Medicine 439

MED439
KING SAUD UNIVERSITY

Revised & Approved
Bassam Alasmari
Rania Almutiri

Anterior pituitary disorders

Editing file

Lecture Objectives:

- To understand basic pathophysiology and feedback for anterior pituitary hormones.
- Know about clinical approach for common anterior pituitary gland disorders:
  - Common clinical presentations.
  - Main laboratory investigations.
  - Radiological investigations.
  - Describe lines of management for each of these conditions.

- **Important**
- **Original content**
- **Boys Slides**
- **Girls Slides**
- **Doctor's notes**
- **Extra**

Introduction [1]

Embryology overview:

- Pituitary development:
- Pituitary stalk in midline joins the pituitary gland with hypothalamus that is below 3rd ventricle [2]
- Development of pituitary cells is controlled by a set of transcription growth factors like Pit-1, Prop-1, Pitx2.

1

Anterior pituitary (Adenohypophysis)

Rathke's pouch

- It's an Ectodermal evagination of oropharynx.
- Recognizable by 4- 5th week of gestation and full maturation by 20th week.
- Portion of Rathke's pouch → Intermediate lobe.
- Remnant of Rathke's pouch cell in oral cavity → pharyngeal pituitary.

2

Posterior pituitary (Neurohypophysis)

- Neural cells as an outpouching from the floor of 3rd ventricle.

Pituitary gland measures:
15 X 10 X 6 mm, weighs 500 mg but about 1 g in women [3].

Optic chiasm: lies 10 mm above the gland and anterior to the stalk.

Blood supply: superior, middle, inferior hypophyseal arteries (internal carotid artery) running in median eminence from hypothalamus.

Venous drainage: to superior and inferior petrosal sinuses to jugular vein.

Anatomical Relations of pituitary gland

Sella turcica

Pituitary gland is protected by sella turcica which lies at the base of the skull (sphenoid body).

Roof

Diaphragma sellae
(Pituitary stalk and its blood vessels pass through the diaphragm).

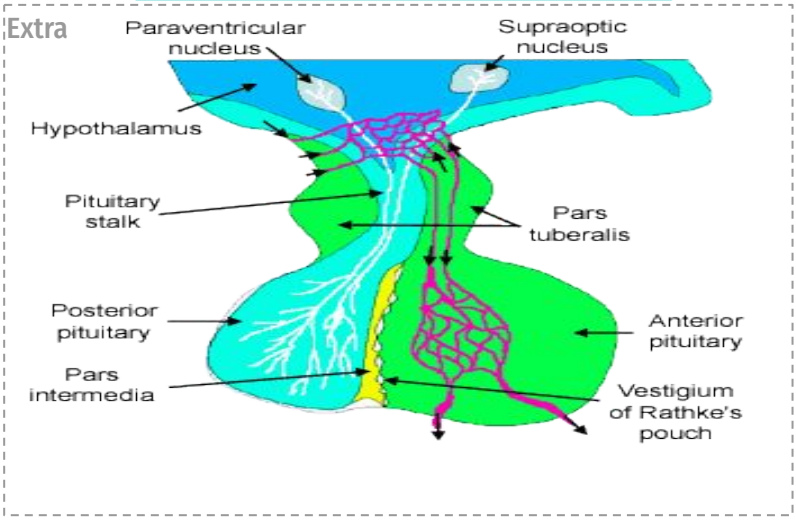
Floor

Sphenoid sinus.

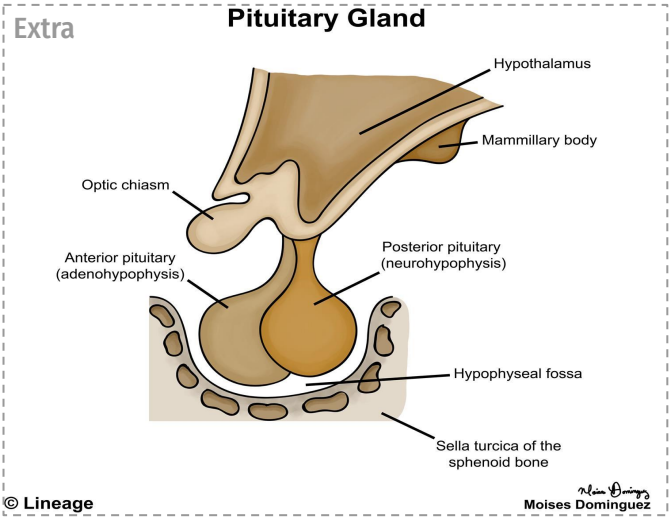
Lateral walls [4]

Cavernous sinus
Containing III, IV, VI, V1, V2 cranial nerves and internal carotid artery with sympathetic fibers.
Both adjacent to temporal lobes.

