/2010

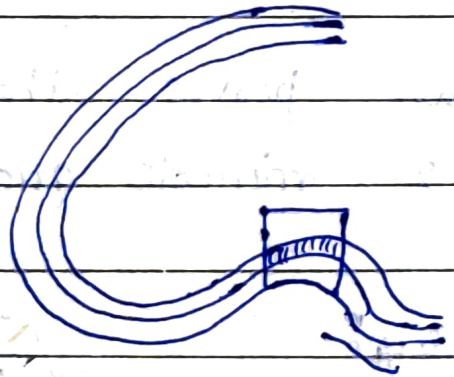
day.

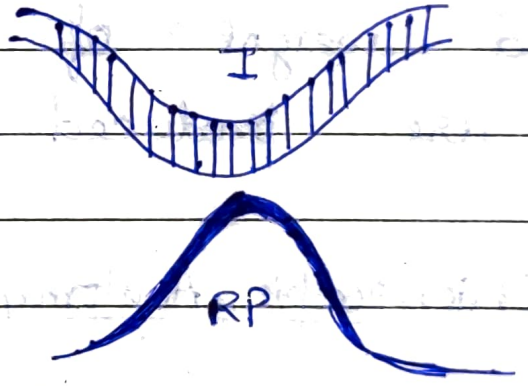
PITUITARY / HYPOPYSIS GLAND.

Hypo - below

Location - Found just below the diencephalon in the cavity of sphenoid bone and this cavity is k/a sella turcica.

Derivation / Development of pituitary gland:



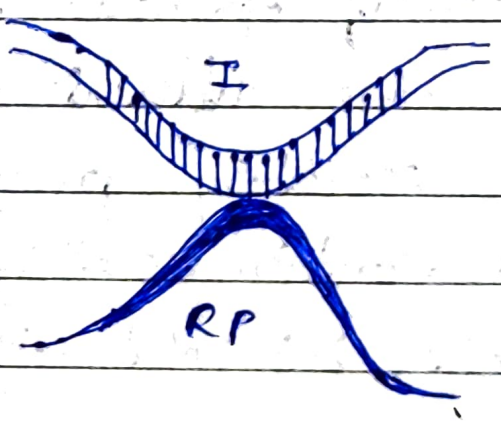


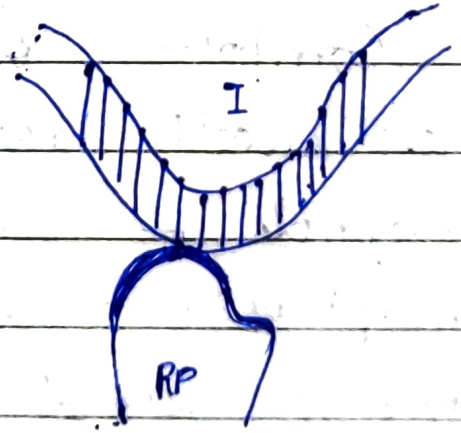
A - Adenohypophysis

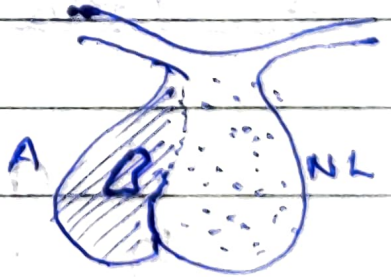
NL - Neural Lobe.

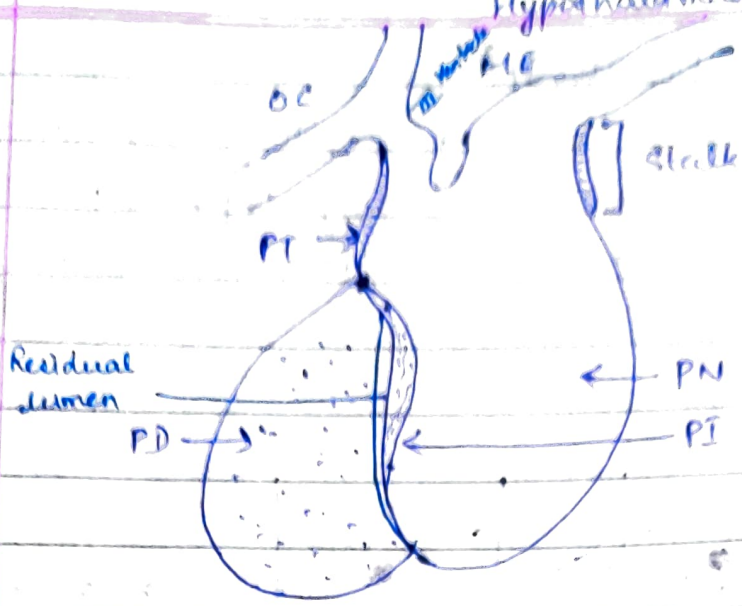
RP - Ruthke's Pouch (Stomoedium)

I - Infundibulum









ME - Median eminence
OC - Optic chiasma
PT - Pars tuberalis
PD - Pars distalis
PI - Pars intermedia
PN - Pars nervosa.

