

Pituitary gland summary



اللهم اني سئرت من ذوي وقوتي والعبأتك اى حوالك وقوتك يا ذا العزة المتين ♡

Anatomy of the pituitary:

● Pituitary is controlled by the hypothalamus *«Big Boss»*

- Stimulating / inhibiting
- Produces two main types of hormones : ADH , OXYTOCIN

this two hormones are produced in the hypothalamus and secreted from the posterior lobe of pituitary.

● Hypothalamus is connected to the pituitary gland by stalk named : infundibulum

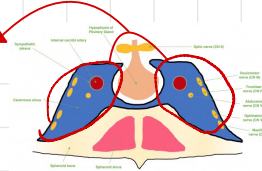
● Pituitary gland is purely endocrine gland

↳ precisely it connect the posterior lobe of pituitary to the brain.

● Pituitary is located in bony depression in the base of skull named : sella turcica (hypophyseal fossa)

* Relations of pituitary gland :

● In the lateral aspects of pituitary -> located the cavernous sinus



● Posterior to pituitary : * dorsum sellae
* pons
* basilar artery

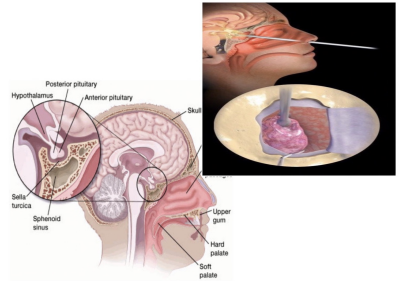
● Anterior to pituitary : * sphenoid sinuses

● Roof is formed by : * diaphragma sellae

● Inferiorly : body of sphenoid

Endoscopic Transnasal/Transsphenoidal

- Is the most common procedure for removing pituitary tumors.
- The neurosurgeon reaches the tumor through the nasal passages and the sphenoid sinus.
- Less-invasive approach--avoid important brain structures by accessing the pituitary gland from underneath the brain.
- Transsphenoidal surgery leaves no visible scar, minimizes the risk of complications, and enables faster recovery.



we can reach the pituitary from its anterior aspect.

pituitary located deep inferior to the brain so it is much more safe to reach pituitary through the sphenoidal sinuses

Craniotomy!!!!

NOTE : Adenohypophysis = Anterior lobe ⇒ A / A
neurohypophysis = posterior lobe

Embryologic origin of pituitary

The anterior pituitary : derived from evagination of the ectoderm of oropharynx towards the brain (upwards) **RATHKE'S POUCH**

The posterior lobe : derived from down growth neuroectoderm

⇒ Both derived from ectoderm.

⇒ developing of pituitary gland starts by the 4th week of gestation.

⇒ Rathke's pouch **disappears** later in (6-8) week of gestation.

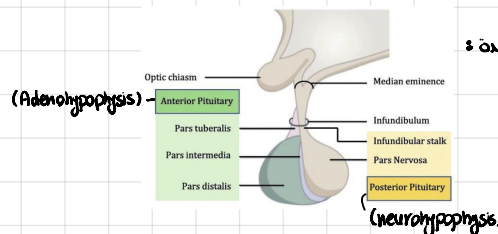
Composition of pituitary:

Anterior pituitary composed of :

- pars distalis
- pars intermedia : locates between pars nervosa and distalis
- Pars tuberalis : locates around infundibulum (**memorize it like this** : infundibulum is tube so the part that surrounds this tube named tuberalis)

Posterior pituitary composed of :

- Pars nervosa



هورة لتوضيح أجزاء الغدة :

MRI :

Posterior pituitary appears whitish in color

Blood supply of pituitary:

Internal carotid artery branches:

- **inferior hypophyseal artery** -> supplies posterior pituitary
- **Superior hypophyseal artery** -> supplies infundibulum and median eminence

What about anterior pituitary ???

By :Portal system

احضروا فيديو عبدالهادي محاضرة ٢+٣ من الدقيقة (22:32) حتى الدقيقة (27:13) [عز تنسج](#)

Superior hypophyseal Artery



Primary plexus of hypophyseal portal system



hypophyseal portal veins



secondary plexus of hypophyseal



hypophyseal veins

اش بنستفيد من ال portal system :

- blood supply to anterior pituitary
- Hormones of hypothalamus reach the anterior pituitary to stimulate or inhibit its secretions

ثاني نقطة مميزاتا برضو انها بتسمح للهرمونات يوصلن بدون ما يتغير تركيزهن اذا مش موجود البورتال سستم رح يضطر الدم المحمل بهذول الهرمونات يلف فالجسم وبعدين يوصل لل anterior pituitary وهذا رح يقلل من تركيزهم

Secretions of hypothalamus :

To neurohypophysis (posterior lobe) :

- supraoptic and paraventricular Ns.

ADH ←

→ oxytocin.

- These hormones reach the neurohypophysis (posterior pituitary) by the hypothalamic-hypophyseal tract and stored there .
- So the posterior pituitary storing the hormones and not produce it
- pars nervosa contains the axon terminals (secretory bodies)
- infundibulum contains the unmyelinated axons
- Axons are connecting the supraoptic and paraventricular nuclei with the posterior pituitary

To adenohypophysis (anterior lobe) :

Cells are divided into two groups: ↳ chromophobes (البرهان اللسعة)

↳ chromophils (حبيبات اللسعة)

* **Acidophils** : somatotrophes , lactotrophes

* **Basophils** : corticotrophes , thyrotrophes , gonadotrophes

About pars distalis :

- **biggest** 75%
- Thin fibrous capsule
- Chromophobes and chromophils cells
- Chromophils -hormones stored in cytoplasmic granules (basophils/acidophils)

About pars tuberalis :

- Small funnel-shaped region surrounding the infundibulum
- Most of the cells are **gonadotrophs** .

Hypothalamus secretes releasing and inhibitory hormones to inhibit or stimulate adenohypophysis (anterior lobe)

↳ **inhibitory hormones** :

(-)

• Prolactin inhibitory hormone (PIH)

• Growth hormone inhibitory hormone (GHIH)

↳ **stimulatory hormones** :

(+)

• thyrotropin releasing hormone (TRH)

• gonadotropin releasing hormone (GnRH)

• growth hormone releasing hormone. (GHRH)

• corticotrophin releasing hormone. (CRH)

About pars intermedia :

- **Colloid filled cyst** -> in pars intermedia
- **In pars intermedia POMC cleaved differently to MSH , gamma LPH, ENDORPHIN**
- **Contains basophils (corticotrophes), chromophobes**