Extra



Extra



Pituitary Function

Anterior pituitary hormones

Synthesis and secrete:
Go Look For The Adenoma Please.
GH LH, FSH, TSH, ACTH and Prolactin.
A compressive adenoma in pituitary will impair hormone production in this order.

Posterior pituitary hormones

Storage only (not synthesis):

1. Oxytocin
2. ADH(vasopressin)

Summary Of All hormones

	Somatotrophs	Gonadotrophs	lactotrophs	Thyrotrophs	Corticotrophs
Stimulators	GHRH GHS	GnR E2	TRH E2	TRH [5]	CRH AVP gp-130 Cytokines
Inhibitors	IGF-1 Somatostatin Activins	Testosterone E2 Inhibin		T3, T4 Dopamine Somatostatin GH	Steroid
Hormone	GH	LH FSH [6]	PRL	TSH	ACTH POMC
Target Gland	Liver & other tissues	Ovary testes	Breast Other tissues	Thyroid	Adrenals
Target Hormone	IGF-1	testosterone, E2		T4	Cortisol [7]
Trophic effects	IGF-1 production Growth induction Insulin antagonism	Sex Steroid Follicular growth Germ cell maturation	Milk production	T4 synthesis and secretion	Steroid production, Androgen

Pituitary disorders

Pituitary disorders classified into:

- Anterior pituitary disorders
- Posterior pituitary disorders e.g. Diabetes insipidus

Anterior pituitary disorders [8]

Function :

Hypersecretion: (GH,LH,FSH,PRL,TSH,ACTH)

- e.g. Hyperprolactinemia, Acromegaly (↑GH), Cushing's Disease (↑ACTH).

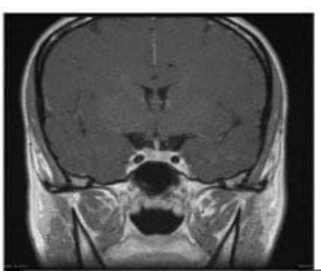
Hyposecretion [9]: hypopituitarism (isolated, multiple, pan)

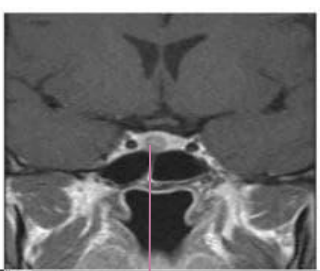
- e.g. Central hypoadrenalism, hypogonadism, hypothyroidism, GH deficiency or Panhypopituitarism.

Types of masses [10]

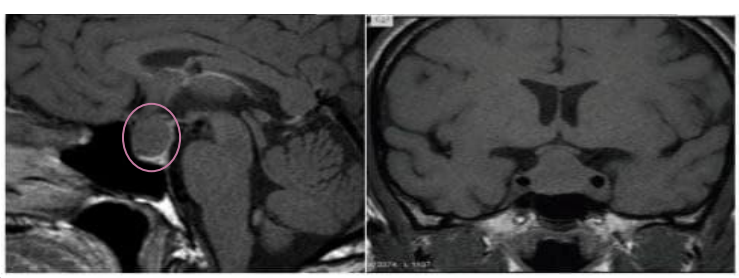
-Functioning : Hypersecretion (Oversecretion).

- Non- Functioning.
- Could be with/without mass-effect: Space occupying lesion (compression symptoms, hypopituitarism). [1]





11



12 13

Etiology of Pituitary hypothalamic lesion

1. Malignant pituitary tumors: Functional and non-functional pituitary carcinoma
2. Lymphocytic hypophysitis [14]
3. Metastases in the pituitary (breast, lung, stomach, kidney)
4. Non-Functioning Pituitary Adenomas and Pituitary abscess
5. Pituitary cysts: Rathke's cleft cyst, Mucoceles, Others
6. Carotid aneurysm [15] and Empty sella syndrome [16]

8.Endocrine active pituitary adenomas

- Prolactinoma (PRL-oma)
- Corticotropinoma (ACTH secreting adenoma, Cushing's disease)
- Other mixed endocrine active adenomas
- Somatotropinoma (GH secreting adenoma, Acromegaly)
- Thyrotropinoma (TSH-oma, rare)