PT + PD - Anterior lobe
PI - Intermediate lobe

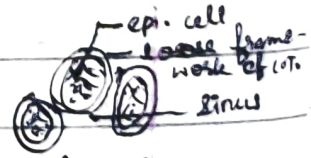
Pituitary

Adenohypophysis (adeno- anterior)
- P. distalis } Ant. pituitary
- P. tuberalis }
- P. intermedia } Intermediate pituitary

Neurohypophysis
- P. nervosa. (NH) Post pituitary
- infundibulum.

→ Rathke's pouch (Oral ectoderm of stomodeum.) give ~~out~~ rise to adenohypophysis.
Infundibulum is neural in origin.
→ Place where rathke's pouch and infundibulum meet, they produce p. intermedia.
Weight of pituitary = 600 mg
* Size and weight of pituitary also proves that hormones are produced in very minute quantity.

CYTOLOGY (Microscopic Anatomy) of pituitary:



(1) Pars distalis → Composed of regular masses of epithelial cells.
These cells are of two different types.
a) Chromophils - contain secretory granules in cytoplasm
b) Chromophobes. - doesn't contain secretory granules
Thus chromophils are secretory cells but not the chromophobes.

→ Chromophobes are precursors of chromophils.

→ Chromophils are major secretory cells of pars distalis and are of two different types

i) Acidophils — ii) Basophils

Somatotrophs or somatotrops (50% of total cells)

Lactotrophs or Lactotrops (10-25%)

→ Gonadotrophs (15-20%)
→ Thyrotrophs (least common)
→ Corticotrophs (10-15%)

Hormones secreted by chromophil cells:

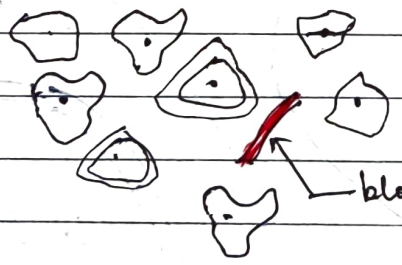
Somatotrophs – STH/GH
Lactotrophs – Prolactin
Gonadotrophs – LH & FSH
Thyrotrophs – TSH
Corticotrophs – ACTH

(2) Pars intermedia →

It consists of polygonal cells. These cells contain secretory granules. Hormone coming from pars intermedia is MSH (melanocyte stimulating hormone).

(3) Pars nervosa (neural lobe/ posterior lobe) →

Composed of cells c/a pituicytes. (non-secretory)



irregular shaped pituicytes.

branched or unbranched both.

Hormones produced – Oxyphysin (or oxytocin) and vasophysin (or neurophysin) from neurosecretory cells of hypothalamus and stored in pituicytes.

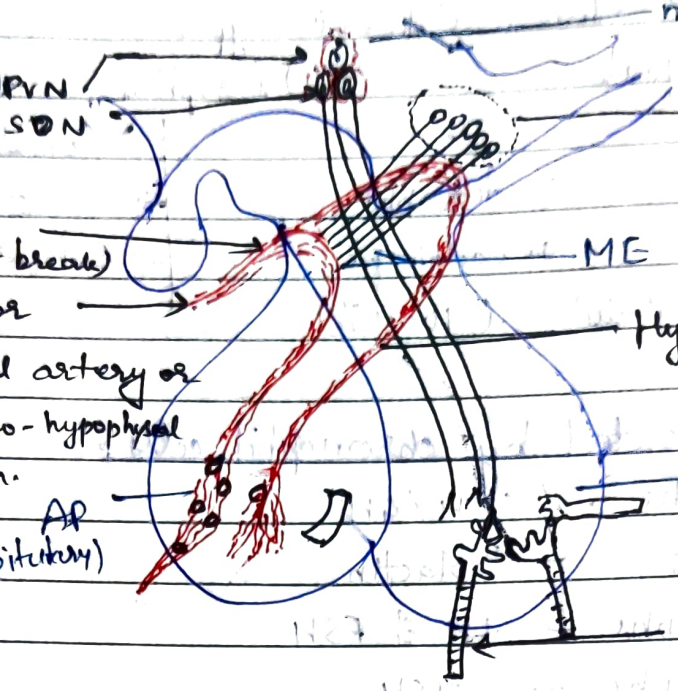
stored are bound to protein called neurophysin

Vascular supply of pituitary:

Anterior pituitary is supplied by superior hypophyseal artery.

