PATHOLOGY LAB

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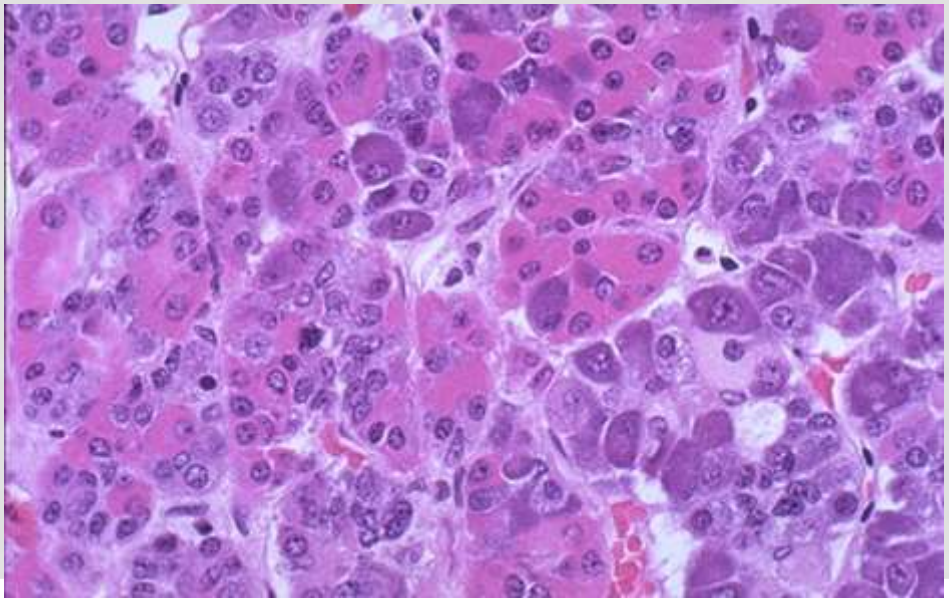
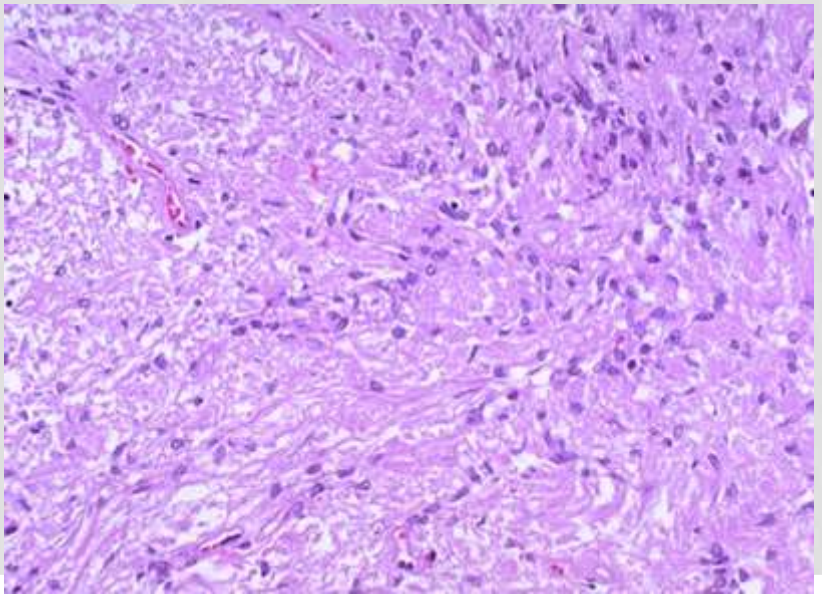
ENDOCRINE SYSTEM LECTURES 2022