Evaluation of pituitary mass [2]

Pituitary adenoma	Pituitary incidentaloma [17]
• 10 % of all pituitary lesions • Genetic-related: 1. MEN-1 2. Gs-alpha mutation 3. PTTG gene 4. FGF receptor-4	• 1.5 -31% in autopsy (prevalence) • 10% by MRI most of them <1 cm

1 C- Clinical (History and Examination)
- Function (oversection or hyposecretion)
- Mass (headache, visual symptoms)

2 B- Biochemical
- Screen Test [18]
- Confirmatory Test

3 A- Anatomical
- MRI of sella turcica

4 Then treatment :
- Surgical – Medical – Radiation
- Medical – Surgical – Radiation [19]

[20]

Table 1. Functioning Adenomas: Clinical Disease and Medical Therapy

Clinical disease	Hormone produced by tumor	Estimated frequency (%)	Medical therapy
Acromegaly	Growth hormone	5–10	Somatostatin analog (octreotide) Growth hormone receptor blocker
Cushing's disease	ACTH	10–15	Ketoconazole (blocks cortisol synthesis)
Gonadotroph	FSH, LH	5	None
Prolactinoma	Prolactin	20–30	Dopamine agonist (bromocriptine, cabergoline, pergolide)
Null cell	None	20–25	None
Thyrotropic	TSH	<3	Somatostatin analog (octreotide) Propylthiouracil
Other (including mixed cell adenomas)	None	20	None

ACTH = adrenocorticotropic hormone, FHS = follicle-stimulating hormone, LH = luteinizing hormone, TSH = thyroid-stimulating hormone.

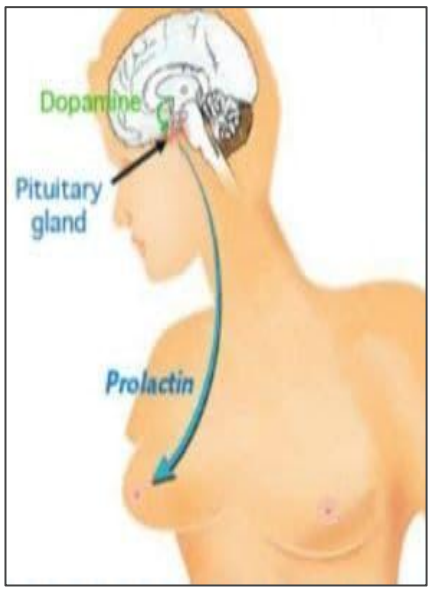
Non-functional pituitary adenoma [3]

C-Clinical	• Asymptomatic, incidentaloma by imaging • Mass effect(mechanical pressure,hypopituitarism, visual (bitemporal hemianopia) • Gonadal hypersecretion
B-Biochemical	• GH,LH,FSH,TSH,ACTH: not high • PRL : low ,high, normal
A-Anatomical	MRI
Treatment	• Surgery if indicated • Observation • Adjunctive therapy: • -Radiation therapy • -Dopamine agonist • -Somatostatin analogue

Functional pituitary mass (prolactinoma) [21]

A- Prolactinoma (high prolactin + Mass)

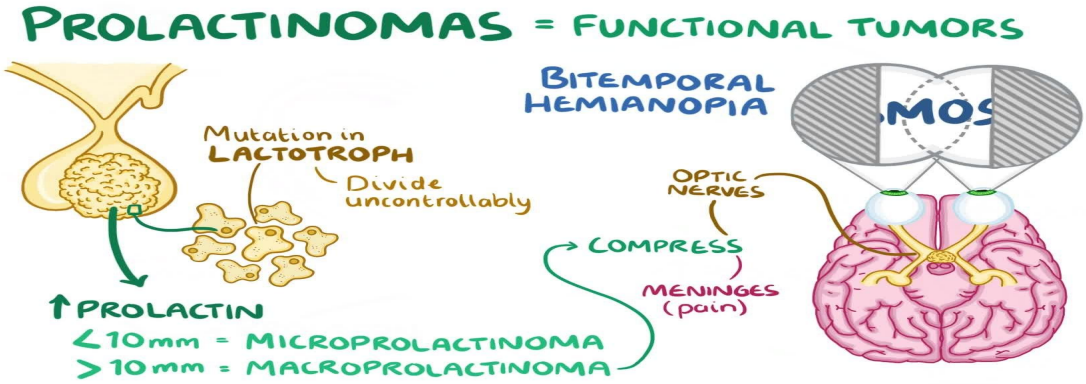
- **Most common of functional pituitary adenoma, 25-30% of all pituitary adenoma.**
- **Some growth hormone (GH)–producing tumors also co-secrete PRL.**
- **Prolactinomas in women: [4]**
  - **90% present with microprolactinomas**
- **Prolactinomas in men:**
  - **60% present with macroprolactinomas**



What if prolactin was low? [5]

No clinical significant if there is no mass invading the hypothalamus [22].
N.B.: PRL is the only pituitary hormone that is inhibited by hypothalamus [23].

