



LECTURE 4:

Adrenal gland

❑ Objectives:

At the end of this lecture, you should describe:

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.

Adrenal medulla

Adrenal gland is formed of:

- a. **Stroma**
- b. **Paranchyma which is divided into**
 - I. **Cortex** which has:
 1. Zona glomerulosa
 2. Zona fasciculata
 3. Zona reticularis
 - II. **Medulla**

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)

*It contains 2 types of cells: chromaffin & sympathetic ganglion.

1. Chromaffin cells (Pheochromocytes):

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

2. Sympathetic ganglion cells:

Relay on chromaffin cells

Zona Glomerulosa

Histological features

It's formed of clusters of small columnar cells that are rich in **SER** and **mitochondria**

Hormones secreted

Produces mineralcorticoids

Functions of the hormones

aldosterone:

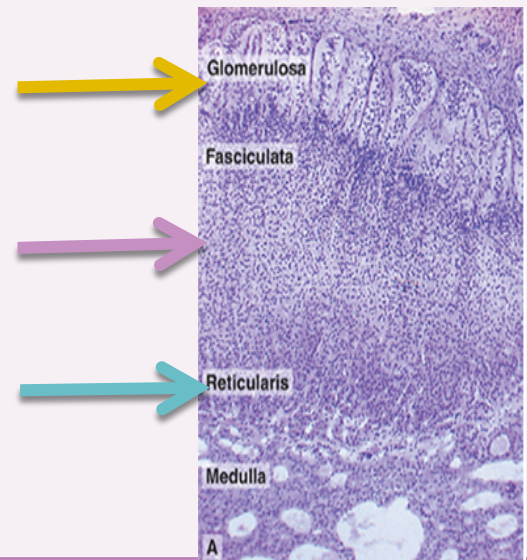
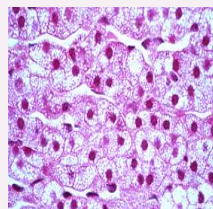
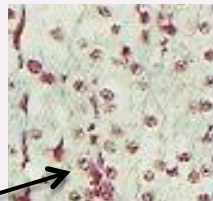
1. Reabsorbs **Na**, and **Cl**, from the lumen of distal renal tubules.
2. Secretes **K** and **H** ions actively into the lumen.

Zona fasciculata

- * It's intermediate + largest layer.
- * formed of columns of large **polyhedral cells** that are separated by longitudinal sinusoidal capillaries.
- * rich in lipid. So, they appear empty in sections (**spongiocytes**).
- * rich in mitochondria (with tubular cristae), SER and **lipofuscin pigments**.

Produces Glucocorticoids

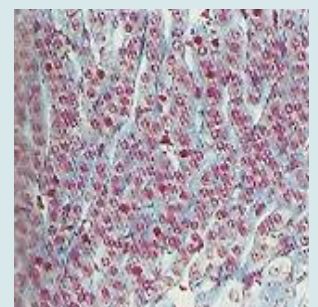
It is regulated by **ACTH** of pituitary.



Zona reticularis

- * It is innermost layer.
- * It is formed of anastomosing cords of deep acidophilic cells.
- * Its cells contain few lipofuscin and **lipid droplets**

Produces Androgen



acidophilic cells (pink)

MCQs:

1- Which of the following is true about **zona glomerulosa**:

- a. Clusters of small cuboidal cells & rich in SER
- b. Clusters of small columnar cells & rich in SER
- c. Clusters of small cuboidal cells & rich in RER
- d. Clusters of small columnar cells & rich in RER

2- Which of the following structure separates **spingiocyte** from each others?

- a. Adrenal capsule
- b. Dense connective tissue
- c. It's not separated
- d. Sinusoidal capillaries.

3- Which of the following does stain brown with chromic salt?

- a. Sympathetic ganglion cells
- b. Zona reticularis
- c. Chromaffin cells
- d. Spongiocytes

ANS: 1-b 2-d 3-c