

Pituitary

A Tour of All of the Hormones

Craig Alter, MD

Children's Hospital of Philadelphia

University of Pennsylvania

What we will cover...

- * Each of the glands controlled by ..
- * Symptoms of deficiency of each gland
- * How to test each gland
- * Few pituitary vocabulary words

Meet the Pituitary



COLLECTION



Pituitary Controls What Glands?



Pituitary Controls...

- Thyroid
- Growth
- Adrenals (but not adrenaline part)
- Onset of Puberty and Sex hormones
- Kidney urine concentration
- Breast milk production
- Oxytocin

Pituitary Hormones

- TSH
- GH
- ACTH
- LH, FSH
- ADH (Vasopressin)
- Prolactin
- Oxytocin

Thyroid

- Role of TSH (Thyroid Stimulating Hormone)
- Symptoms of hypothyroidism

Thyroid

- Role of TSH (Thyroid Stimulating Hormone)
- Symptoms of hypothyroidism
 - fatigue
 - slow growth
 - constipation
 - feeling cold
 - weight gain

Growth Hormone

- Directly released by the pituitary
- Causes liver to make IGF-1
- Increases growth
- Muscle
- Decreases fat
- Maintains blood glucose

Adrenals

- Adrenals make:
 - Hydrocortisone (cortisol, HC, “Cortef”)
 - Aldosterone (not affected in pituitary disease)
 - Adrenaline (not affected in pituitary disease)
 - ACTH from the pituitary causes HC release
- Symptoms of deficiency:

Adrenals

- Adrenals make:
 - Hydrocortisone (cortisol, HC, “Cortef”)
 - Aldosterone (not effected in pituitary disease)
 - Adrenaline (not effected in pituitary disease)
 - ACTH from the pituitary causes HC release
- Symptoms of deficiency:
 - fatigue
 - weight loss
 - abd pain, nausea
 - low blood pressure, shock

Ovaries/Testicles

- LH, FSH cause gonads to produce its sex hormones
- When is LH, FSH needed?
 - Prenatal
 - Puberty
 - Adult
- Symptoms of deficiency: lack of puberty
 - If prenatally, male small phallus

Urine Concentrating

- What happens when one is dehydrated?
- Thirst
- Less urine produced (and inc concentration)

Urine Concentrating

- Pituitary releases vasopressin
- This causes the kidneys to concentrate and hold onto water
- Keeps the salt or sodium levels in the blood stable