Prolactinomas	
C-Clinical [24]	• **Oligomenorrhea, amenorrhea or infertility** • **Galactorrhea** • Mass-effect (mechanical pressure, hypopituitarism) • Sexual dysfunction (in male) • Asleep, stress, pregnancy, lactation and chest wall stimulation or trauma, Renal failure, Liver failure [25] • Medication • O/E: Visual field defect (Bitemporal hemianopia) • Nipple discharge
B-Biochemical	GH,LH,FSH,TSH,ACTH: normal or low **PRL: High** TSH: to rule out Primary Hypothyroidism IGF- : to rule out acromegaly with co-secretion of prolactin
A-Anatomical	MRI
Treatment	• **Medical – Medical – Medical (Dopamine agonist)** [6] • Surgical- Radiation



Acromegaly

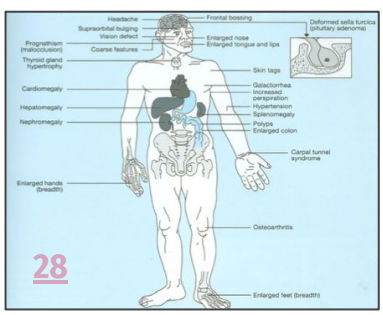
Definition: Acromegaly is a hormonal disorder that results from too much growth hormone (GH) in the body.

C-Clinical	• **Function: Sweating, Enlargement (acral, face gross features, heart, tongue, Jaw, gigantism in children) , Galactorrhea** • **Mass-effect (mechanical pressure, hypopituitarism)** • **HTN,CHF, OSA,constipation** • **O/E: Visual field defect (Bitemporal hemianopia)** • **Gross features of Acromegaly**
B-Biochemical	• Pituitary Function (LH,FSH.PRL, TSH, ACTH, cortisol, testosterone, T4) • Screen: **IGF-1** (high) • Confirmatory Test : 75 g OGTT(Oral glucose tolerance test) tolerance test for GH Suppression [26] • Fasting and random blood sugar, HbA1c. • Lipid profile.
A-Anatomical	• **MRI** • **Echo:** - **Cardiac disease is a major cause of morbidity and mortality 50 % died before age of 50** - **HTN in 40%, LVH in 50%, Diastolic dysfunction as an early sign of cardiomyopathy**
Treatment	**Surgical – Medical (Somatostatin analogue)- Radiation**

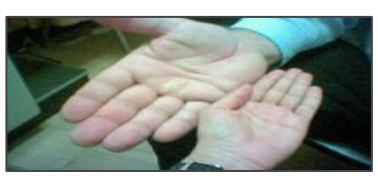
Table 1. Clinical Features of Acromegaly.

Local tumor effects	**Visceromegaly**
Pituitary enlargement	Tongue
Visual-field defects	Thyroid gland
Cranial-nerve palsy	Salivary glands
Headache	Liver
Somatic systems	Spleen
Acral enlargement, including thickness of soft tissue of hands and feet	Kidney
Musculoskeletal system	Prostate
Gigantism	**Endocrine and metabolic systems**
Prognathism	Reproduction
Jaw malocclusion	Menstrual abnormalities
Arthralgias and arthritis	Galactorrhea
Carpal tunnel syndrome	Decreased libido, impotence, low levels of sex hormone–binding globulin
Acroparesthesia	Multiple endocrine neoplasia type 1
Proximal myopathy	Hyperparathyroidism
Hypertrophy of frontal bones	Pancreatic islet-cell tumors
Skin and gastrointestinal system	Carbohydrate
Hyperhidrosis	Impaired glucose tolerance
Oily texture	Insulin resistance and hyperinsulinemia
Skin tags	Diabetes mellitus
Colon polyps	Lipid
Cardiovascular system	Hypertriglyceridemia
Left ventricular hypertrophy	Mineral
Asymmetric septal hypertrophy	Hypercalciuria, increased levels of 25-hydroxyvitamin D_3
Cardiomyopathy	Urinary hydroxyproline
Hypertension	Electrolyte
Congestive heart failure	Low renin levels
Pulmonary system	Increased aldosterone levels
Sleep disturbances	Thyroid
Sleep apnea (central and obstructive)	Low thyroxine-binding–globulin levels
Narcolepsy	Goiter

[27]



[28]



GH deficiency [29]

Definition: rare disorder characterized by the inadequate secretion of growth hormone(GH) from the anterior pituitary gland.