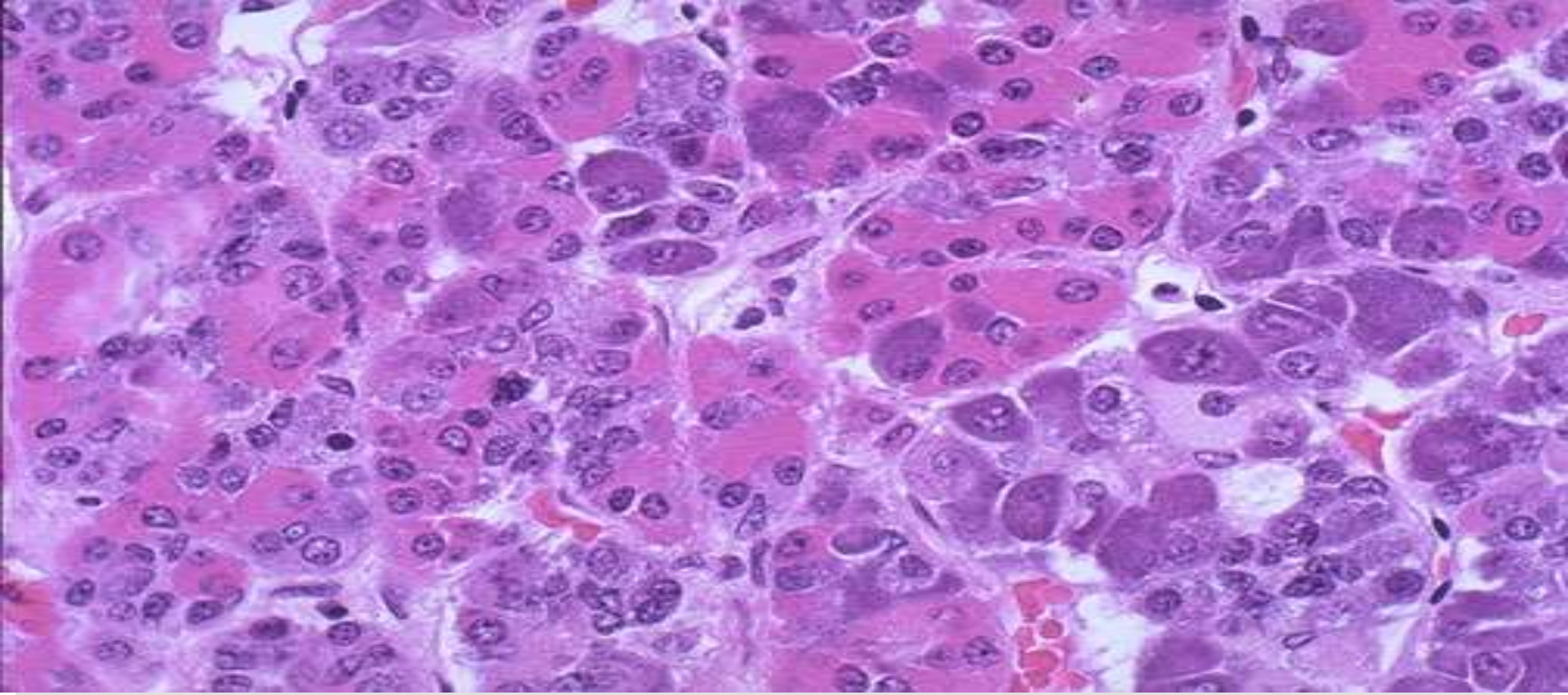
A-pituitary gland

NORMAL ANTERIOR PITUITARY GLAND

Normal anterior pituitary gland



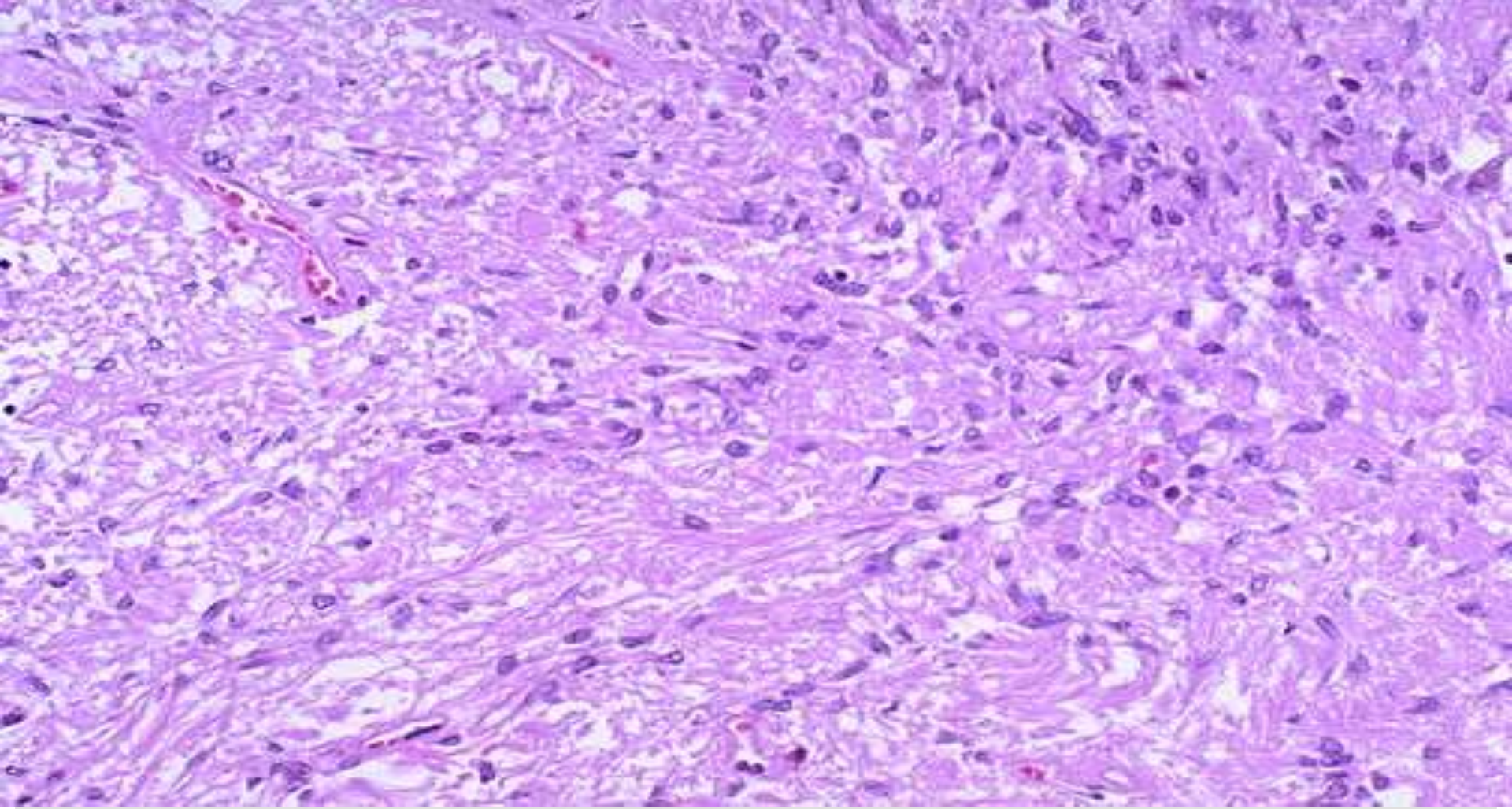




The **pink acidophils** secrete growth hormone (GH) and prolactin (PRL)

The **dark purple basophils** secrete corticotrophin (ACTH), thyroid stimulating hormone (TSH), and gonadotrophins follicle stimulating hormone-luteinizing hormone (FSH and LH) .

The **pale staining chromophobes** have few cytoplasmic granules, but may have secretory activity.



The **neurohypophysis** shown here resembles neural tissue, with glial cells, nerve fibers, nerve endings, and intra-axonal neurosecretory granules.

The hormones **vasopressin** (antidiuretic hormone, or ADH) and **oxytocin** made in the hypothalamus (supraoptic and paraventricular nuclei) are transported into the intra-axonal neurosecretory granules where they are released.

