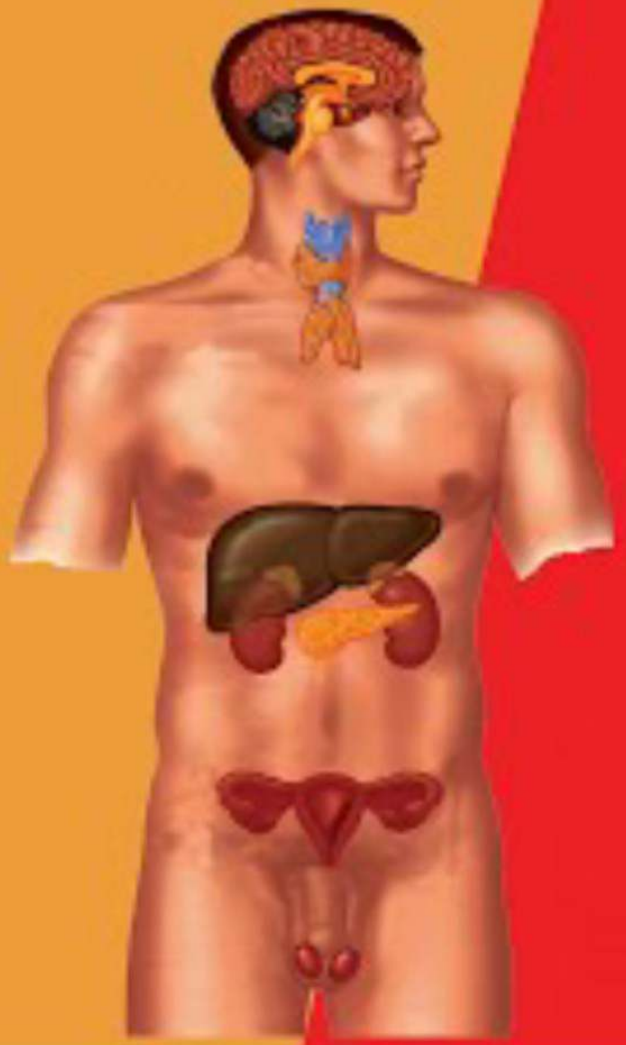
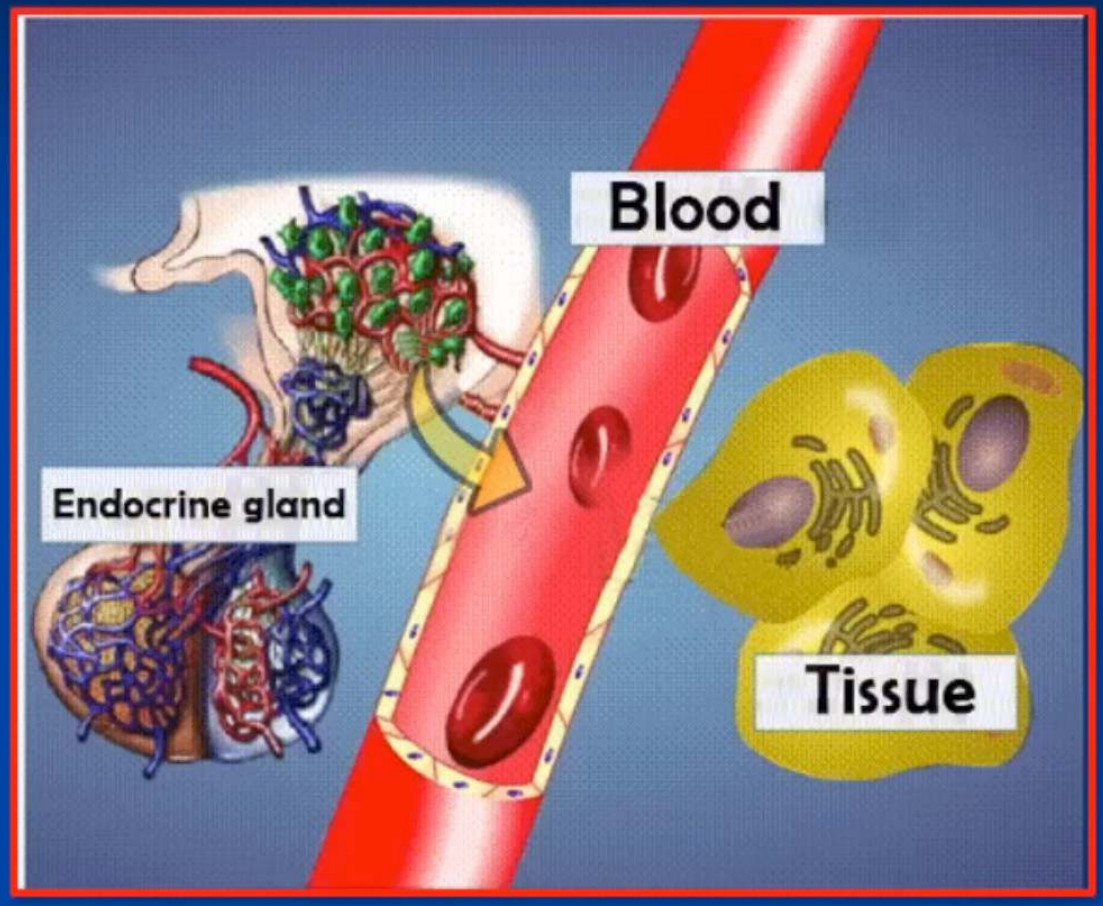
Endocrine System



1

Pituitary Gland

❖ What is the endocrine system?



- The endocrine system is a group of glands which drain their secretion (hormones) directly into the blood *without passing in a special duct system.*

❖ What are the endocrine glands?