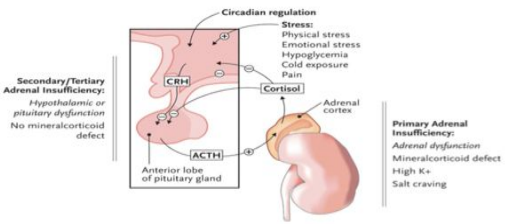
Characteristics:
- Isolated, panhypopituitarism
- Pituitary tumor as mass effect → Growth hormone deficiency
- Diagnosis in children and adult
- Disease in:
- Children: **Short stature**
- Adult: metabolic syndrome

C-Clinical	• Function : **Short stature** • Mass-effect (mechanical pressure, hypopituitarism)
B-Biochemical	• Pituitary Function (LH,FSH.PRL, TSH, ACTH, cortisol, testosterone, T4) • Screen: **IGF-1** [30] • Dynamic testing : - clonidine stimulation test - glucagon stimulation - exercise testing,arginine-GHRH - **insulin tolerance testing** [7]
A-Anatomical	• X-ray of hands: delayed bone age • MRI
Treatment	• GH replacement

ACTH disorders Introduction [31]

ACTH disorders

High cortisol
• ACTH adenoma → Cushing's disease

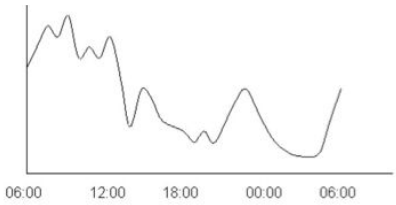


Low cortisol
• Hypoadrenalism

ACTH disorders

HPA-axis:

- Circadian rhythm of cortisol secretion. [8]
- Early morning cortisol between 8-9am (Highest).
- lowest at midnight.

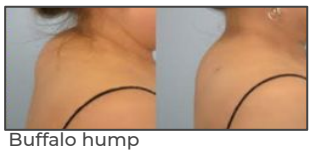


Excessive cortisol [32] : (ACTH adenoma → Cushing disease)

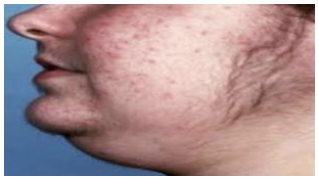
Complications:

- 80 % HTN
- Left ventricular hypertrophy
- Diastolic dysfunction, interventricular septal hypertrophy
- ECG needed: high QRS voltage, inverted T-wave
- Echocardiogram pre-op
- OSA: 33% mild, 18% severe. Needs respiratory assessment and careful use of sedative during surgery
- Glucose intolerance in 60%, control of hyperglycemia
- Osteoporosis with vertebral fracture→→ positioning of patient in OR (50 %), 20 % with fracture
- thin skin→→ difficult IV cannulation, poor wound healing.


Red striae


Buffalo hump

C-Clinical	• Function : Hirsutism, acne, easily bruising, DM, HTN, irregular period, proximal weakness, recurrent infections, depression • O/E: hirsutism, acne, moon face, central obesity, stria, proximal weakness, supraclavicular fat pad
B-Biochemical	• High cortisol , high ACTH Confirmatory tests: • 24hrs for urine free cortisol (UFC) • 1Mg DST (dexamethasone suppression test) • Midnight salivary cortisol
A-Anatomical	• MRI
Treatment	• Surgical – Medical - Radiation


Hirsutism in women


Stria (purple, wide >1cm)


ecchymosis

Low cortisol (Hypoadrenalism) [33]

Clinical features	1- Nausea, Vomiting, abdominal pain,Diarrhea. 2- Dizziness and weakness, Tiredness, Muscle ache. 3- Hypotension and Weight loss. 4- Very dark skin (hyperpigmentation).
Management	• Cortisol replacement