BEHAVIOUR OF PITUITARY ADENOMAS :

- Primary pituitary adenomas usually benign.
- Radiological changes in sella turcica .
- May or may not be functional(20%). If functional (80%), the clinical effects are secondary to the hormone produced.
- More than one hormone can be produced from the same cell (monoclonal).
- Local effects are due to pressure on optic chiasma (visual disturbance) , or pressure on adjacent normal pituitary cells (reduce hormone production).

CLINICAL FEATURES OF PITUITARY ADENOMA:

1- Symptoms of hormone production.

2- Visual field abnormalities (pressure on optic chiasma above sella tursica).

3- Elevated intracranial pressure (blockage of CSF flow): Headache , nausea , vomiting.

4- Hypopituitarism (result from pressure on adjacent pituitary): Diabetes insipidus .

5-Cranial nerve palsy (invasion to brain).

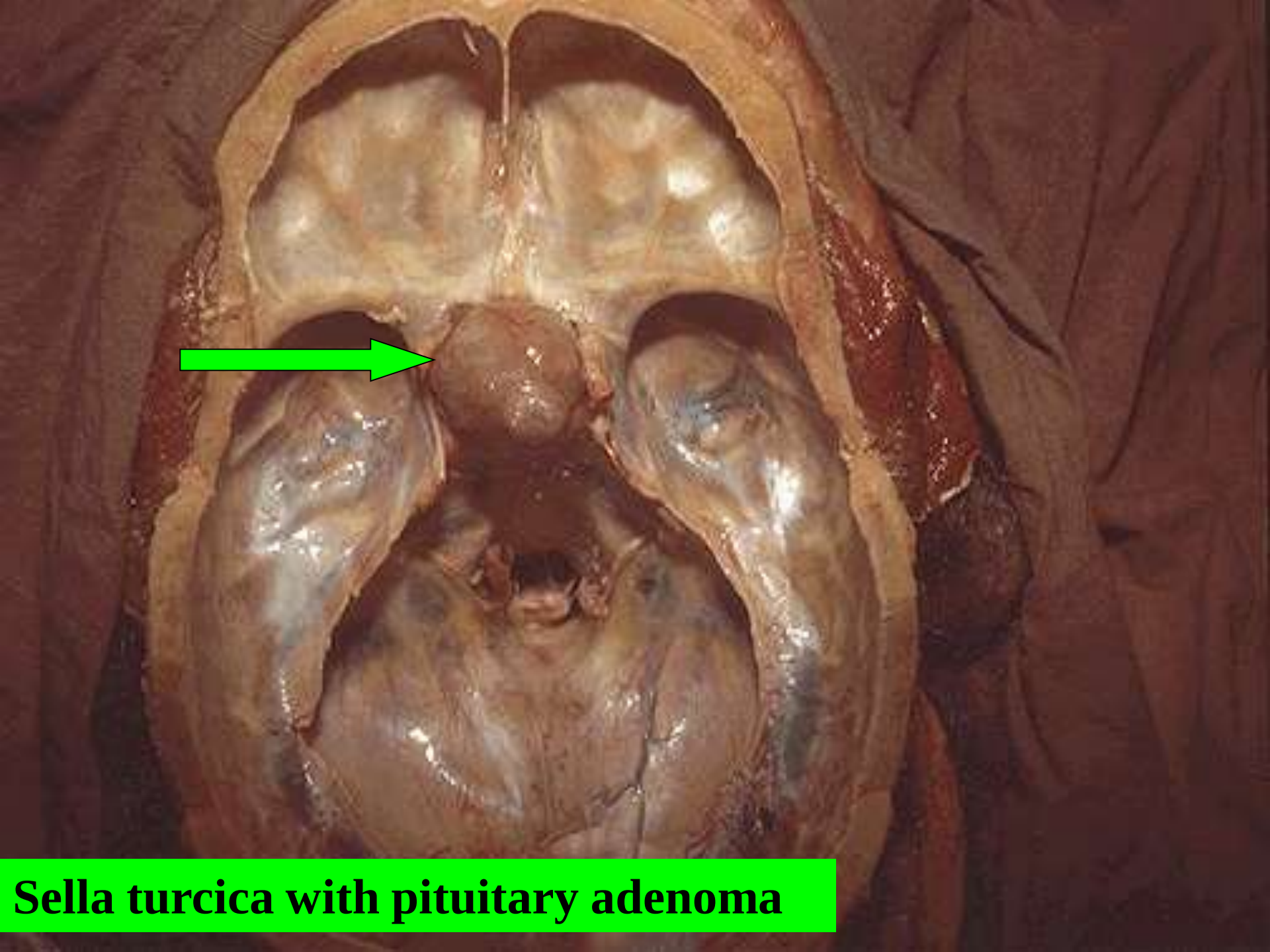
Mass effect of pituitary adenoma

MORPHOLOGY OF PITUITARY ADENOMAS :

- Well circumscribed, invasive in up to 30%
- Size 1cm. or more, specially in nonfunctioning tumor
