

ADRENAL GLAND

Introduction :- This is an important endocrine gland which is roughly triangular in shape and two in number. Eustachius (1563) was describe this gland. It is found in the upper part of the Kidney. So curvier (1805) named "Suprarenal gland". The average wt. of each gland is about 4 to 14 gms but 5 gms average.

• Size :- Length - 40 to 60 mm.
Width - 20 to 30 mm.
Thickness - 3 to 6 mm.

Eustachius (1563)
was 1st to describe
it in man.

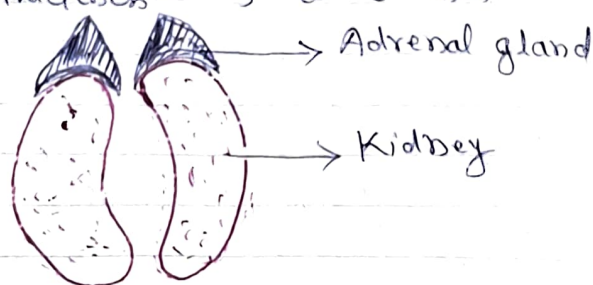


Fig :- Position of Adrenals in man.

This gland is consists of two parts outer parts the Cortex, inner parts - the Medulla. The two parts are structurally, functionally and embryologically different.

Histology of Adrenal Cortex :-

The adrenal cortex is covered by a capsule from which trabeculae pass into the gland carrying blood vessels and nerves. The cells are arranged in the following three layers from outside inwards:

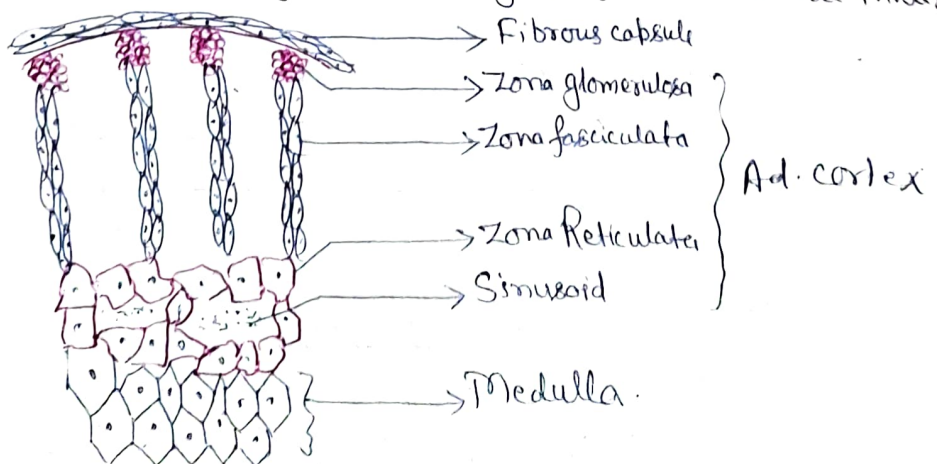


Fig - T.S. of Adrenal gland.

[1] Zona glomerulosa :- (outer)

- These are groups of columnar cells arranged long axis parallel to surface.
- cells with villi.
- Nucleus irregular.
- It secretes mainly Aldosterone & a small amount of glucocorticoids & sex hormones.

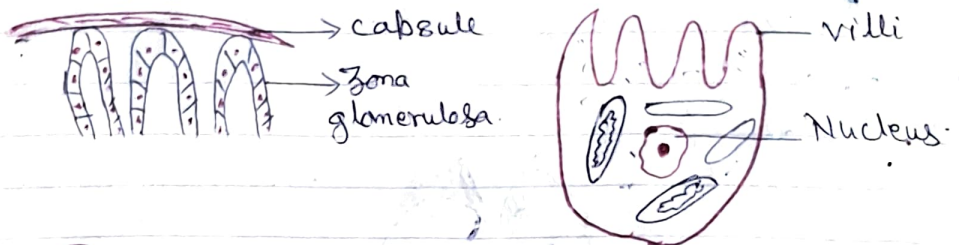


Fig:- Cells of Z. glomerulosa.

[2] Zona Fasciculata :- (middle)

- It is widest layer.
- The cells are arranged in radiating columns.
- The cells contain Pigment granules & lipid droplets.
- Nuclei larger and less dense than Z. glomerulosa.
- The cells are rich in mitochondria.
- This layer secretes Predominantly Gluco-corticoids.

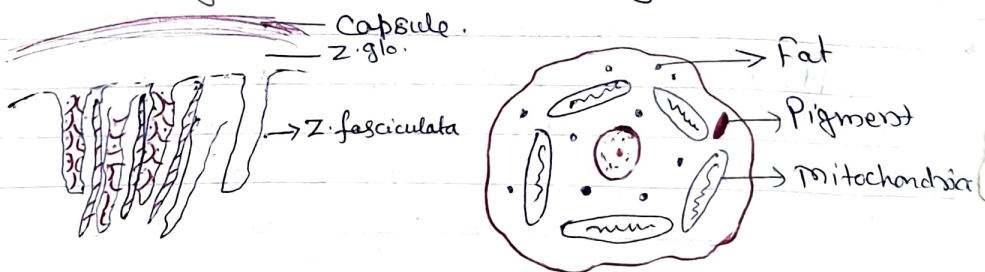
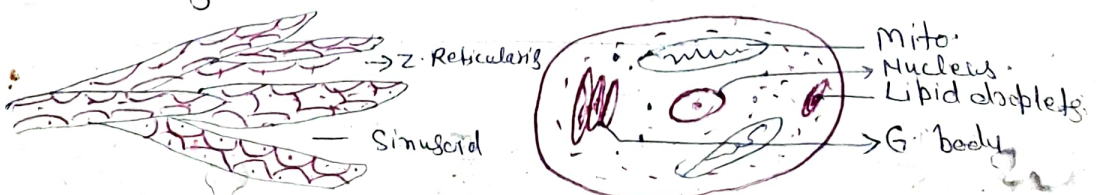


Fig:- Cells of Z. fasciculata.

[3] Zona Reticularis :- (inner)

- This is made up of irregular network of rows of cells.
- The cells contain lipid droplets.
- It secretes sex hormone & a small amount of glucocorticoids but no aldosterone.



Adrenal gland

[1] Adrenal cortex

[2] Adrenal Medulla

- i) Zona glomerulosa
- ii) Zona Fasciculata
- iii) Zona Reticulata

i) Chromaffin cells.

Hormones of Adrenal Cortex :-

Hormones of ad. cortex are Steroid in nature. They are different in function but they are collectively known as EMERGENCY HORMONE of "Cyclopentanoperhydrophenanthrene" Nucleus."

[1] Mineralocorticoids :-

Mainly secreted by Zona glomerulosa

Main mineralocorticoids are :-

- i. Deoxycorticoid
- ii. Deoxycorticosterone
- iii. Deoxycortone
- iv. Aldosterone

Function :-

i) On Mineral and water and etc. :-

- It regulates the metabolism of salt and water.
- Increase the secretion of urine.
- Increase synthesis of collagen
- Increase glycogenesis.
- Regulates skeletal growth & blood pressure.
- Adrenoglomerulotropin increase Aldosterone secretion.

[2] Glucocorticoids :-

Mainly secreted by Zona fasciculata

Main Glucocorticoids are :-

- i. Cortisol
- ii. Cortisone
- iii. Corticosterone
- iv. 11-dehydrocorticosterone