GLMS CME- Cell Group 5
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Endocrinologist

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Pituitary case one
Mrs Z; 64F

- Seen ORL for tinnitus – wax impaction
- MRI Head
- Pituitary microadenoma (3mm)
- Normal brainstem & CP angle, no cause for tinnitus
- What to do next?

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Mrs Z – Background medical history

- Post menopause since early 50s (menarche age 17)
- Lifelong non-smoker
- Low BMI (weight 46kg, height 156cm)
- Hypertension controlled on cilazapril
- “Osteopenia” in the past

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Mrs Z – presenting complaints

- Intermittent dizziness
- “Pulling”sensation over left posterior upper neck region
- Pressure feeling in head x 4 wks
- Lethargic
- Floaters
- Hair loss, mouth ulcers, joint pain

- No galactorrhoea
- No visual problems

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Mrs Z – medications

- Monthly D3
- Cilazapril 0.5mg mane
- Zopiclone nocte/prn

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Mrs Z – physical examination

- Well
- Small built (46kg)
- Normal VF on confrontation test
- No goitre
- Small aphthous mouth ulcer
- No alopecia, synovitis, malar rash
- BP 116/72

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Mrs Z – blood tests

Pituitary Panel

- TSH – 1.0 mIU/L (0.30-4.00)
- Prolactin – 108 mIU/L (<400)
- FSH 126.6; LH 55.0 IU/L
- E2 – n/a
- IGF-1 193 ng/ml (51-203)
- Cortisol 253 nmol/L
- ACTH – 6 pmol/L (2-11)

General

- Na – 141 mmol/L
- K – 4.4 mmol/L
- Creatinine 60 umol/L
- LFT – normal
- Lipids – normal
- HbA1c 37 mmol/mol
- ANA negative

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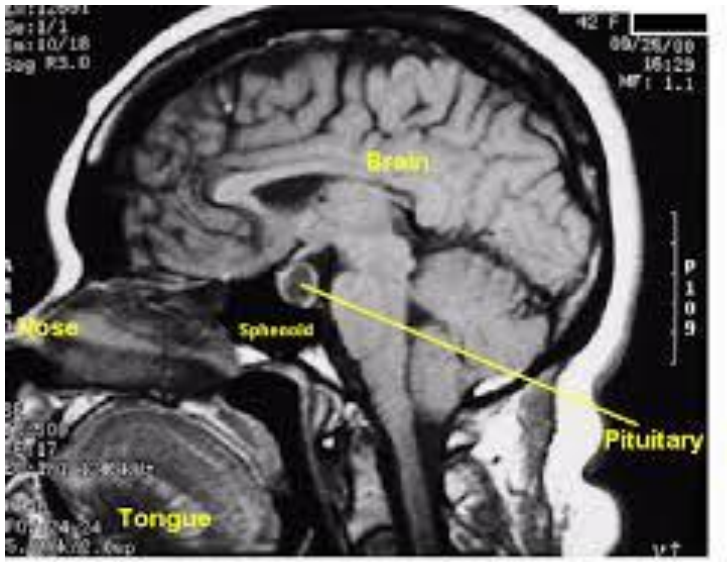
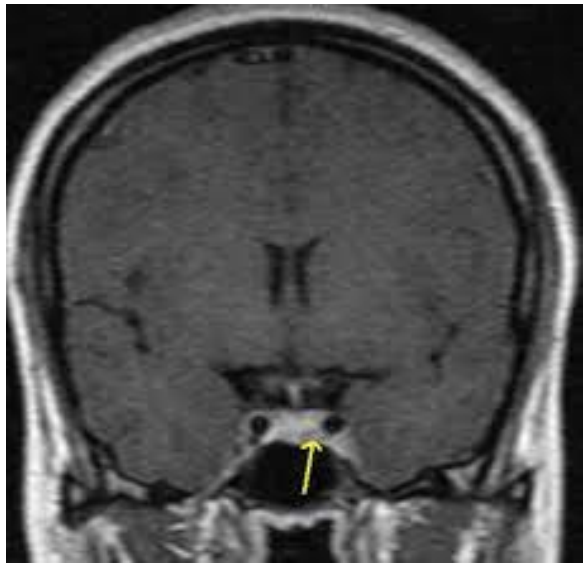
Pituitary adenoma - MRI





Not a dedicated pituitary scan

Size hard to quantify

~5mm

No optic chiasm or cavernous sinus involvement

Smaller compared to scan done in 2012!