Gonadotroph adenoma

Gonadotroph adenoma VS menopause & ovarian failure

1. High serum free alpha subunit.
2. Gonadotroph adenoma:

   - Surgical resection if large
   - Radiation therapy

3. High FSH with Low LH

4 High:
- Estradiol
- FSH

5. Thickened endometrium and polycystic ovaries

Assessment of pituitary function

1. Baseline:
   - TSH, FT4
   - LH, FSH and (Testosterone or Estradiol)
   - Prolactin
   - GH, IGFI
   - ACTH,cortisol and electrolyte

2. MRI brain

3. Neuropthalmic evaluation of visual field

4. Cardiac and respiratory assessment

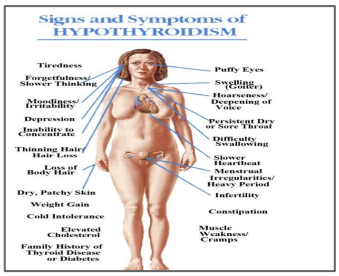
5. Anesthesiologist for airway and perioperative monitoring

6. Neurosurgeon

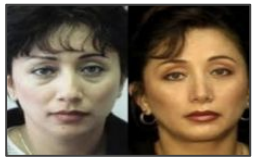
7. ENT for Endonasal evaluation for surgical Approach

8. Preop hormonal replacement:
Maybe need to be covered with stress dose of HC (hydrocortisone)

Central Hypothyroidism [34]



Definition: Central hypothyroidism refers to thyroid hormone deficiency due to a disorder of the pituitary, hypothalamus, or hypothalamic-pituitary portal circulation, resulting in diminished thyroid-stimulating hormone (TSH), thyrotropin-releasing hormone (TRH), or both. #team438

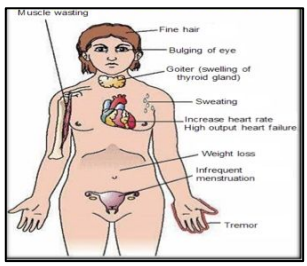


C-Clinical	• Function : fatigue, weight gain, irregular menses, dry skin, depression, cold intolerance ,increase sleep, slow thinking • O/E: obesity, Depressed face, eye brow.
B-Biochemical	• Low TSH • Low free T4 and T3
A-Anatomical	• MRI
Treatment	• Thyroxine replacement • Surgical removal of pituitary adenoma if large

TSH-Producing adenoma (Hyperthyroidism) [35]

Definition: TSH-secreting pituitary adenomas are benign tumours of the pituitary gland. They produce too much thyroid stimulating hormone (TSH), which causes the thyroid gland to enlarge and produce thyroid hormone in excess, leading to an overactive thyroid (hyperthyroidism). #team438

1. Very rare < 2.8%
2. High TSH, FT4, FT3
3. Signs of hyperthyroidism
4. Treatment preoperative with anti-thyroid meds
5. Surgical resection of adenoma
6. Medical therapy: Somatostatin Analogue



1- Space occupying lesion generally causes (headache, nausea, and vomiting) and if the mass is large enough and goes up to compress the optic chiasma it will cause bitemporal hemianopia, but if it goes down to the sphenoidal air sinus it will cause CSF leakage through the nose.

2- For evaluation we must always start with
- Clinical
- Biochemical
- Anatomical

3- Gonadotroph cell adenoma is the most common Non-functioning pituitary adenoma

4- Why prolactinoma tends to be micro in women, and macro in men? Because high prolactin levels affect the menstrual cycle so women always present early to the clinic, but in men it causes general symptoms such as fatigue and headache so they come late .

5- Low prolactin levels have no symptoms at all except in lactating women

6- **Prolactin** is the only hormone that we can treat with **medical-medical-medical "first line" (Bromocriptine and Cabergoline)**

7- To confirm growth hormone deficiency we make the patient in a hypoglycemic state and if the GH didn't response "increased" then we can confirm our diagnosis

8- We can confirm the diagnosis from the Circadian rhythm, how? If we measure the cortisol levels in the early morning and we found it very low that suggests (Hypoadrenalism) and if we measure it at midnight and it was very high that suggests (Cushing disease)

Notes (Girls Doctor)

1- **Pituitary gland is the 2nd most hormone-releasing structure after the hypothalamus. It is located inside the sella turcica and surrounded laterally by cavernous sinuses and inferiorly by sphenoid sinus. In the case of a tumor of the pituitary gland the surgeon insert the endoscope into the nose that goes through the sphenoid sinus to reach the pituitary gland, this process is called (transsphenoidal surgery)**

2- The pituitary gland might not undergo the ascending process to the brain and stay in the mouth (Pharyngeal pituitary) or ectopic pituitary which means the gland is outside its normal place (sella turcica)