- Hemorrhage & necrosis seen in large tumors (pituitary apoplexy).

Microscopic picture:

- Uniform cells, one cell type (monomorphism)
- Absent reticulin network
- Rare or absent mitosis



Sella turcica with pituitary adenoma

1- PROLACTINOMA :

- 30% of all adenomas, chromophobe or w. acidophilic
- Functional even if microadenoma , but amount of secretion is related to size
- Mild elevation of prolactin does NOT always indicate prolactin secreting adenoma !
- Other causes of ↑ prolactin include :
  - estrogen therapy
  - pregnancy
  - certain drugs, e.g reserpine (dopamin inhibitor).
  - hypothyroidism
  - mass in suprasellar region ?

2- Growth hormone secreting adenoma :

Structure :

Composed of granular ACIDOPHILIC cells and may be mixed with prolactin secretion.

Symptoms :

May be delayed so adenomas are usually large

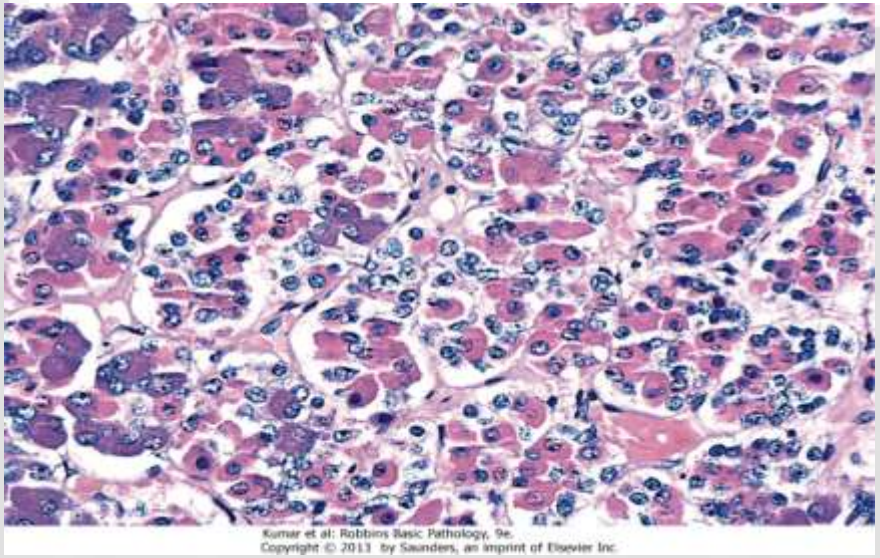
Produce GIGANTISM (children) or ACROMEGALLY (adults).

Diabetes, arthritis, large jaw & hands, osteoporosis, ↑BP, HF….etc

ACROMEGALY V.S DWARFISM

GROSS SECTIONS OF PITUITARY ADNOMA

NORMAL PITUITARY GLAND



Pituitary adenoma