Post- pituitary " " " inferior " ",

and posterior pituitary is supplied by inferior hypophyseal artery.



Wednesday.

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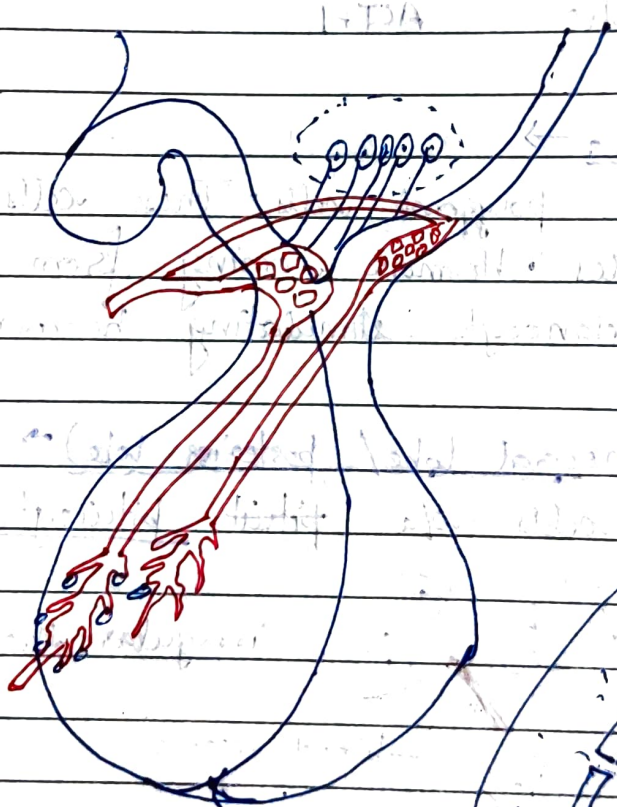
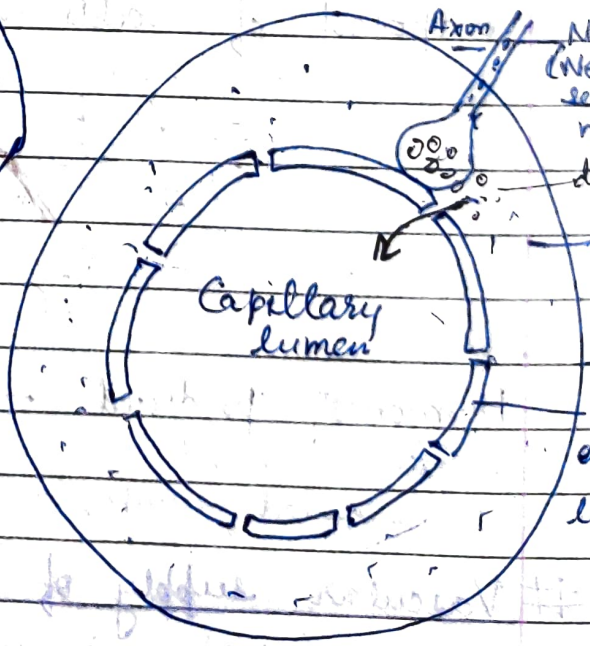


Scharrer & Scharrer.



ME under EM

- Sup. hypophyseal artery after reaching ME form a network of capillary and produces primary plexus. afterward it enter in ant pituitary and produces sec. c. plexus (highly dense). These network will form cells cla secretory cells.
- Hypophyseal portal vein connects primary and sec. capillary plexus. This ~~plexus~~ HPV is connection b/w hypothalamus and ant. pituitary.

- Hypophysiotropic area is area of hypothalamus in which parvicellular nucleus is found. It receives secretes material of hypothalamus and transfer to primary to capillary plexus.
- Median eminence is get both neural and vascular supply.
- NSM is ~~dilch~~ discharged in perivascular space come to capillary lumen and response - Schaarer and Scharrer
- Two scientists Wislocki and King (1936) demonstrated in rhesus monkey that the ~~com~~ connection of hypothalamus ~~to~~ to pituitary.

- Green and Harris (1949) they experimented in >100 rats by
conclusion: Hypothalamus is in connection to pituitary and controls latter.

CNS → Neural connection → ME → HPV connection → Ant-pituitary.