I. Pituitary gland

II. Thyroid gland

III. Parathyroid gland

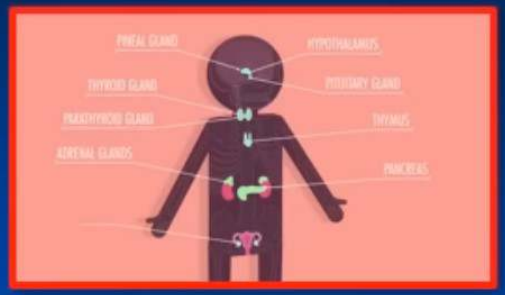
IV. Thymus

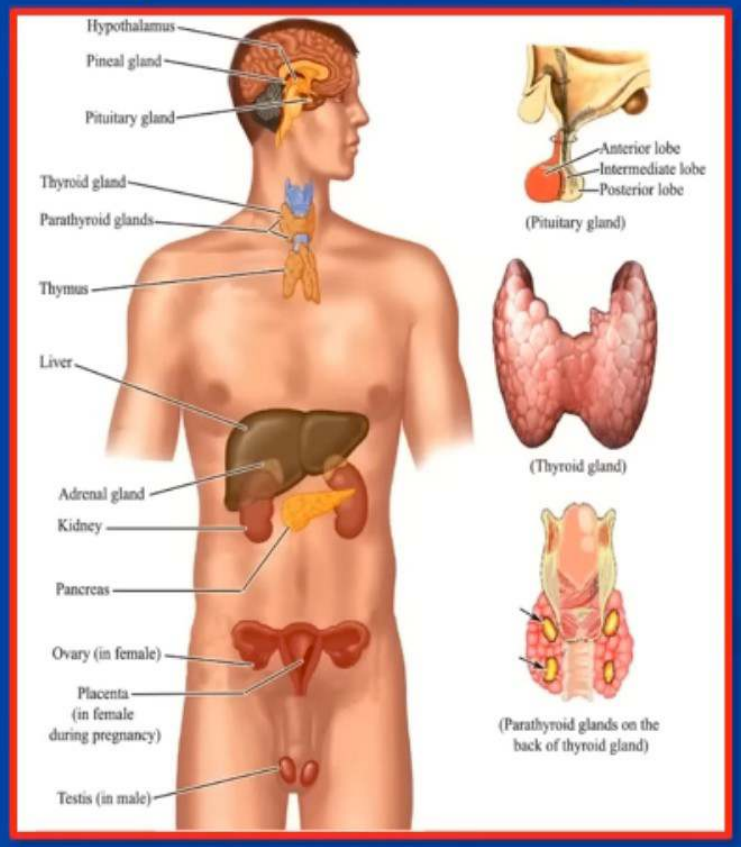
V. Pancreas

VIII. Suprarenal gland

VII. Ovaries

VI. Testis



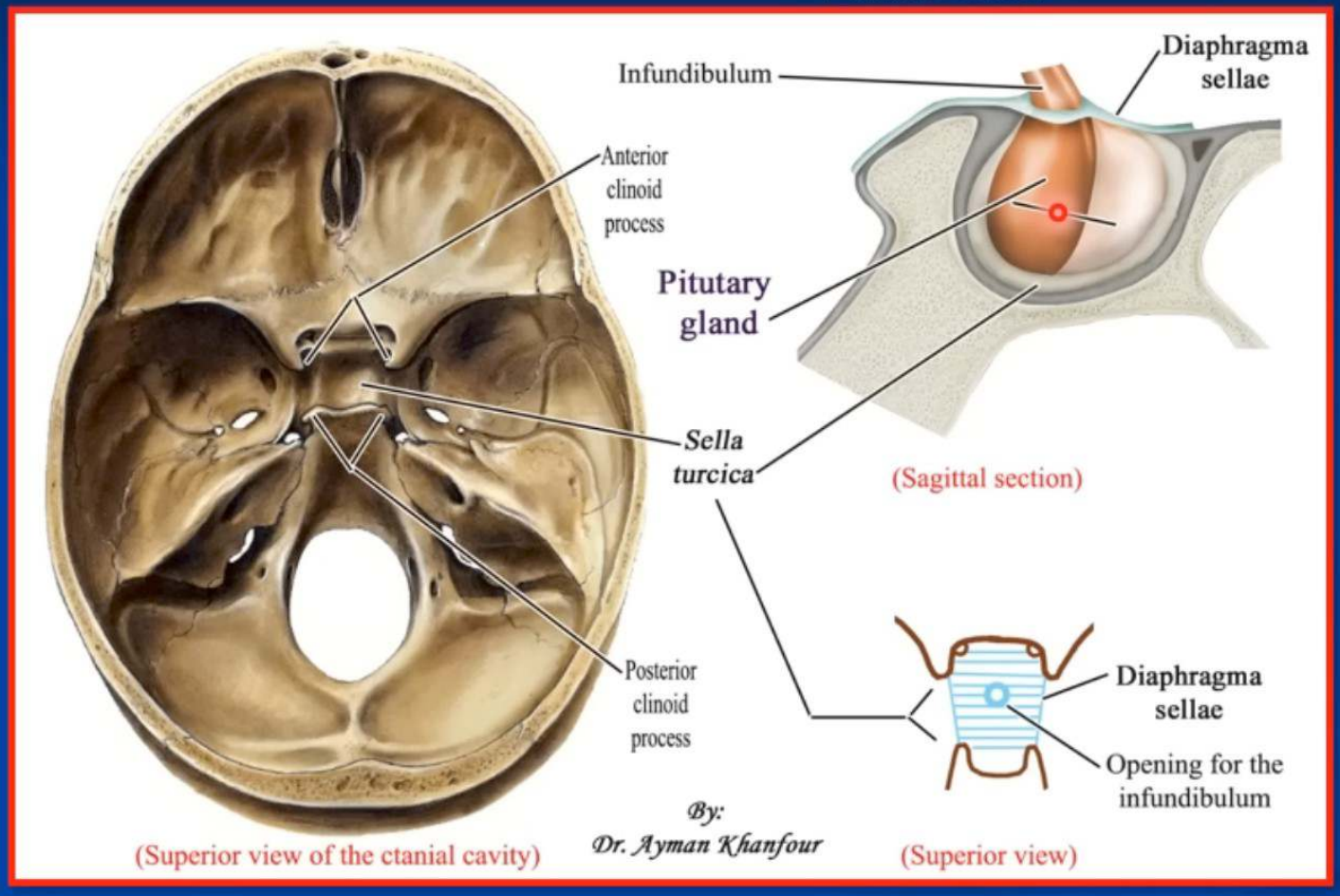


Pituitary Gland

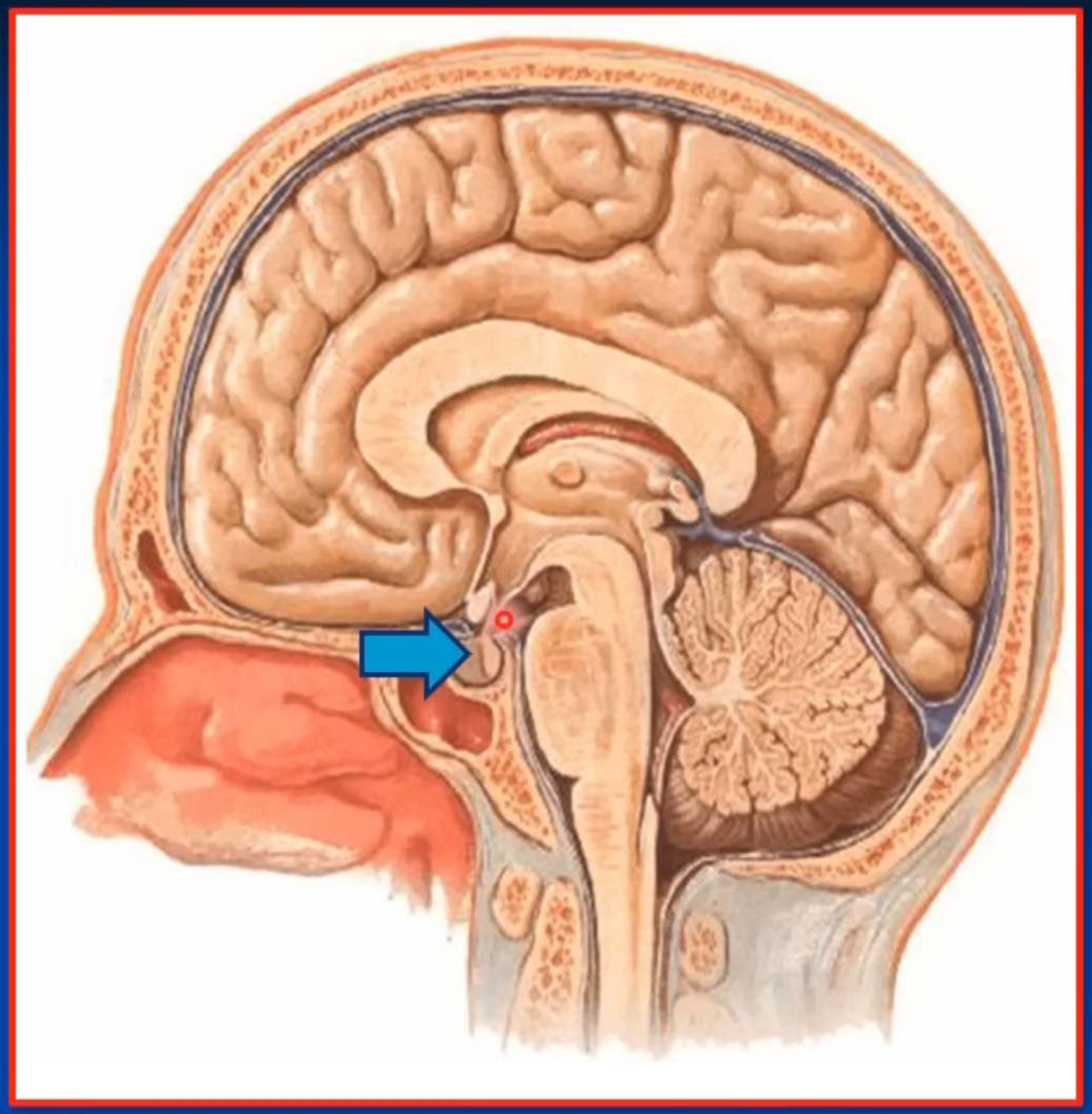
- ✓ Anatomy of the pituitary gland
- ✓ Development of pituitary gland

Anatomy of Pituitary Gland

Site

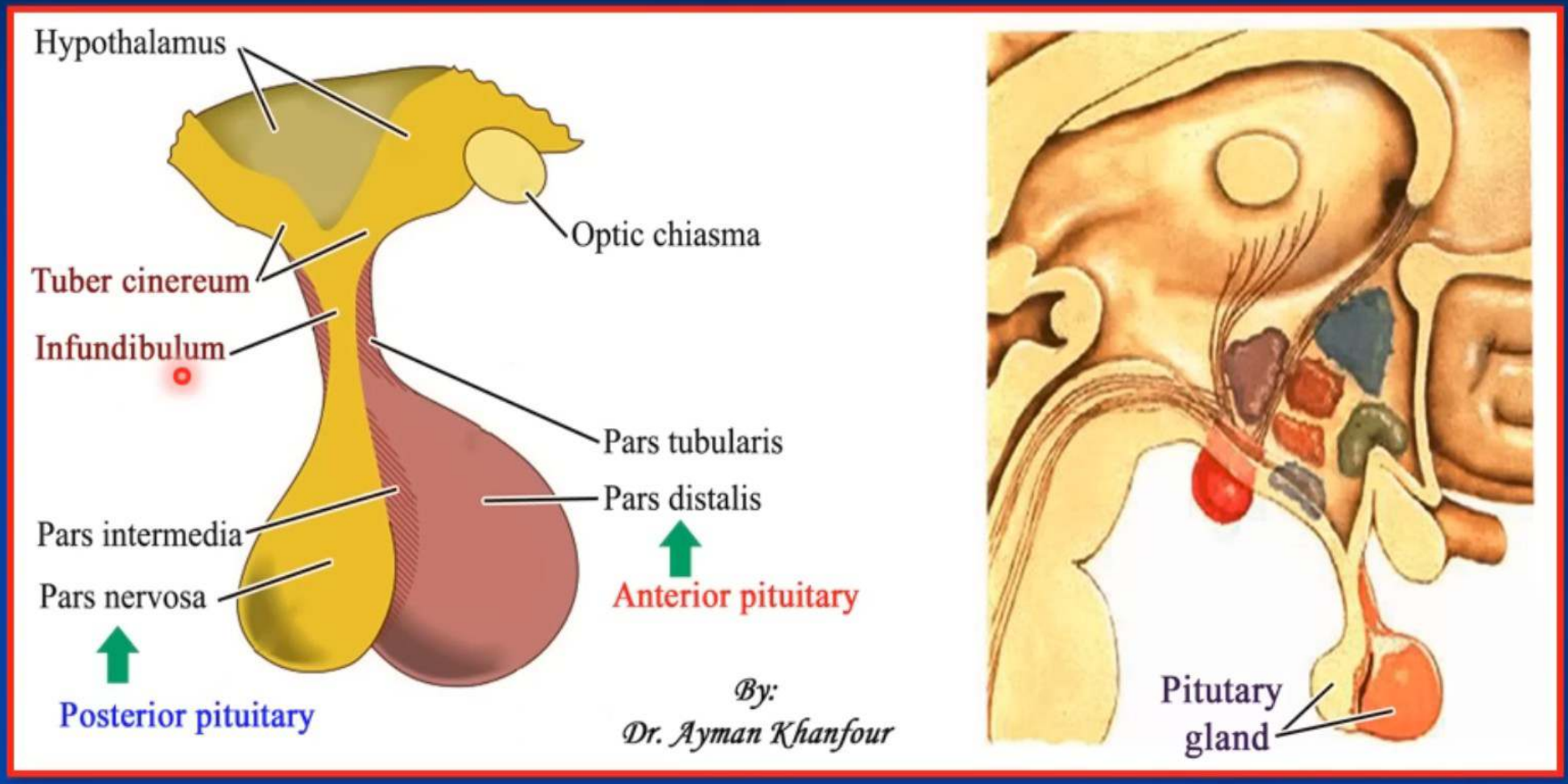


- It is a small ovoid body in the hypophyseal fossa (sella turcica).
- It is roofed by the diaphragma sellae (one of the dural folds).



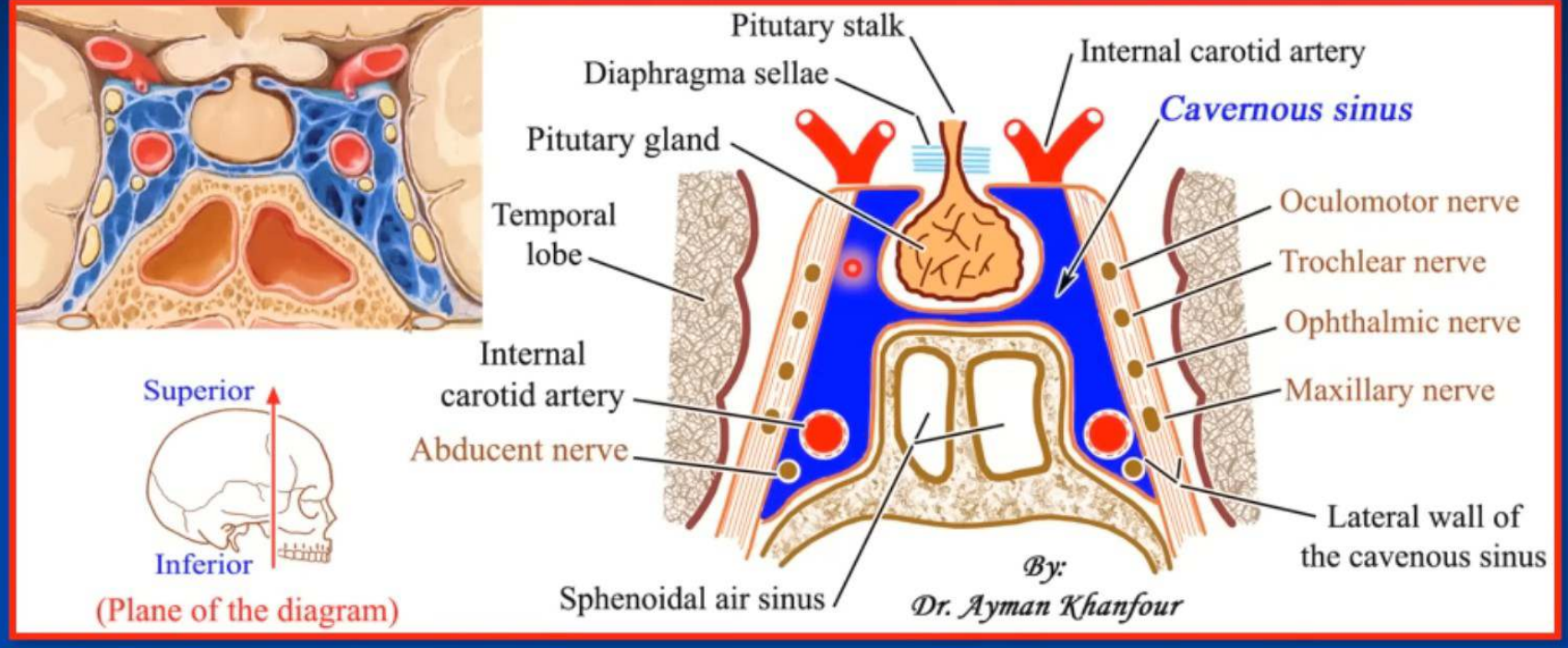
(Site and connections of the pituitary gland)