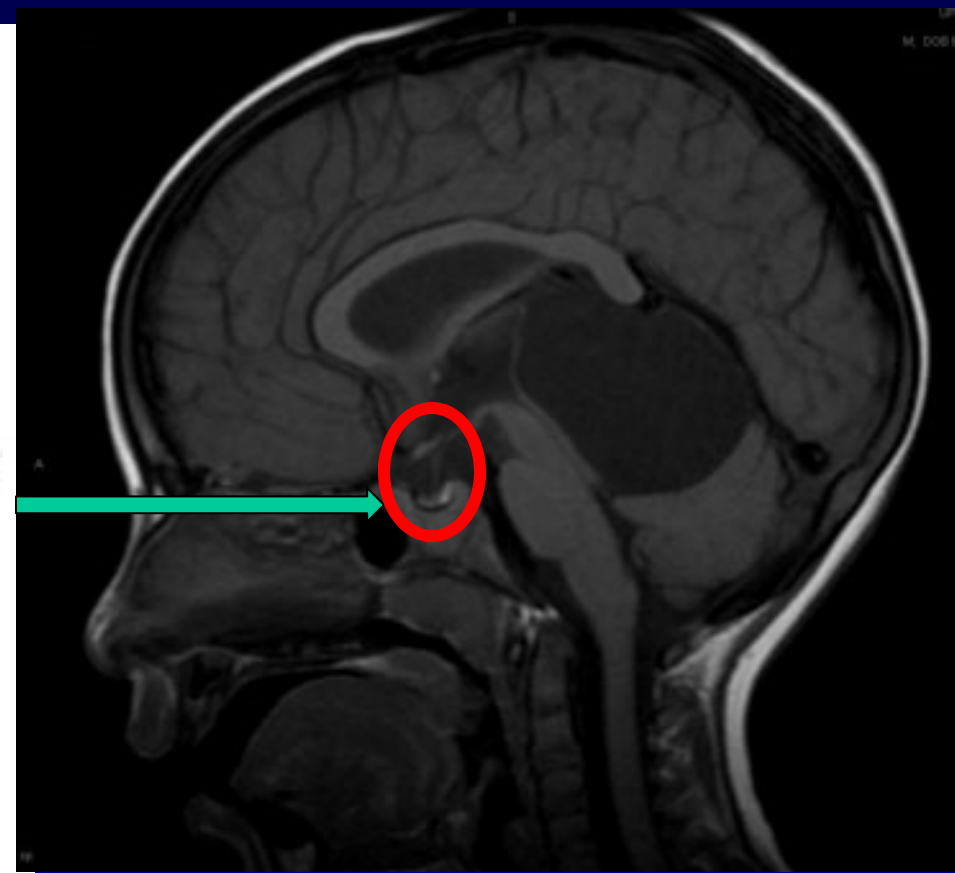
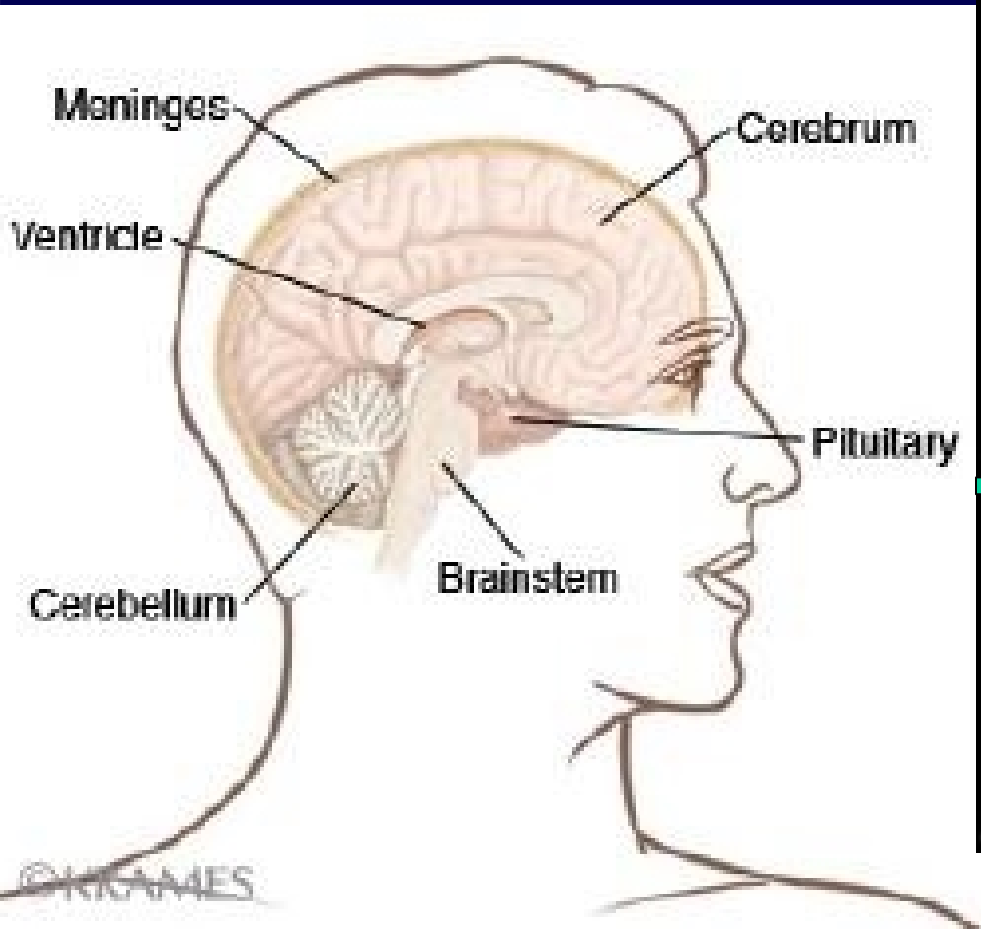


