Inferior Petrosal Sinus Sampling

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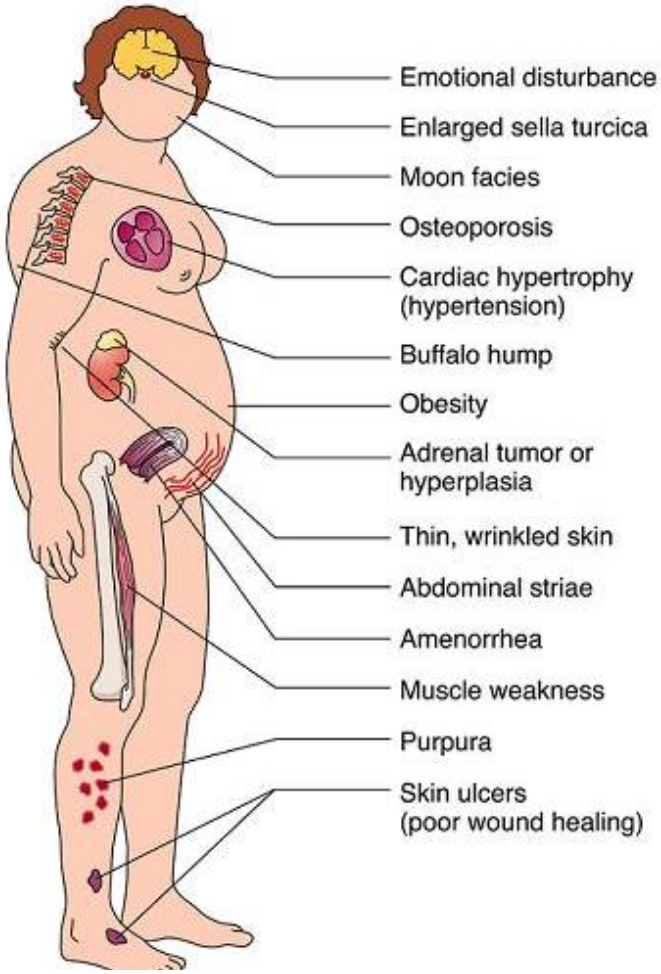
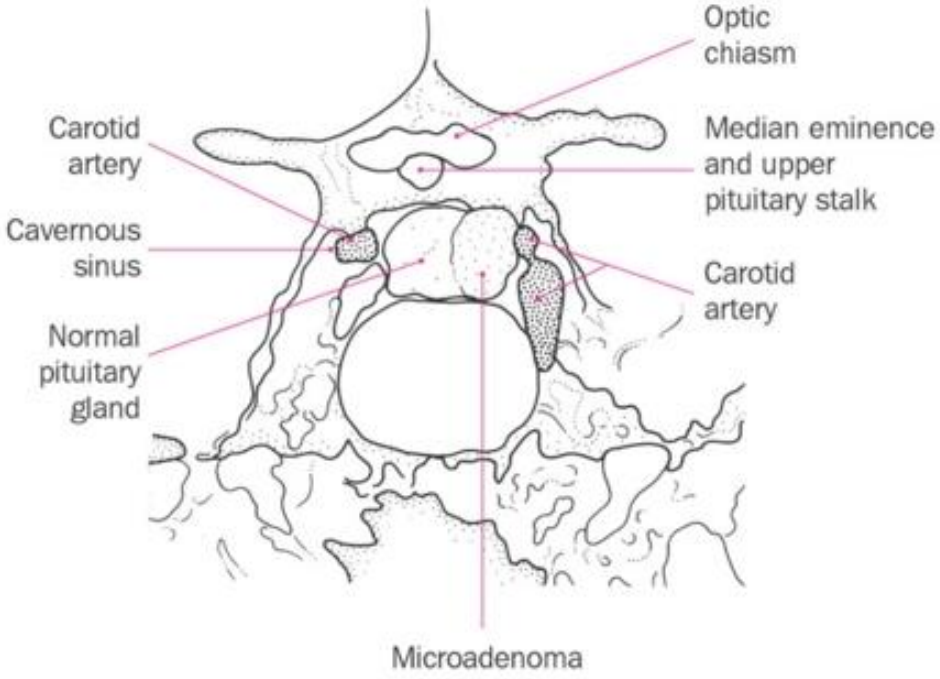
Cushing syndrome



MR imaging


Optic chiasm
Carotid artery
Median eminence and upper pituitary stalk
Cavernous sinus
Carotid artery
Normal pituitary gland
Microadenoma

Difficulties in demonstrating ACTH-secreting pituitary adenomas on CEMR

- Very small (80% < 3mm)when patients first present - obscured by averaging artifacts.
- Often enhance similar to normal pituitary parenchyma.
- Confounded by identical-appearing, small focal space–occupying lesions – Pituitary incidentalomas.