Connections

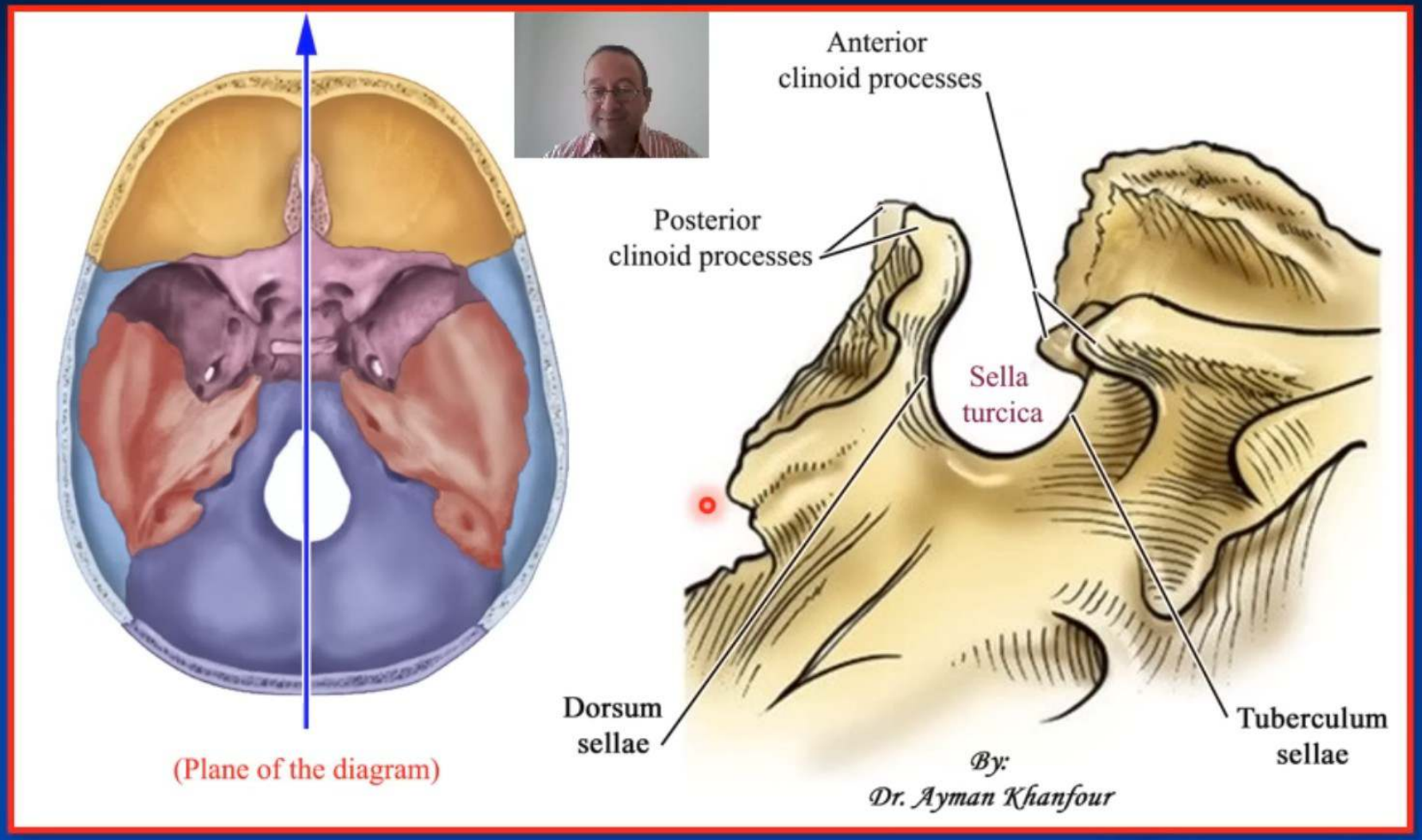


- It is connected to the tuber cinereum of the brain by a hollow conical stalk called the infundibulum (passes through an opening in the diaphragm sella).

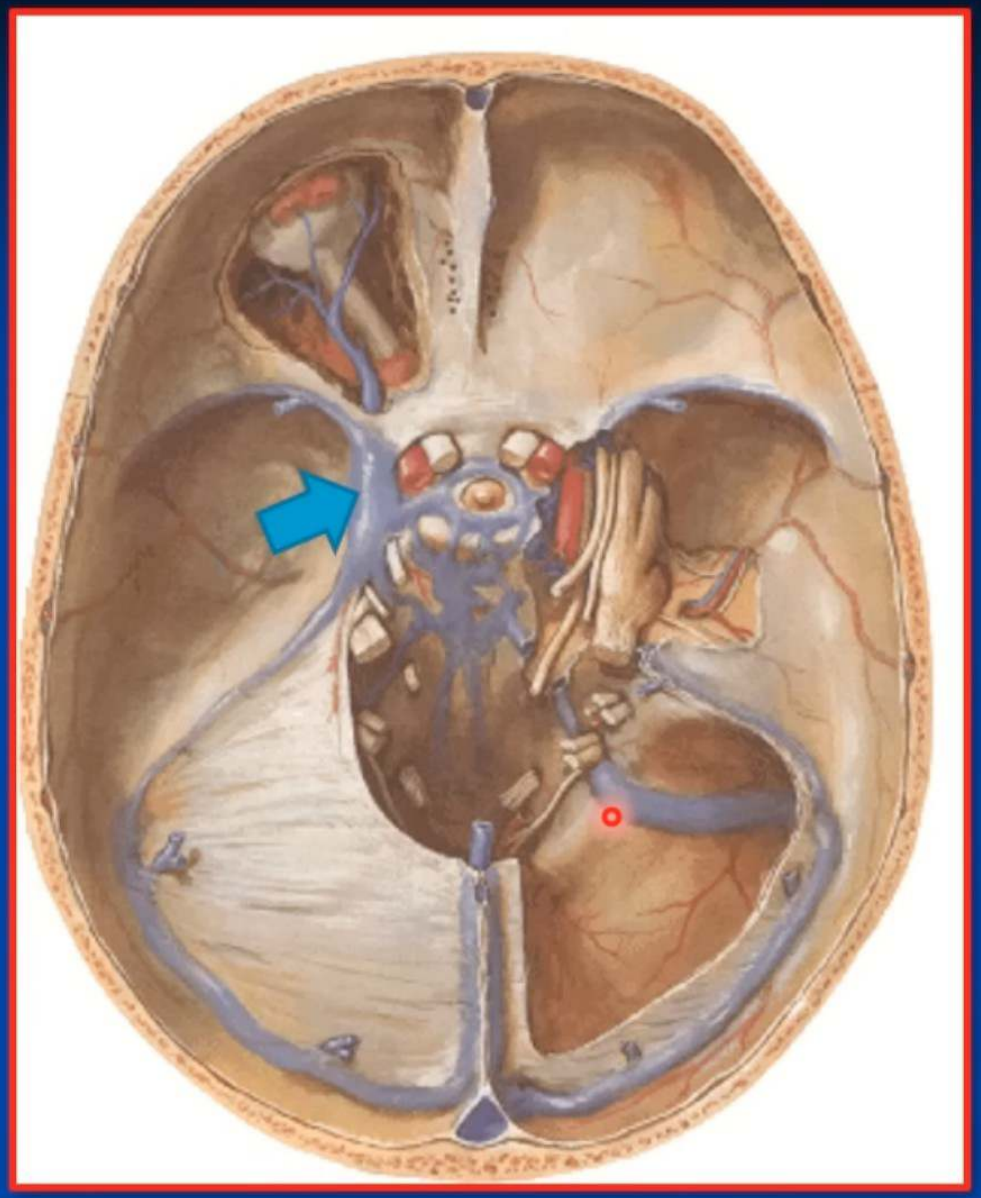
Relations



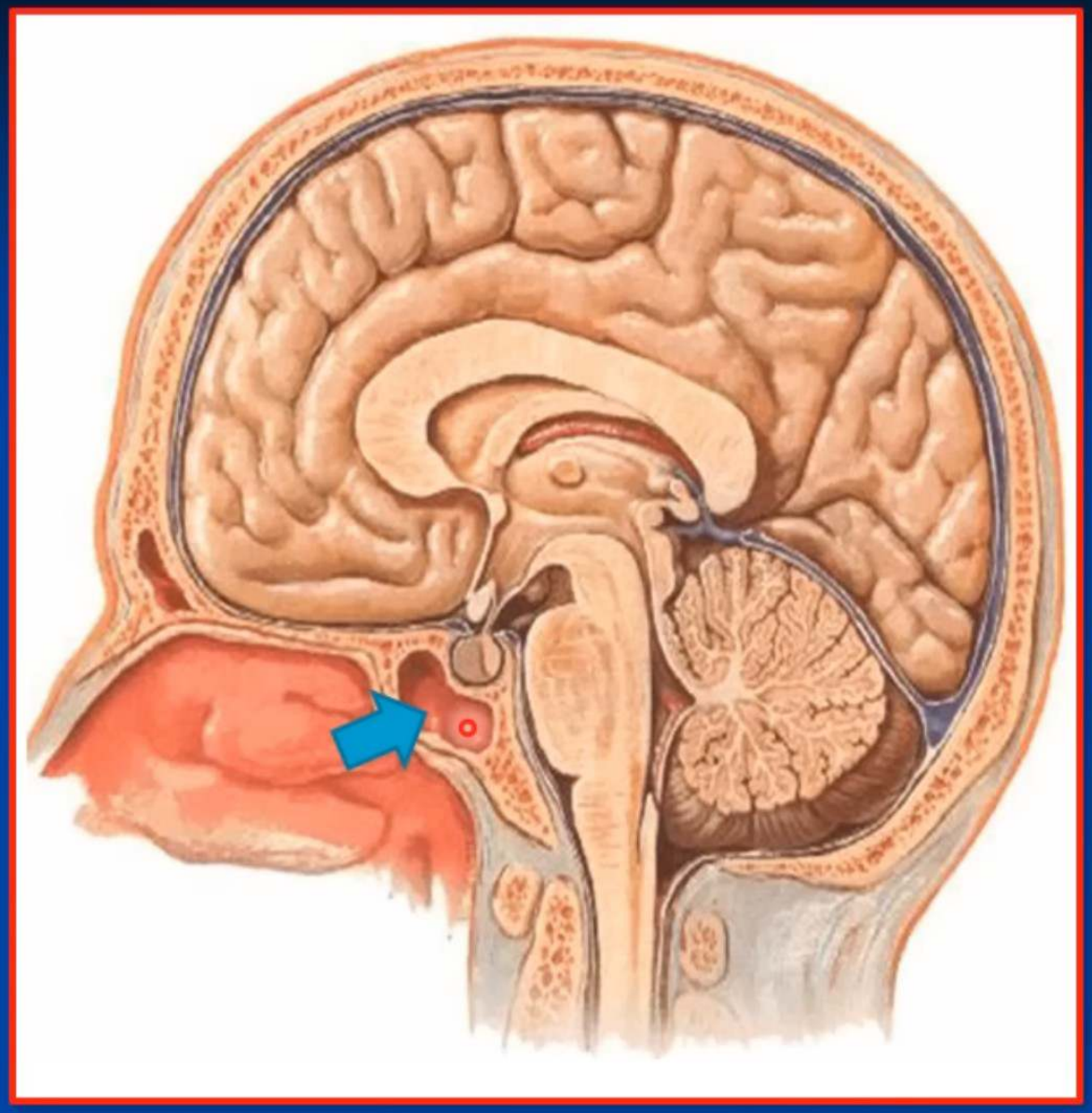
- **Superior:** Diaphragma sellae which separates the gland from the optic chiasma.
- **Inferior:** Body of the sphenoid separating the gland from the sphenoidal air sinus which separates the gland from nasopharynx.-
  - The gland is separated from the bone by two layers of dura mater and the inter-cavernous sinuses.
- **On each side:** Cavernous sinus with its contents.