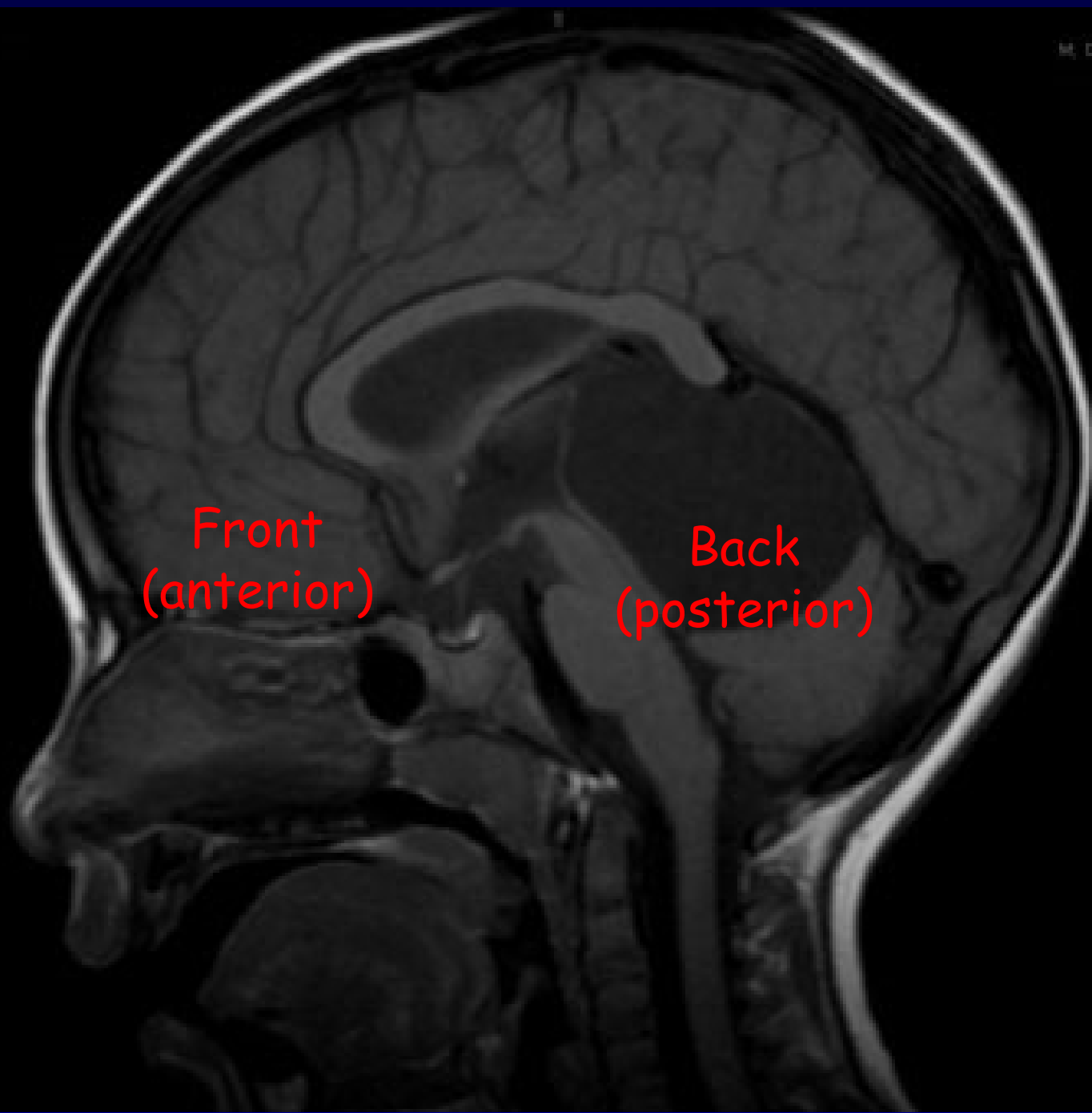
Pituitary Labs

- Free T4 (or Total T4 and T3RU)
- IGF1, IGFBP3
- 8 am cortisol
- Prolactin
- Sodium (part of chem panel)
- Glucose (part of "'''' ''''')
- LH, FSH, estradiol, testosterone
- Urine concentration

Provocative testing

- Why these fancy tests?
- Growth hormone
- Adrenal
- Pubertal





Front
(anterior)

Back
(posterior)

Pituitary Diagnoses

- Craniopharyngioma
- Rathke's Cleft cyst
- Pars intermedia cyst
- Hamartoma
- Gem Cell tumors (germinoma)
- Histiocytosis
- Adenoma, Prolactinoma
- Optic nerve hypoplasia
- Ectopic Posterior Pituitary