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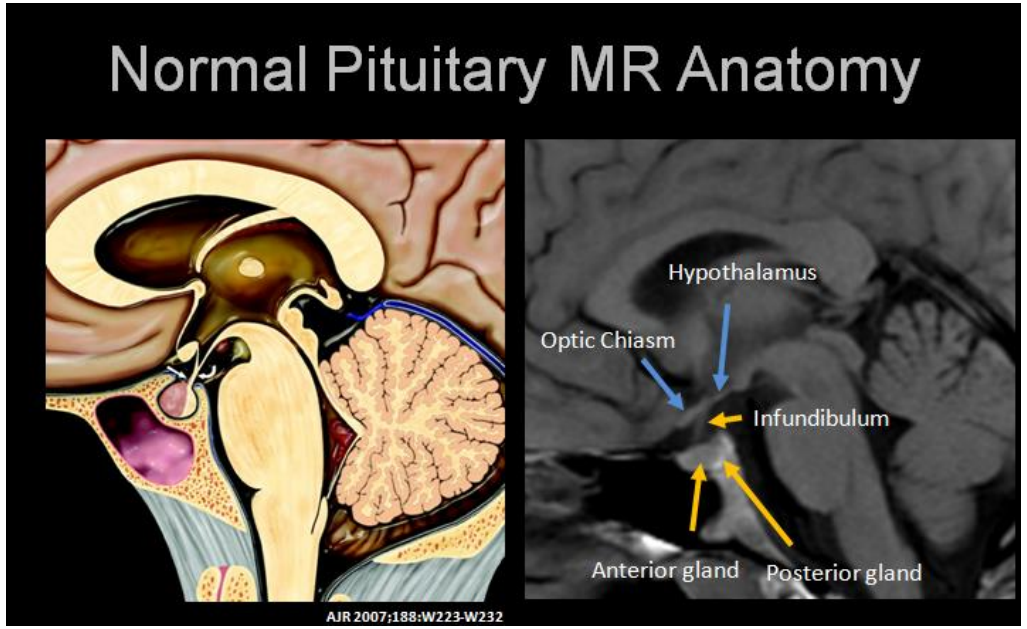
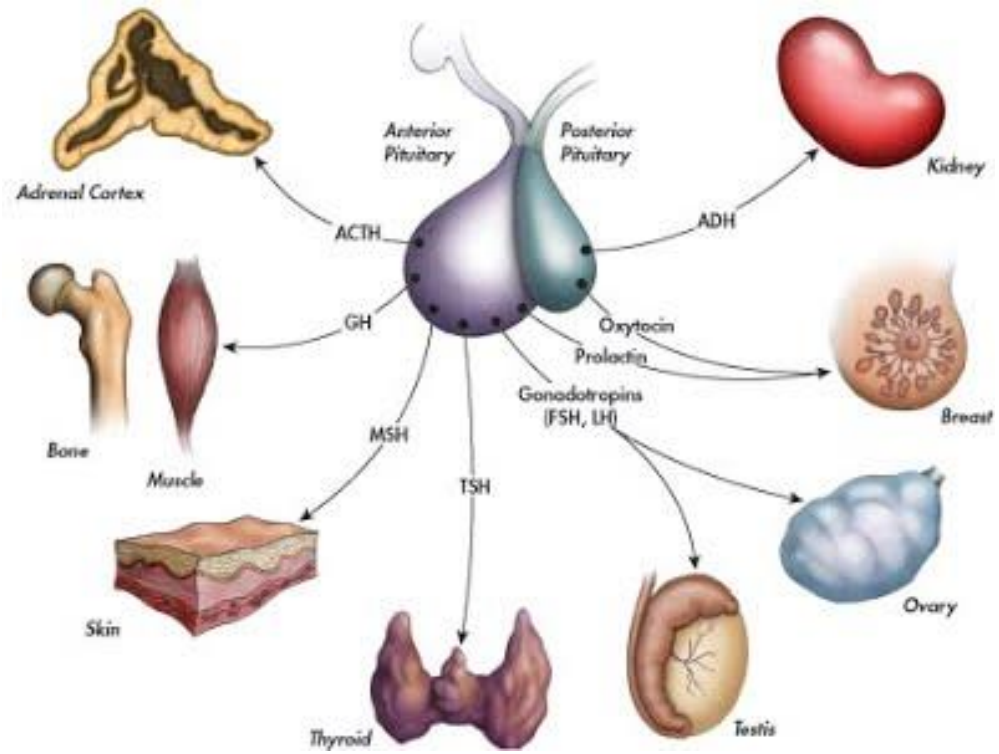
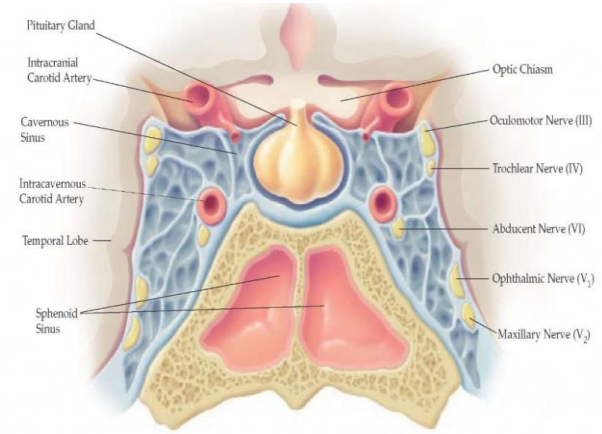
Pituitary gland anatomy & physiology (recap)