- **Anterior: Tuberculum sellae and sphenoid air sinus which separates the gland from the nasal cavity.**
- **Posterior: Dorsum sellae separating the gland from the pons and the basilar a.**



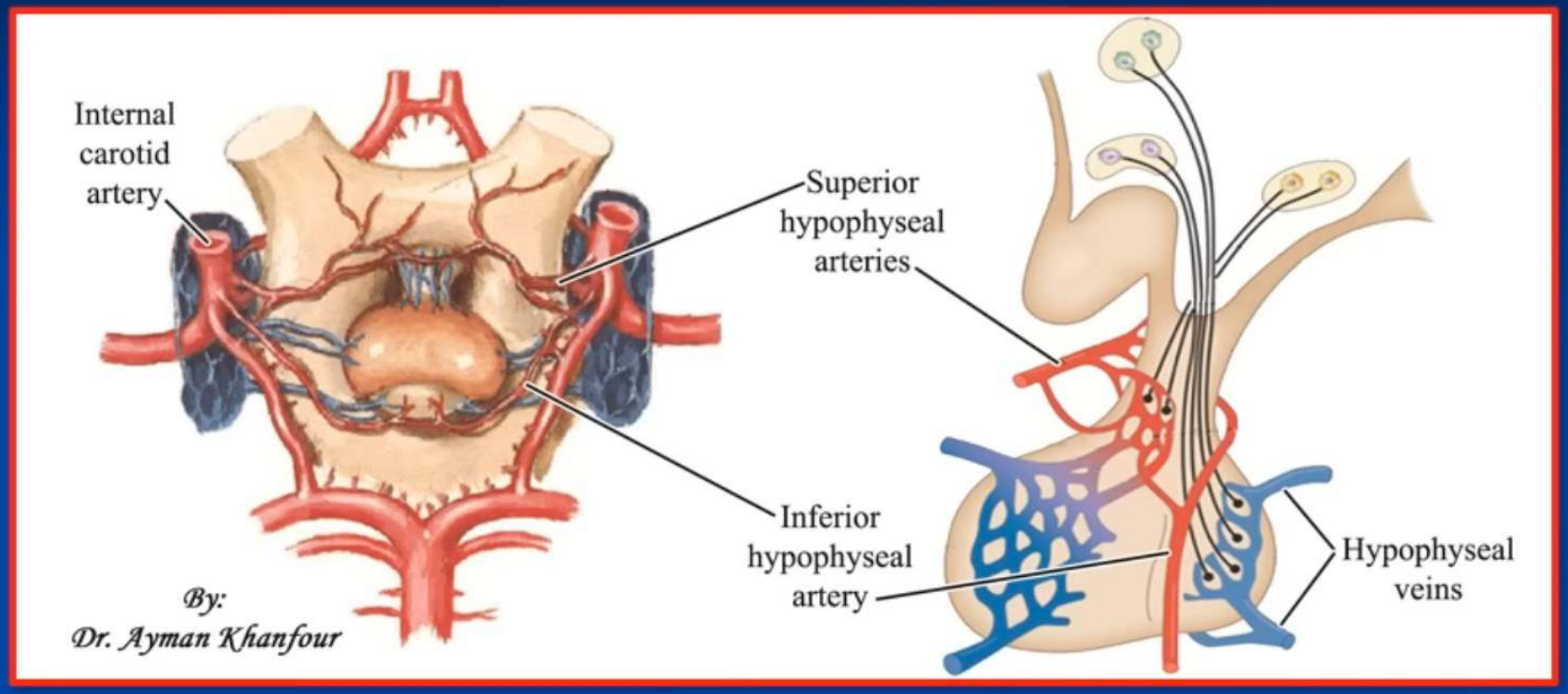
(Cavernous sinus)



(Sphenoid air sinus)

(Relations of the pituitary gland by Dr. Ayman – Mp4)

Blood Supply



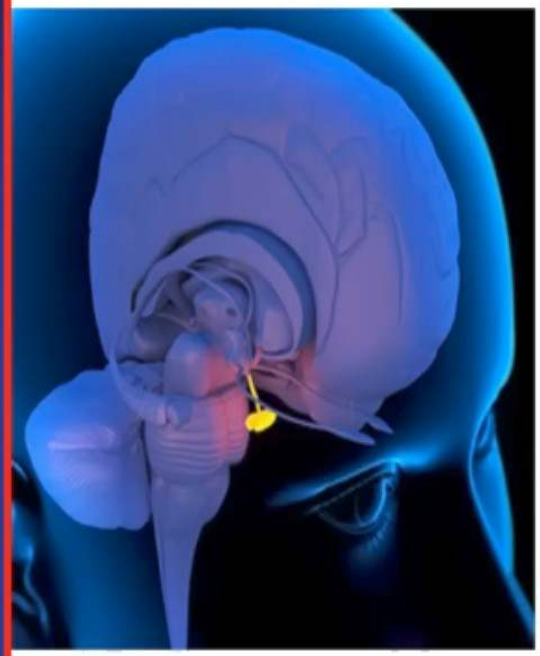
A. Arterial supply

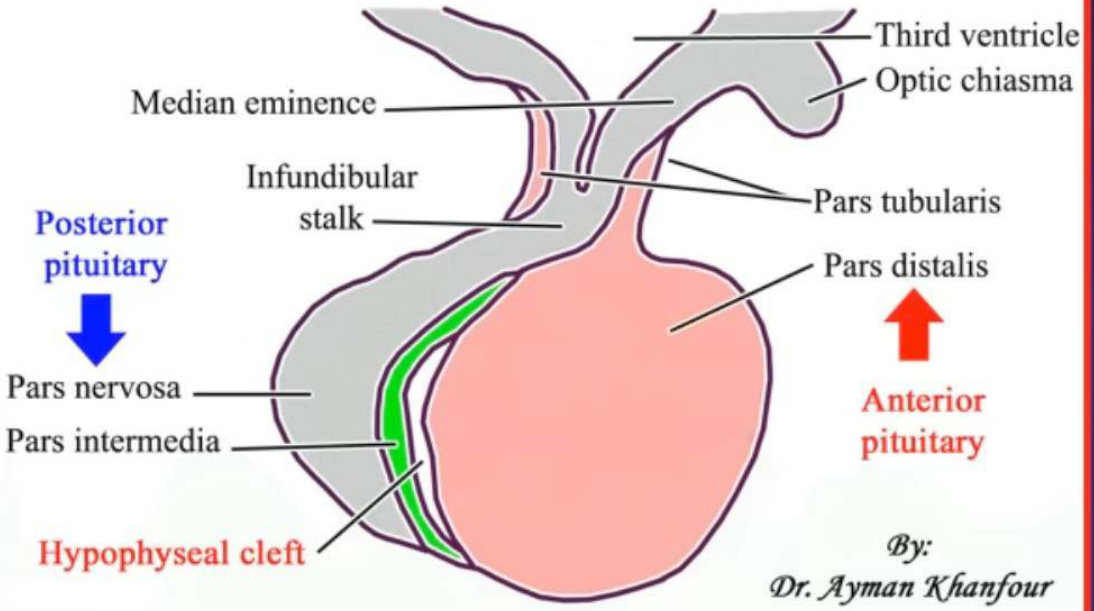
1. Superior hypophyseal arteries (several branches) (from internal carotid a.)
2. Inferior hypophyseal artery (one branch) (from internal carotid a.).

B. Venous supply

- Into the cavernous and intercavernous sinuses.

Lobes of Pituitary Gland



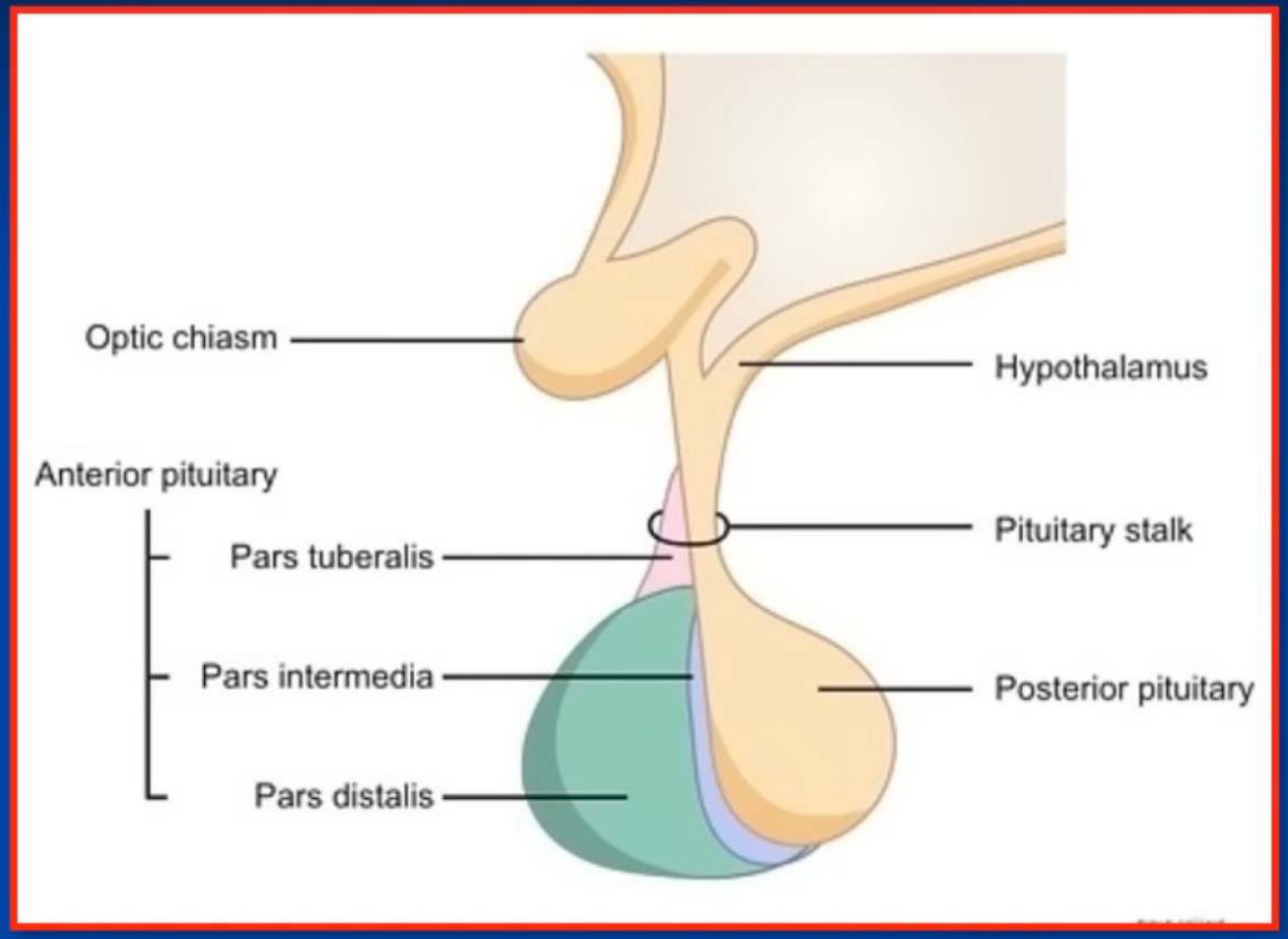


1. Anterior lobe: **Anterior to the hypophyseal cleft.**
2. Posterior lobe: **Posterior to the hypophyseal cleft.**

- **Hypophyseal cleft is a remnant of the embryonic Rathke's pouch that extended up from the roof of the oral cavity**
- **It separates pars intermedia from pars distalis.**

