produce **epinephrine** and **norepinephrine**).
- They stain **deep brown** with **chromic salts**.

Sympathetic ganglion cells :

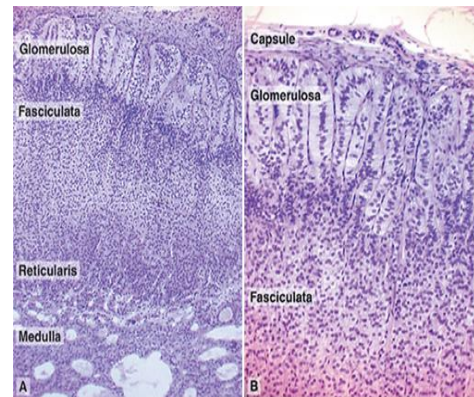
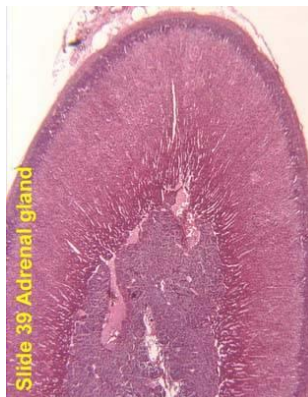
- Relay on chromaffin cells.



Neurons In Adrenal Medulla:



Adrenal Gland (cortex and medulla):





MCQs

1) The cortex of the adrenal gland is composed of?

- a. 2 layers
- b. 3 layers
- c. 4 layers

2) Zona reticularis secretes?

- a. Mineralcorticoids
- b. Glucocorticoids
- c. Androgens

3) They are stained deep brown with chromic salts?

- a. Sympathetic ganglion cells
- b. Chromaffin cells
- c. Chromophobes

4) Regarding the medulla?

- a. It's part of the cortex
- b. it's completely invested with adrenal cortex and not separated from it by CT septa
- c. it's completely invested with adrenal cortex and separated from it by CT septa

5) Which one of the following is the inner layer of the adrenal cortex ?

- a. Zona glomerulosa
- b. Zona reticularis
- c. Zona fasciculata

6) Which one of the following is the outer layers of the adrenal cortex?

- a. Zona glomerulosa
- b. Zona reticularis
- c. Zona fasciculata

7) Spongiocytes are found in:

- a. Zona glomerulosa
- b. Zona reticularis
- c. Zona fasciculata

7
a
9
5
b
4
b
3
2
c
1



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Thanks you for checking our work, Good luck.
-Team histology.