3- During pregnancy, pituitary and thyroid glands get larger in size

4- **Example of MCQ question : A patient has a pituitary adenoma that has extended laterally, which structure is affected ?**

5- **TRH controls the secretion of thyroid hormones and Prolactin. So, high levels of TRH → hypothyroid patient → hyperprolactinemia**

6- **In females, LH & FSH stimulate ovaries to produce estrogens . In males, they stimulate the testes to produce testosterone.**

7- **Cortisol is important for many tissues especially to the endothelial cells because it helps to maintain the blood pressure**

8- The most common anterior pituitary disorder is **pituitary adenoma ,** which is an overgrowth of of a part of the gland . It can happen to any person, it can familial/ genetic. Adenoma is classified into **microadenoma** (if it is < 1 cm) or **macroadenoma** (> 1 cm in size) **. Adenoma can arise from :**
A. Growth hormone cells causing excessive hyperfunctioning adenoma
B. Lactotroph cells producing excessive prolactin (hyperprolactinemia)
C. Gonadotroph cells producing (LH and FSH) causing hypergonadotropic (hypergonadism)
D. Thyroid cells producing TSH causing hyperthyroidism
E. ACTH cells producing ACTH leading to cushing syndrome

9- **In hyposecretion**, the adenoma causes pressure effect on these cells preventing them from producing any type of hormones leading to panhypopituitarism (the person doesn't have any hormones) because of this adenoma. It can affect one or many types of cells.

10- The adenoma might be functional, nonfunctional or with/without mass effect. **Functional masses =** producing certain types of hormones in **excessive** way causing problems to the patient**. Non-functional masses=** pressure effect causing **hypopituitartism** (no hormones secreted) and troubles to the patient. With **mass effect=** very large mass (adenoma) causing pressure and compression of the optic chiasm leading to visual symptoms, or extended laterally causing compression symptoms of the cavernous sinus.

11- **In case of adenoma, the gland appears hypodense and varies in size.**

12,13- **Example of a large macroadenoma (> 1 cm in size) with the compression of the optic chiasm . Or it invades the cavernous sinus or sphenoid sinus that may result in CSF rhinorrhea = CSF leakage from the nose .**

14- **Lymphocytic hypophysitis : autoimmune disorder, antibodies attack the pituitary gland which then appears in the MRI scan as adenoma**

Notes (Girls Doctor)

15- **Carotid aneurysm:** the internal carotid enlarges and produces an aneurysm which then enters the pituitary gland that may appear in the MRI scan as adenoma

16- **Empty sella syndrome :** pituitary tissue got destroyed and the space (sella turcica) filled in by CSF causing hypopituitarism .

17- Normal people may have very small adenomas (< 1 cm in size) which are called **Pituitary incidentaloma** . They are discovered accidentally in the MRI scan but they cause no problems.

18- We should do all pituitary hormones screenings because the adenoma may affect 1 or more cell types

19- We only start with medication as a first line of treatment in case of **hyperprolactinemia .**

20- The most common type of functional adenoma is **Prolactinoma.** The most common type of non-functional adenoma (secreting no hormones and causing hypo effect) is **Null cell type** of adenoma

21- Prolactin is released from the pituitary gland under the control of dopamine from the hypothalamus through the stalk. In hyperprolactinemia , there's an adenoma causing pressure on the pituitary stalk . Prolactin is also under control of TRH, so if the TRH is high (hypothyroid) > high prolactin. So, in addition to the pituitary adenoma, certain medications of hypertension, or PPI (proton pump inhibitor) are all leading to hyperprolactinemia

22- When taking history, make sure that the patient is not on any medications, the patient is fasting, not having other conditions that affect prolactin level. Stress also may elevate prolactin level.

23- **Dopamine** is the inhibitor of prolactin, so if there's a problem with dopamine > high prolactin . In case of high prolactin we treat them with dopamine agonist

24- I should rule out hypothyroidism, because primary hypothyroidism cause high prolactin. So treating the hypothyroidism will return the PRL levels to normal (Not adenoma) . Also, rule out acromegaly , because the patient may have prolactinoma with GH secreting adenoma (30% of cases) so i should measure both

25- In any adenoma with hyperprolactinemia, i have to make sure that the patient is not asleep, pregnant, no trauma of neurons of the chest wall, no liver failure, no renal failure (because all of these elevate the PRL)