Development of Pituitary Gland

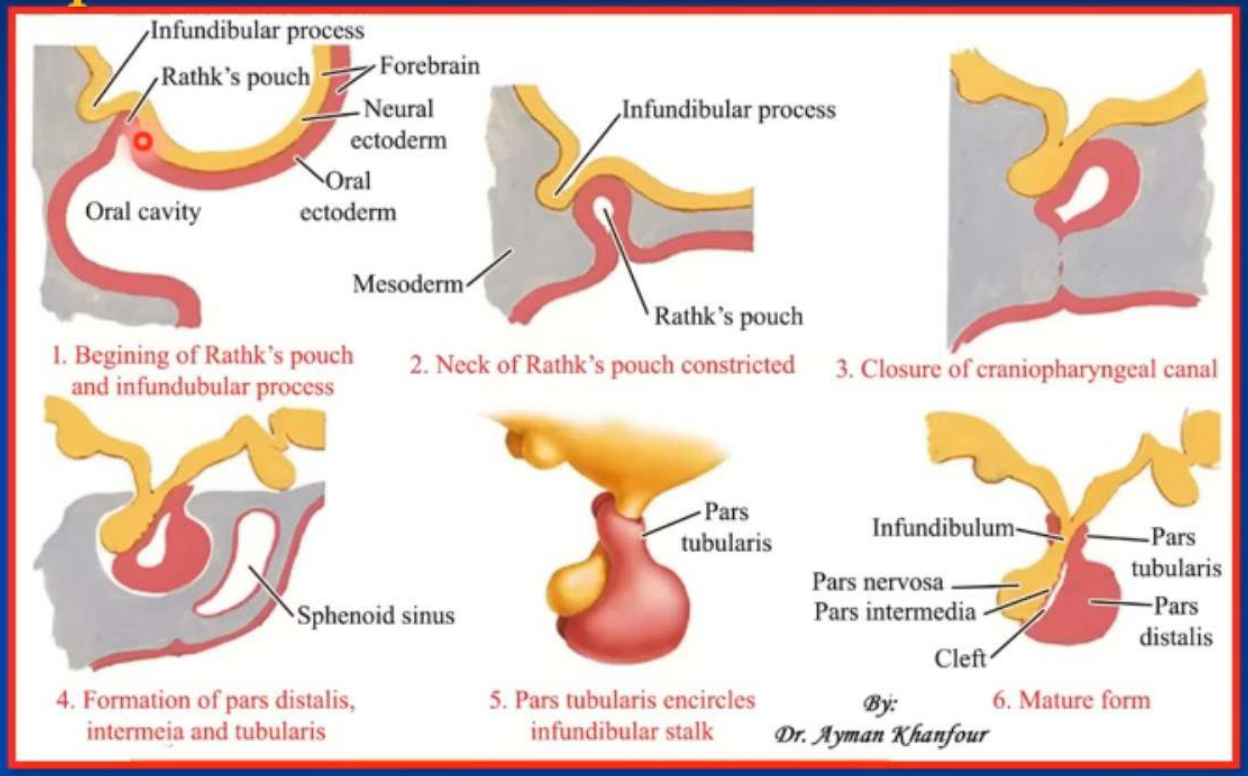
Embryological Origin



a. Adenohypophysis (Ant. pituitary): Somatic ectoderm (Rathke's pouch)
b. Neurohypophysis (Post. pituitary): Neuroectoderm (Pars nervosa)

Development

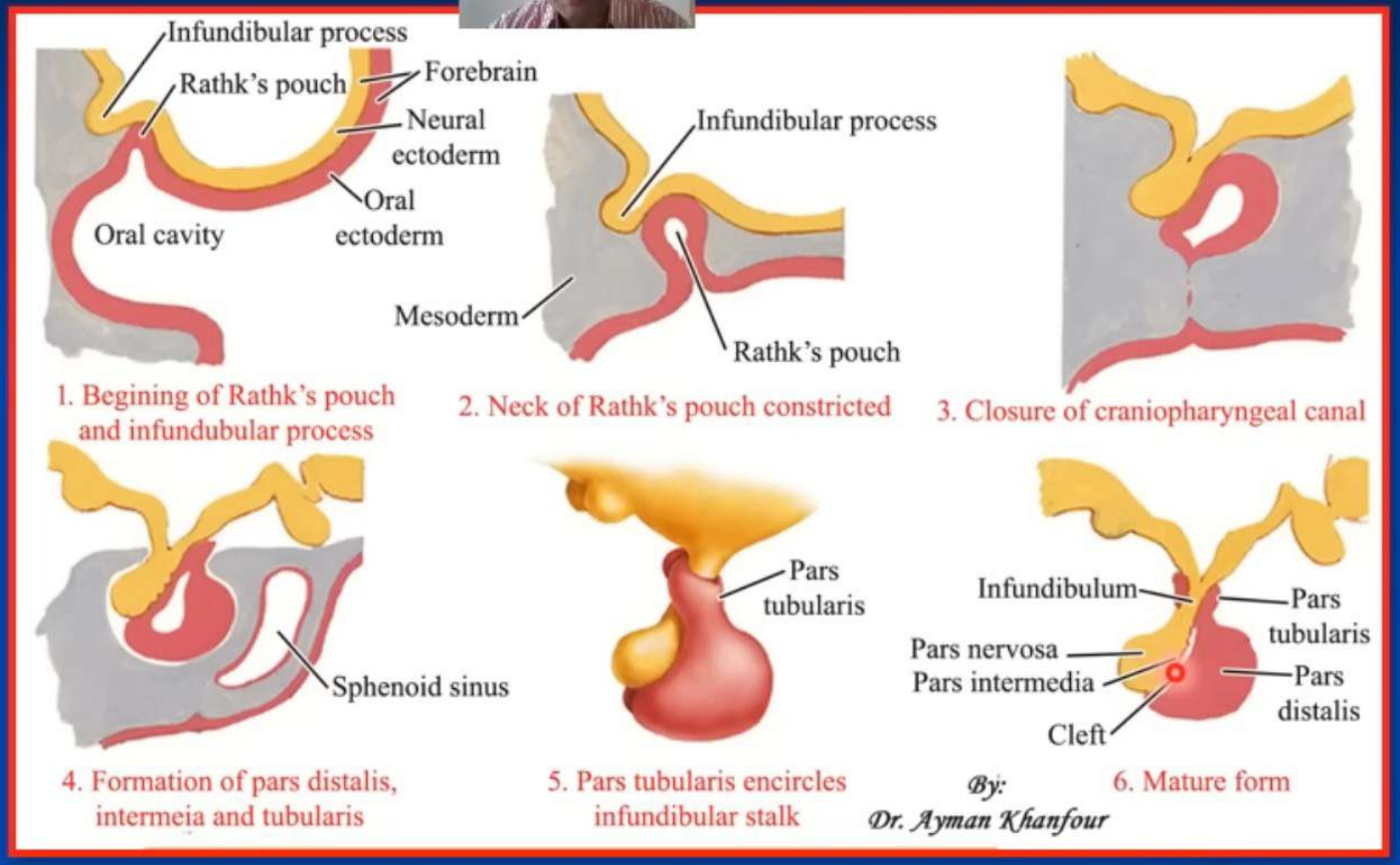
a. Buccal primordium



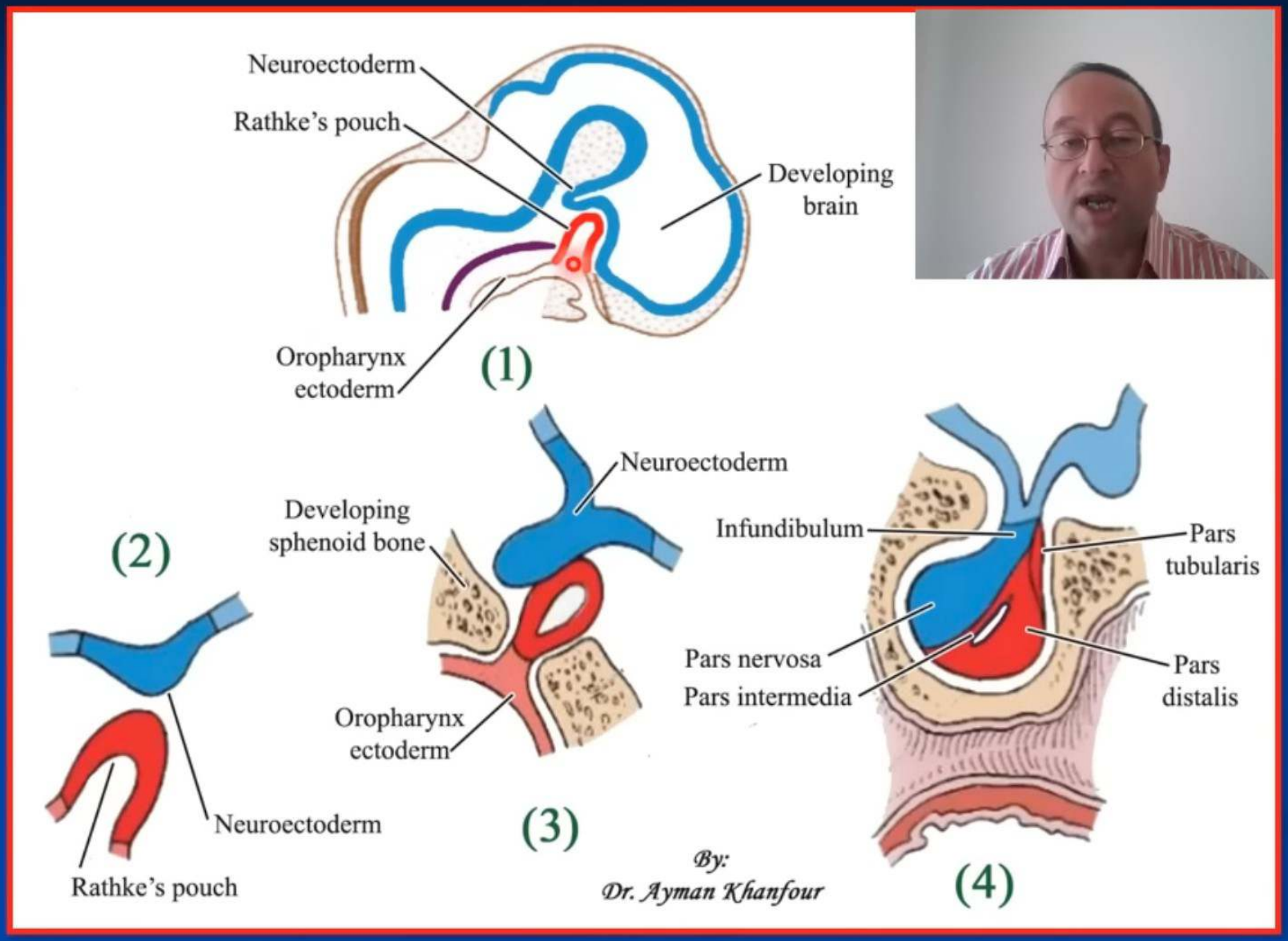
- The ectoderm of the roof of the primitive pharynx proliferates to form "Rathke's pouch" which grows cranially (upwards) forming Rathke's stalk (which degenerates).
- The anterior wall becomes thicker and forms "pars distalis" while the posterior wall becomes thinner and forms "pars intermedia".

- The "pars distalis" proliferates forming the "pars tubularis" which surrounds the infundibulum.
- The "pars distalis" together with the "pars tubularis" form the anterior lobe.