- Physiology





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Mrs Z – DIAGNOSIS?

- What is the next step of management?

➢Diagnosis: non-functioning pituitary microadenoma

➢No hormonal replacement required

➢Size does matter…..

➢Micro (<10mm) vs macro (>10mm)-adenoma

➢Anatomical implication – optic chiasm, cavernous sinus (Neurosurgeon review for macroadenoma)

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Pituitary case Two
Mrs Y; 53F

- Pituitary microadenoma (2015)
- Persistent Prolactin elevation

➢March 18: 532

➢Sep 17: 482

➢Sep 16: 829

➢Nov 15: FSH <0.5; LH <0.1; Prolactin 1610 (70-500)

➢Diagnosis - Prolactinoma

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Prolactinoma

- Prevalence 0.5% of pituitary tumours
- The commonest functioning pit. tumour
- Clinical features:

(a) Hyperprolactinaemia (micro & macroadenoma)

Galactorrhooea, menstrual disorder, infertility, ↓libido, erectile dysfunction,

↓ BMD, ↓LH

(b) Mass effect (macroadenoma only)

Visual field defect, headache, hypopituitarism, cranial nerve palsies, bone erosion, CSF with meningitis

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Hyperprolactinaemia - Causes

- Physiological – pregnancy, sexual intercourse, nipple stimulation, stress
- Pituitary tumours – prolactinoma, macroadenoma compressing stalk, empty sella
- Hypothalamic disease – craniopharyngioma, meningioma
- Drugs *** (*next slide)*
- Stalk effect – head injury, surgery
- Cranial irradiation
- Metabolic – hypothyroidism (TRH increases PRL), CRF, severe liver ds
- Others – PCOS, chest wall lesion (Trauma, zoster)
- Idiopathic

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Drugs causing hyperprolactinaemia