26- To confirm the diagnosis of acromegaly i should give the patient glucose, GH levels should be reduced because when we're hungry (having low blood sugar) GH release will be increased. In people with acromegaly or pituitary adenoma, suppression of GH release after glucose intake will **not** occur

27- Excessive GH in pediatrics = gigantism. Excessive GH in adults = overgrowth of the soft tissues (supraorbital ridge bulging, prominent lower jaw, large nose, large lips, large tongue, enlarged liver, enlarged thyroid, enlarged spleen, overgrowth of the bone. Spacing of the teeth) we can ask the patient for an old picture to evaluate the facial changes, or if he has changed the size of shoes lately, the ring size , or gloves size. Also, it may cause excessive sweating (enlarged sweat glands), acne and the worst complication is the cardiomegaly (heart enlargement) leading to cardiomyopathy and death. It also affects cartilage growth causing osteoarthritis.

28- **Metabolic complications:** diabetes hyperglycemia, hypertension, dislipidemia, hypercholesterolemia, heart disease , sleep apnea, high risk of cancer development (breast, thyroid & colon cancer)

29- GH is very important in the pediatric age group growth but in adults only important in fat distribution (due to lipolysis) and regulation of blood sugar . Deficiency of GH in childhood period lead to very short stature.

30- **IGF-1** screening is the best screening test in GH deficiency

31- ACTH is released from anterior pituitary gland under stimulation of CRH from hypothalamus, which then targets the adrenal gland to release cortisol .In people with pituitary adenoma affecting ACTH cells , level of ACTH is low > no control of cortisol production by the adrenal gland > Secondary hypoadrenalism (adrenal insufficiency)

32- Excessive cortisol production > cushing syndrome . Overgrowth of the tissue so they present weight gain mainly in the abdomen (they have truncal obesity) and **red striae** (Because of the thinning of the skin, the blood vessels will be visible). In ACTH adenoma patients, they have increased risk of developing osteoporosis and gynecomastia . **In females,** they may have acne, hirsutism (excessive hair in the face), amenorrhea and problems of the cycle. In males, they may have **infertility**, weight gain.

33- In people with pituitary adenoma affecting the ACTH cells, they may have secondary adrenal insufficiency (hypoadrenalism).

34- Symptoms of hypothyroidism: edema of the face , weight gain, menorrhagia, fatigue, tiredness, constipation, lack of sleep, hoarseness of the voice, buffy eyes, sleepy all the time

35- In hyperthyroidism: Protrusion of the eye (exophthalmos), hyperactive, proximal muscle weakness, hypertension, excessive sweating, tachycardia

Quiz

Q1- which one of the following is the best screening test for GH deficiency ?			
A.Glucagon stimulation	B.IGF-1	C.HbA1c	D.T4
Q2- in which of the following conditions we can start with medication as a first line treatment?			
A.prolactinoma	B.Corticotropinoma	C.acromegaly	D.All of them
Q3-Which of the following clinical characteristics is common to acromegalic patients?			
A.enlarged hand and feet	B.weight loss	C.diarrhea	D.Alopecia
Q4- A 43 years old female presented to the emergency for possible hip fracture after a fall. Her vitals were BP 165/85, HR 78, RR 34. Her height of 5'3" and weight of 87 kg. Upon physical examination, she is alert and oriented to person, place, and time; seems anxious; and complains of having backaches, bruising easily, and amenorrhea. She also has a buffalo hump on her back, a moon-shaped face, hair growth on her face and neck. Which of the following is the most likely diagnosis?			
A.Hypoadrenalism	B.Acromegaly	C.Thyrotropinoma	D.Cushing disease
Q5- A 50 year old female complains of progressive weight gain of 20 pounds in 1 year, fatigue, postural dizziness, loss of memory, slow speech, deepening of her voice, dry skin, constipation, cold intolerance and puffy depressed face .Her Vital signs include pulse rate 58/minute and regular, BP 110/60 mmHg. Which of the following is the most likely diagnosis?			
A.hyperthyroidism	B.Cushing disease	C.hypothyroidism	D.Corticotropinoma

Answers

1.B 2.A 3.A 4.D 5.C

Leaders

Fahad Alajmi

Shahad Alrasheed

Members

Shatha aldossary

Shayma Alghanoum

Sarah Almuqati

Muneerah Alsadhan

Mohammed Alsunaidi

Ahmad Alkhayatt

Abdulrahman Alshabnan

Ibrahim Alabdulkarim

Note Takers

Saud Alrsheed

Ghada Alabdi

Give us your feedback