b. Neuroectoderm

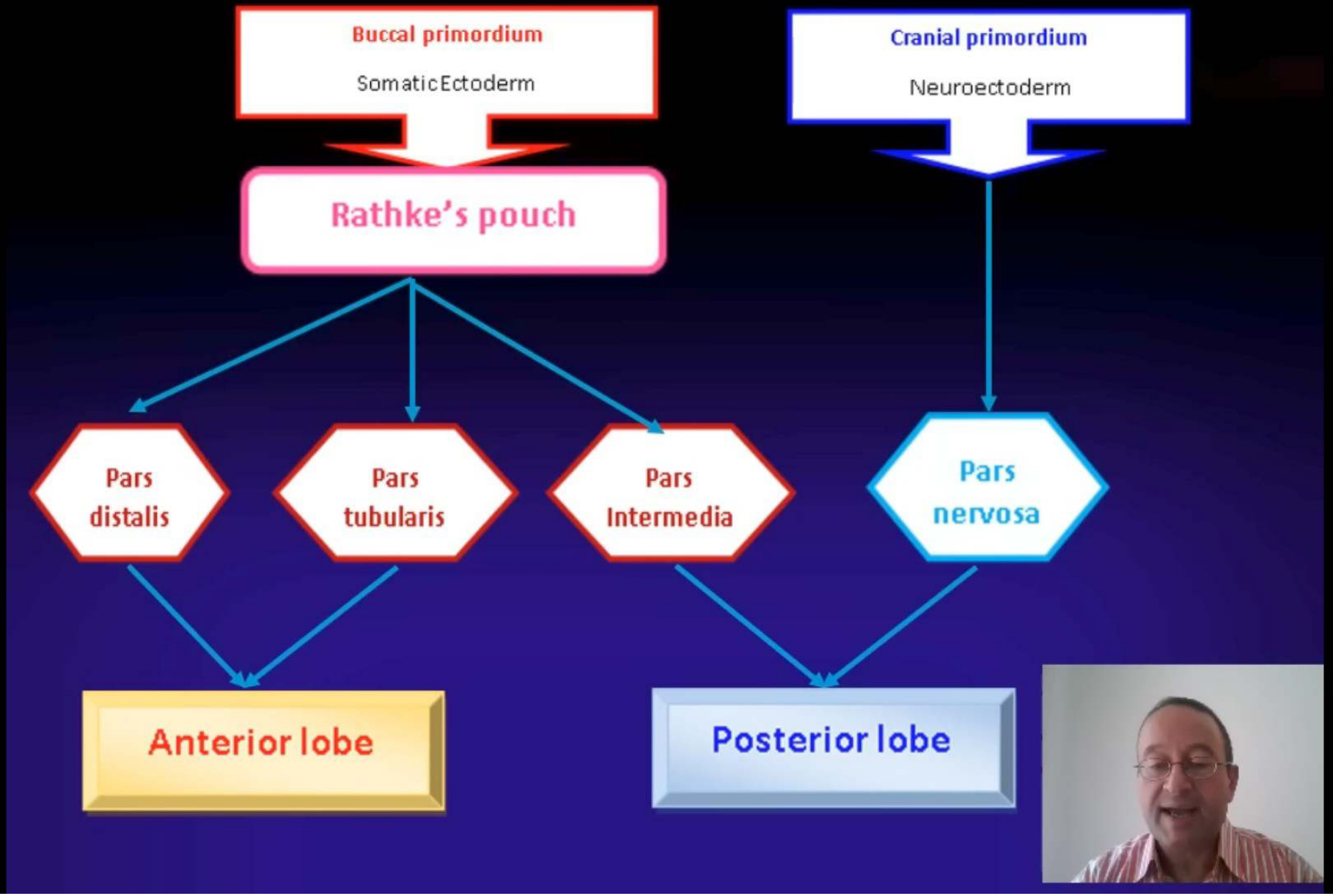


- The ectoderm of the floor of the diencephalon proliferates to form "pars nervosa" which grows caudally (downwards) behind Rathke's pouch and its stalk is called infundibulum (which persists).
- The "pars intermedia" adheres to "pars nervosa" and forms the posterior lobe.

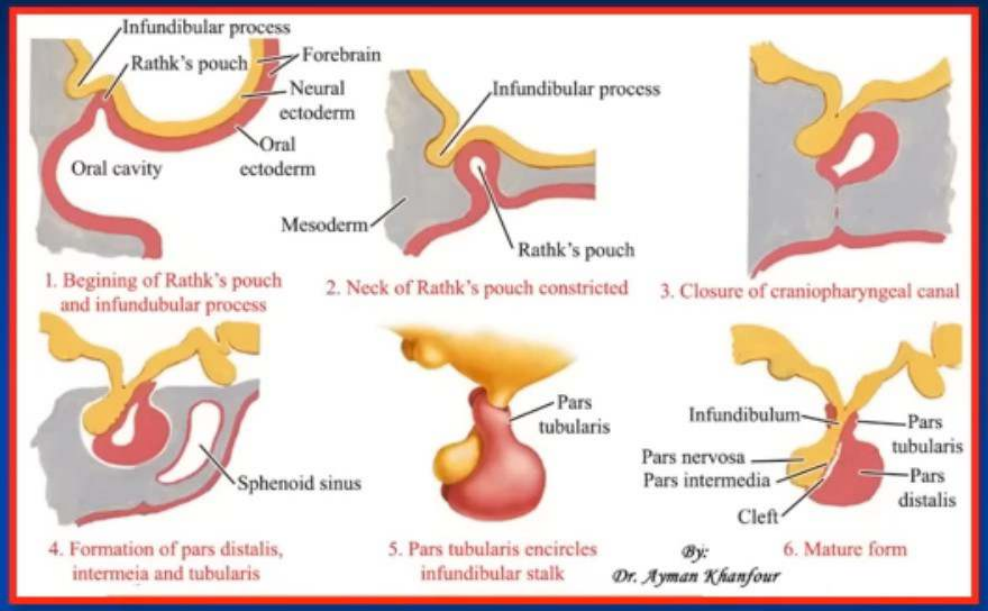


(Development of the pituitary gland)

❖ Summary of development of pituitary gland:



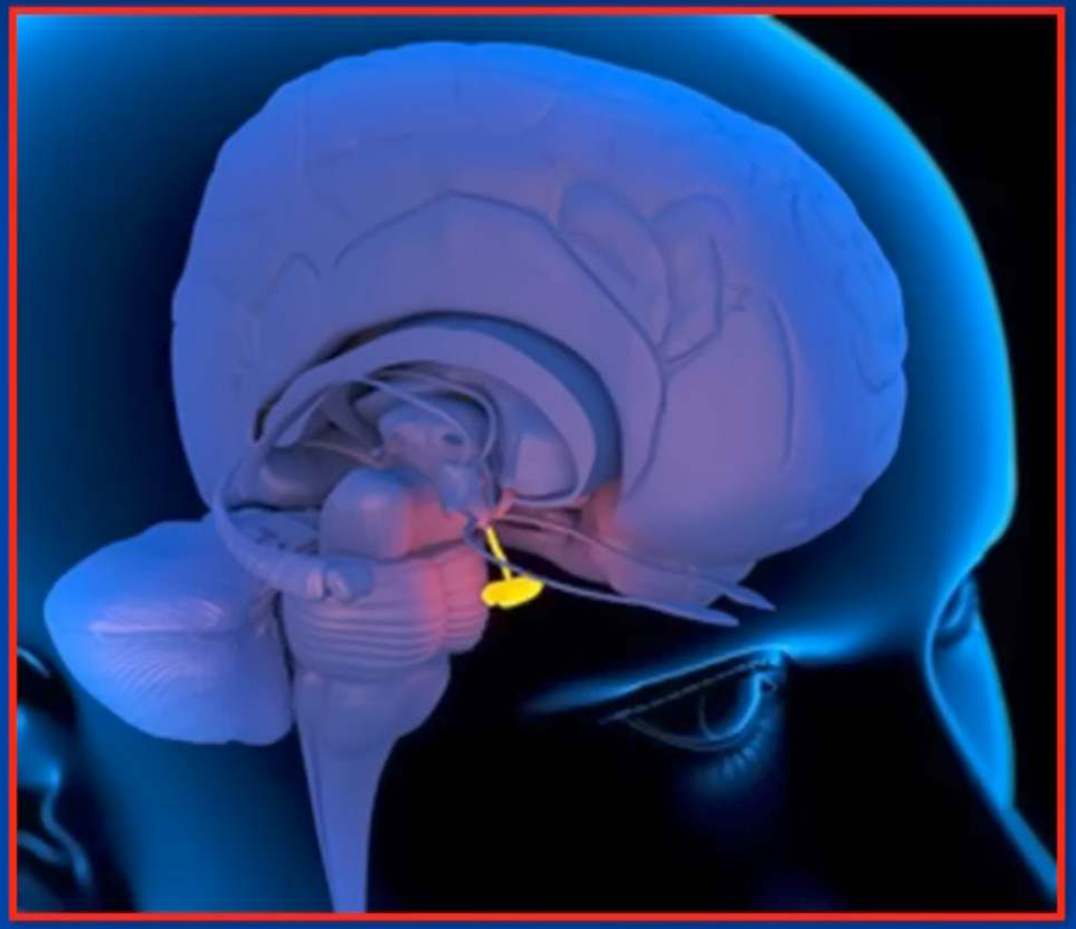
❖ Comparison between the two embryological origins:



	Buccal Primordium	Cranial Primordium
Origin	- Somatic ectoderm	- Neuroectoderm
Primordium	- Rathke's pouch	- Pars nervosa
Direction of growth	- Cranially (upwards)	- Caudally (downwards)
Position	- Anterior	- Posterior
Stalk	- Rathke's stalk (degenerates)	- Pars nervosa (persists)
Derivatives	- Pars distalis - Pars intermedia - Pars tubularis	- Pars nervosa

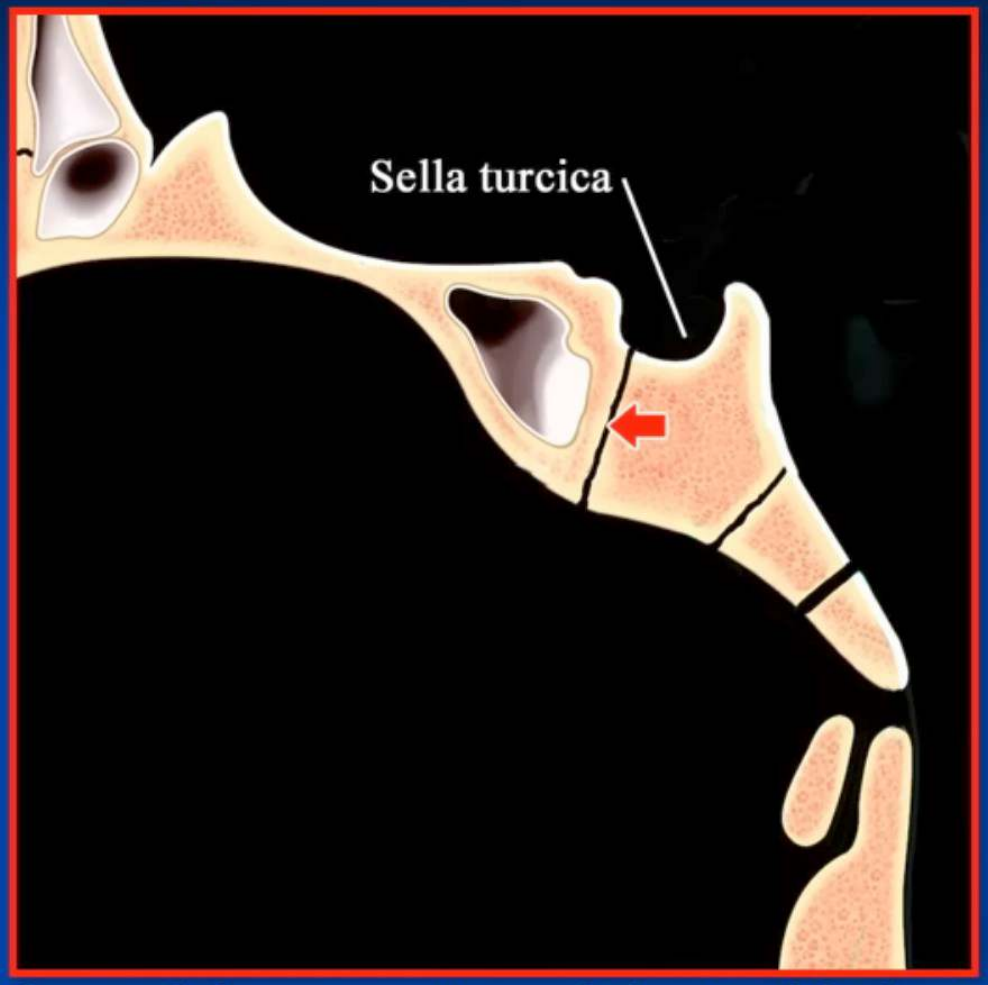
Congenital Abnormalities

I. Agenesis



- Failure of formation of the pituitary gland.