Medication Class	Frequency of PRL elevation	Mechanism
Antipsychotic (first generation) -Haloperidol	Moderate to high	D2 receptor blockade
Antipsychotic (second generation) -Aripiprazole -Clozapine -Olanzepine -Quetiapine -Risperidone -Paliperidone	None or low None or low Low None or low High High	D2 receptor blockade
Antidepressant -Amitriptyline/Nortriptyline -Citalopram, fluoxetine, paroxetine -Venlafaxine, mirtazapine, bupropion	None or low None or low (rare reports) None	Not well understood ?GABA stimulation & serotonin-induced PRL release
Antiemetic -Metoclopramide, Domperidone	High	D2 receptor blockade
Antihypertensive -Methyldopa	Moderate	↓conversion of L-dopa to dopamine, suppression of dopamine synthesis
Opioid --Methadone, morphine	Transient increase for few hours following dose	Indirect effect of mu opiate receptor activation

Macroprolactin (“Big” PRL)

- Prolactin bound to IgG
- Aggregate form of PRL (150-170 kDa)
- Monomeric (active) form 23kDa
- Do not interfere with reproductive function
- Not clinically significant
- Hyperprolactinaemia
- Regular ovulatory cycle

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Evaluation of hyperprolactinaemia

- If only slightly elevated, repeat test
- If persistently elevated, then determine the cause
- Exclude physiological cause, drug
- History – cause, symptoms, medications, ?renal disease
- Exam – bitemporal field loss, chest wall injury, hypothyroidism, hypogonadism signs
- Labs – pituitary panel
- MRI pituitary

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Treatment

Aims:

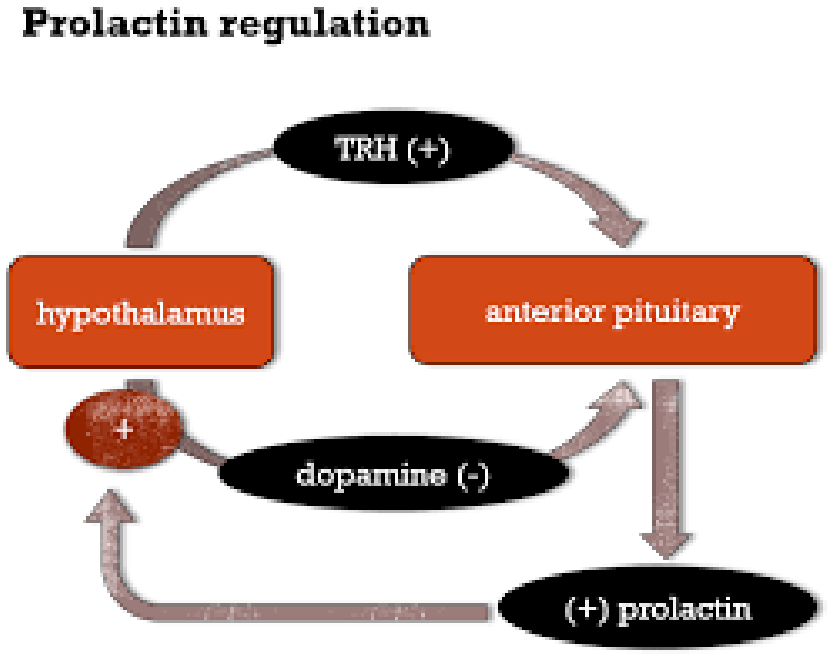
- Microprolacitnoma: restore gonadal function, terminate galactorrhoea
- Macroprolactinoma: tumour reduction, restore gonadal function

Use:

- **Drug – dopamine agonist** (first line)
- Surgery (transphenoidal surgery) : cure rate is poor (30%); usually reserved for CSF leak from invasive macroprolactinoma

Cabergoline

- First choice dopamine agonist
- More effective in normalisaiton of PRL (83% vs 59% with bromocriptine)
- Fewer side effects than bromocriptine
- Once or twice a week
- At lower dose for hyper PRL, less likely to increase risk of valvular heart disease



- Starting dose 0.25mg weekly (maintenance dose 0.25-2mg weekly)

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Thank you

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