Cushing's Syndrome
Inferior Petrosal Sinus Sampling (IPPS)

- The most direct way of knowing if the pituitary is making excess ACTH is to measure it

- The inferior petrosal sinuses receive the drainage of the pituitary gland without admixture of blood from other sources

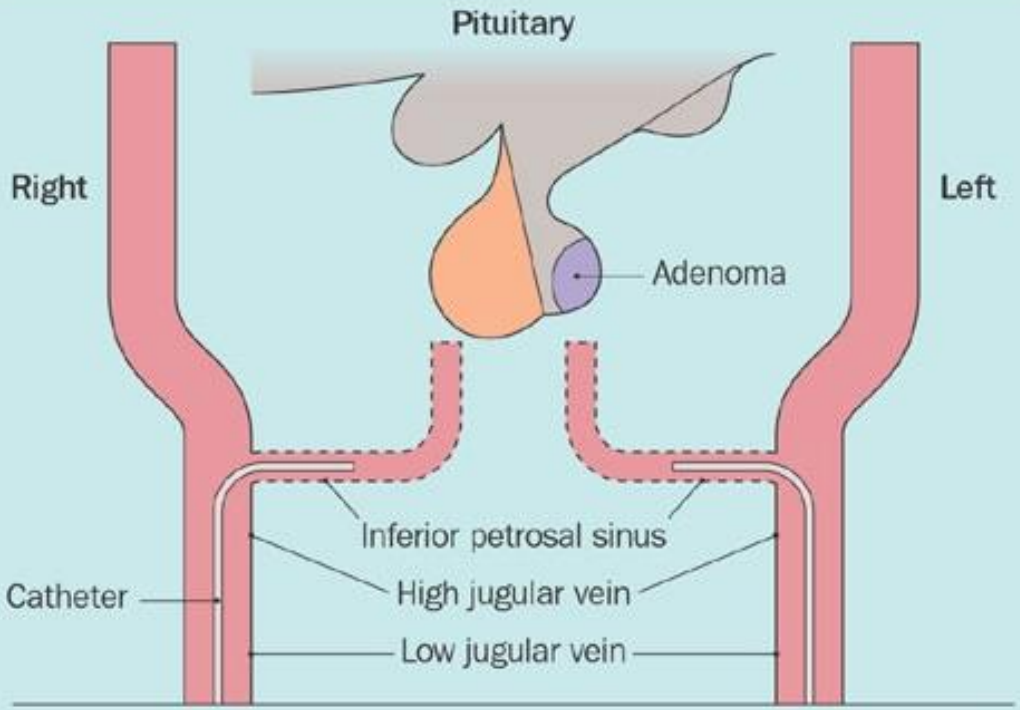
- Each half of the pituitary drains in the ipsilateral petrosal sinus

28yr/f

- Cushing's syndrome since 3 yrs.
- ACTH raised.
- Dexamethasone test +ve.
- 3 MRI- Normal pituitary.

Patient and clinician both frustrated. Surgeon refused to operate.

Simultaneous bilateral inferior petrosal sinus and peripheral vein sampling for ACTH



	Plasma ACTH (ng/L)		
	After i.v CRH 100mg		
	0min	5min	10min
Left inferior petrosal sinus	14	477	280
Right inferior petrosal sinus	16	23	28
Simultaneous peripheral vein	17	19	25

So what is IPSS good for?

- Distinguishing between pituitary or ectopic Cushing's
  - Very good at this, but can usually be done on other grounds
- Distinguishing between pituitary and adrenal
  - Often can been done on other grounds as well, but sometimes needed in hard cases.
- Determining if a questionable spot on MRI corresponds to lateralization on IPSS
  - If you have a right sided questionable lesion and get a right sided lateralization, that would support that the pituitary lesion is the source of the ACTH and might support the diagnosis of Cushing's
- If no tumor is seen on pituitary MRI, yet pituitary Cushing's is expected.