2. Craniopharyngeal canal

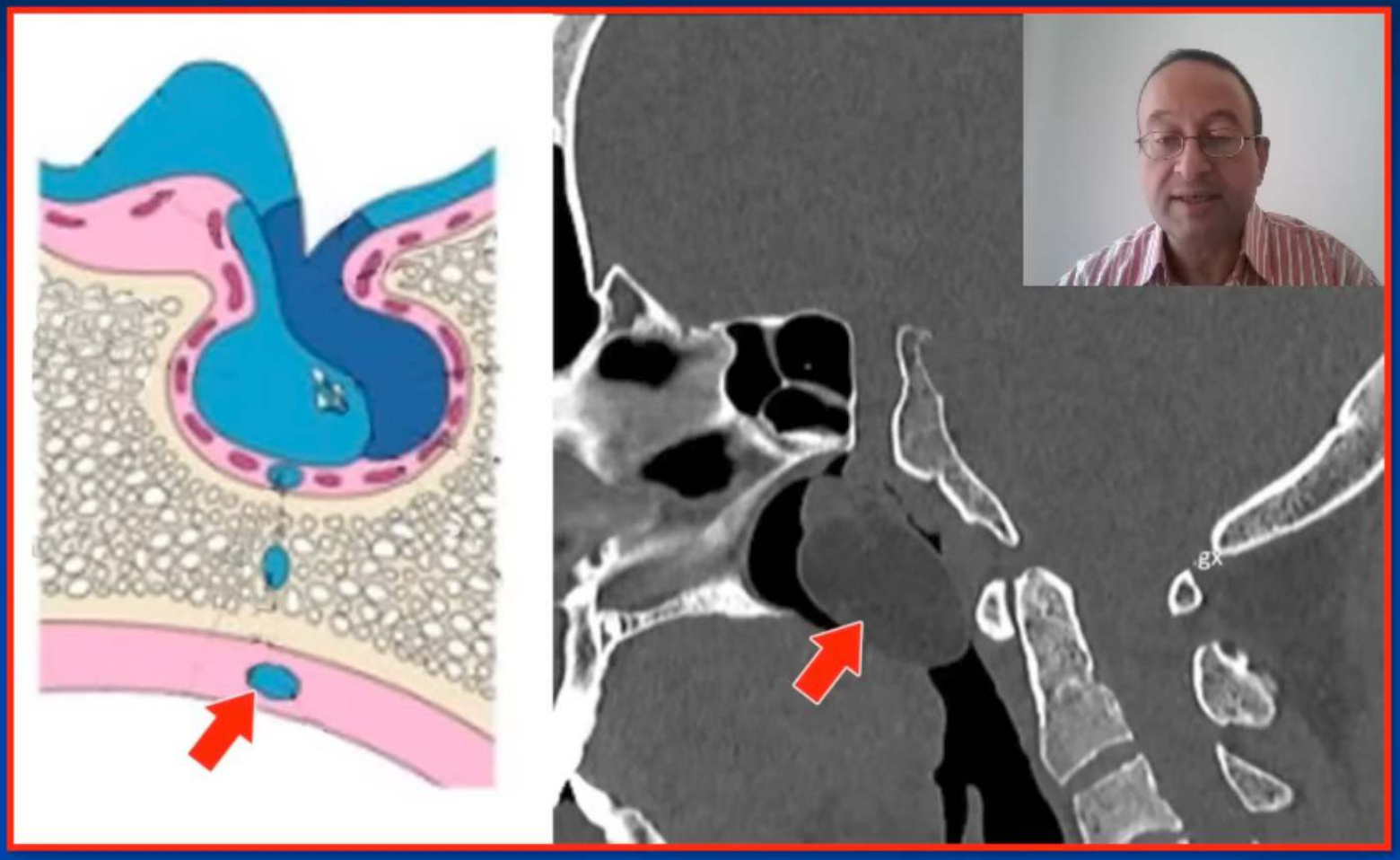


- It is due to failure of degeneration of the Rathke's stalk.
- A communication between the nasopharynx and hypophyseal fossa infection of the brain (fatal).

3. Caniopharyngioma

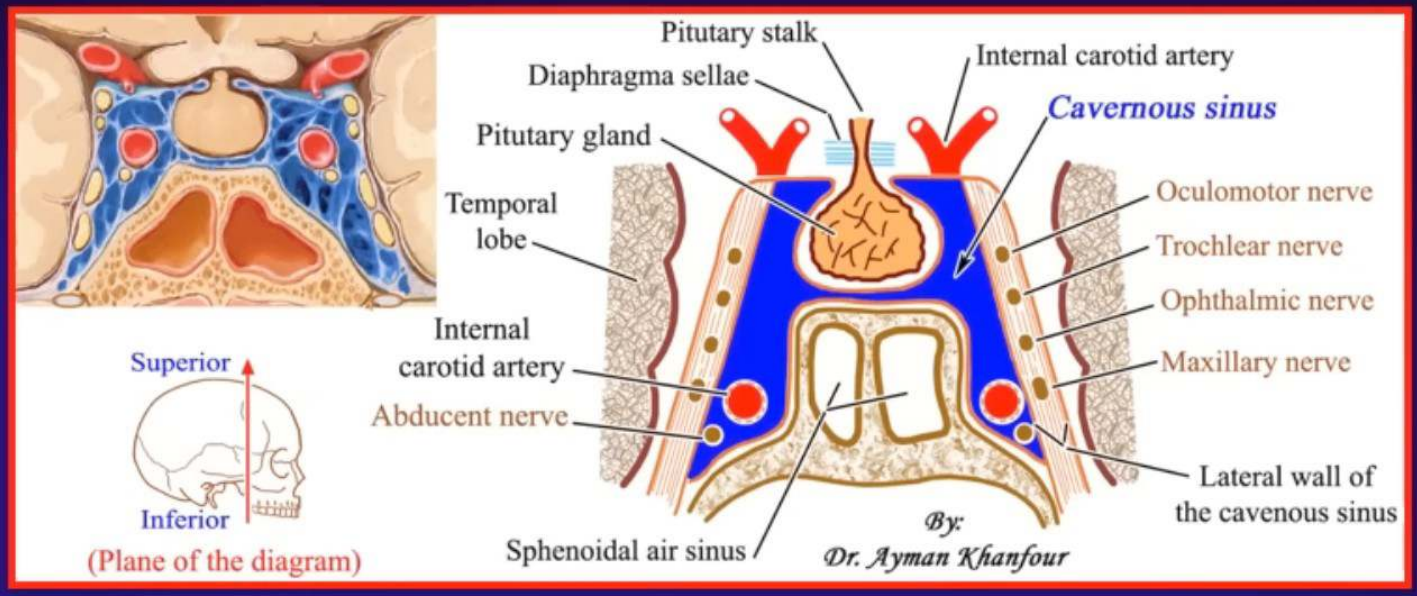
- It is a tumor in the nasopharynx.

4. Pharyngeal pituitary gland

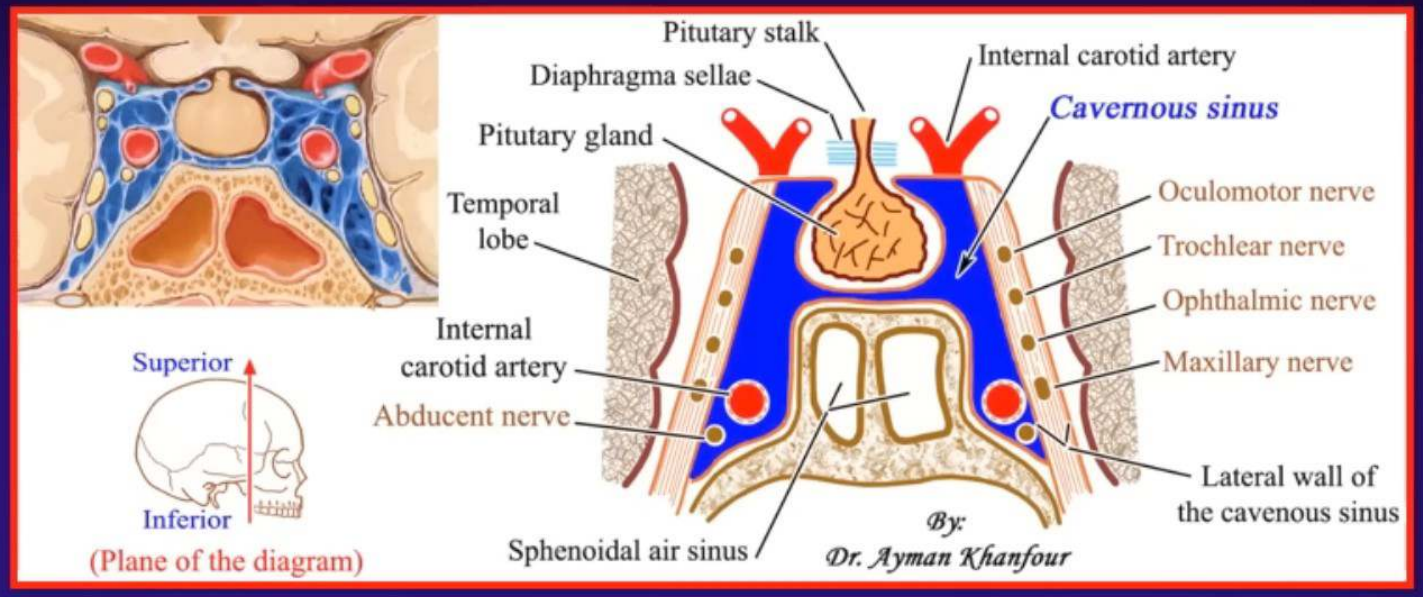


- It is due to failure of ascend of buccal part of the pituitary gland.
- It may be removed during adenoidectomy.

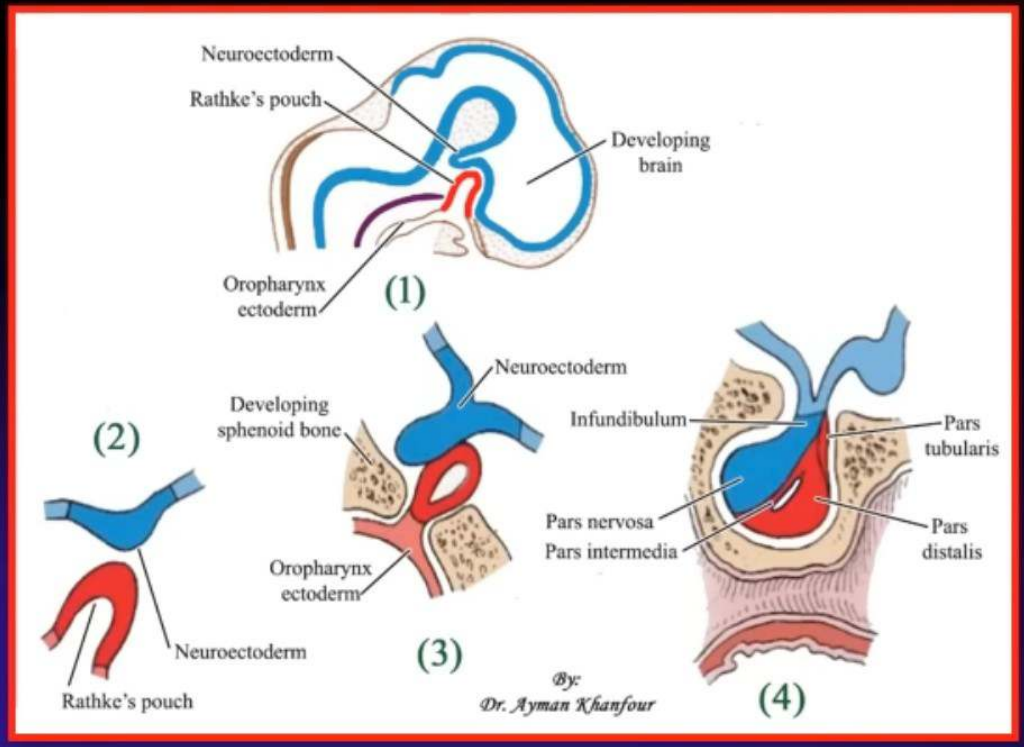
- **Which is not true as regard the pituitary gland?**
  - a. It lies above diaphragma sellae.
  - b. It lies medial to the cavernous sinus.
  - c. It receives arterial supply from the hypophyseal arteries.
  - d. It is connected to the hypothalamus.



- **The floor of the sella turcica lies directly over which of the following structures?**
  - a. Orbit.
  - b. Basilar portion of occipital bone.
  - c. Sphenoid sinus.
  - d. Cribriform plate of ethmoid bone.



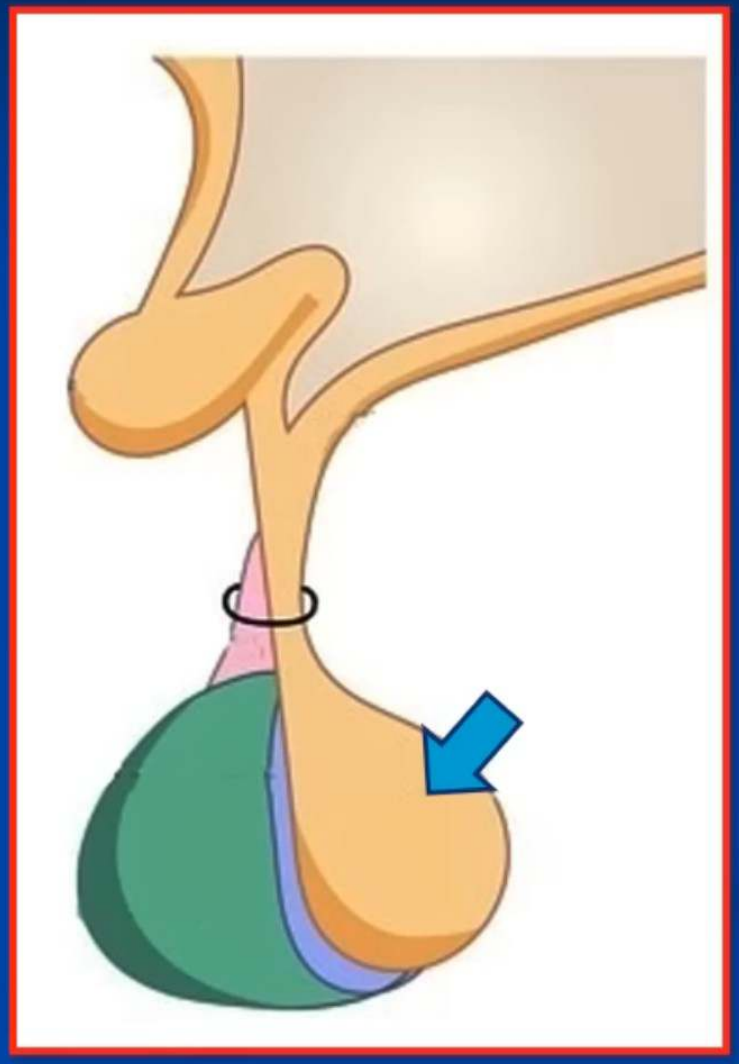
- **Which of the following is not a derivative of rathke's pouch?**
  - a. Pars tubularis.
  - b. Pars distalis.
  - c. Pars nervosa.
  - d. Pars intermedia.



❖ Identify the pointed structure?

- Answer:

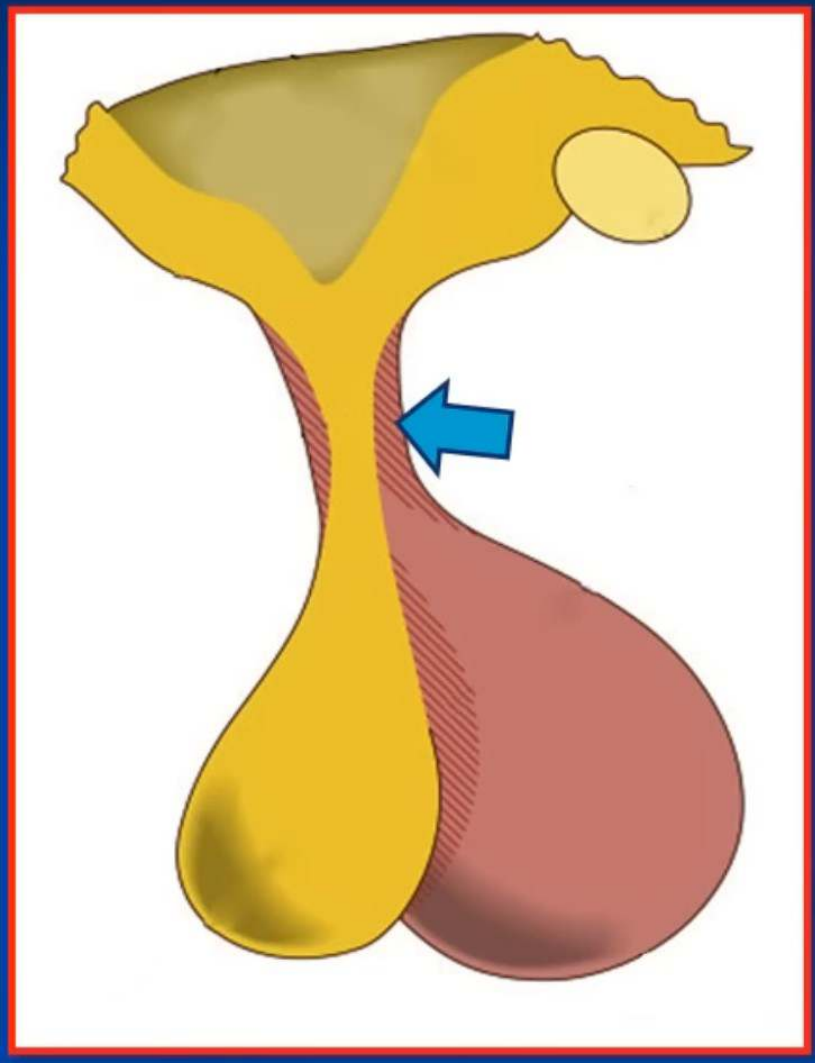
  - Posterior lobe of pituitary gland



❖ Identify the pointed structure?

- Answer:

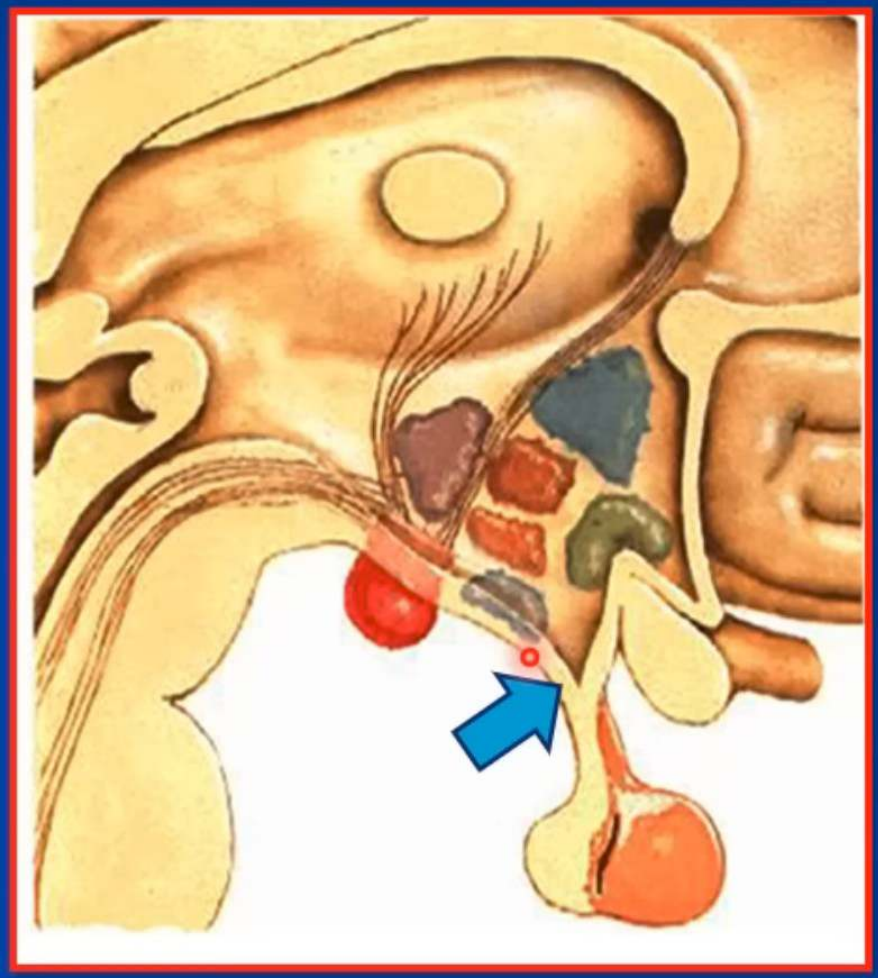
  - Pars tubularis



❖ Identify the pointed structure?

- **Answer:**

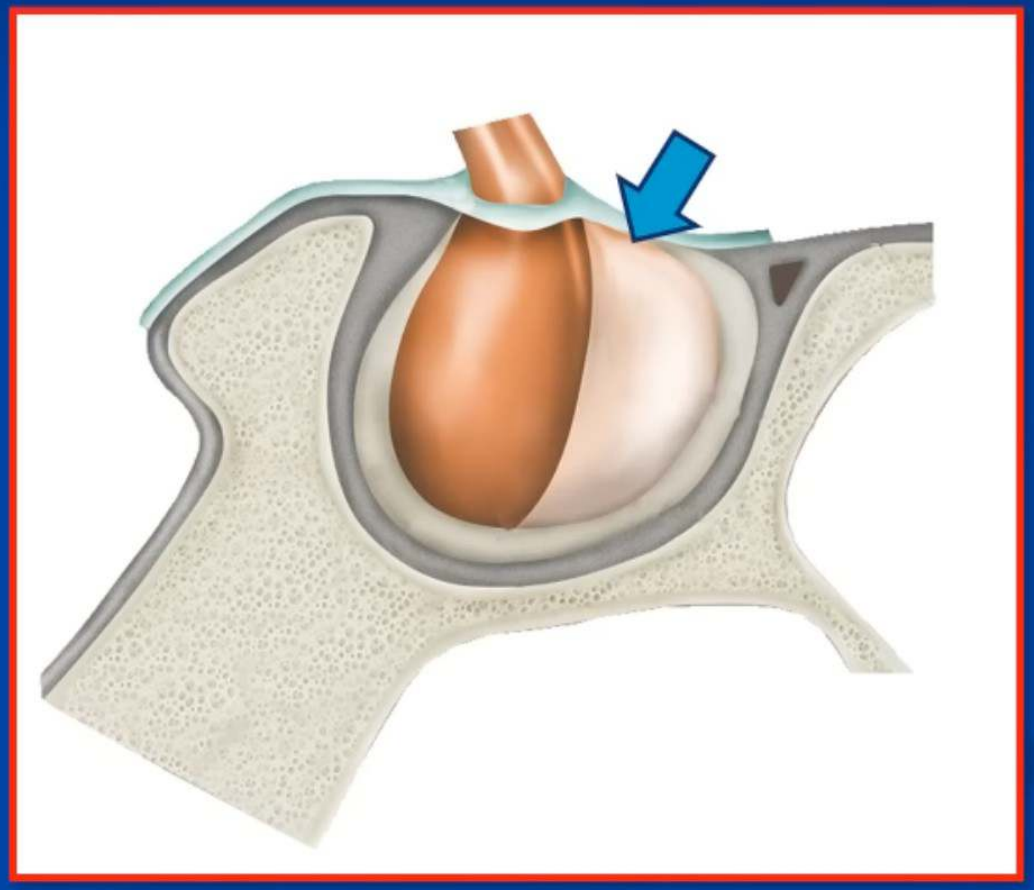
  - Infundibulum



❖ Identify the pointed structure?

- **Answer:**

  - Diaphragma sellae



❖ Identify this congenital anomaly?

- **Answer:**

  - Pharyngeal pituitary gland

Question 1

An 8 years child undergone adenoidectomy. After operation he got severe hormonal disturbance. What is your provisional diagnosis?

Question 2

A patient suffered from bitemporal hemianopia. During investigation there was very high level of prolactin. What is the next tool you ask the patient to do. What is your provisional diagnosis?