Macroadenoma

- Benign neoplasm of the adenohypophysis.
- WHO grade I
- MIB-1 > 1% suggests early recurrence, rapid regrowth
- Invasive adenoma > > pituitary carcinoma (rare)
- Clinical Issues
  - Beware: Adenoma-like mass in adolescent/prepubescent males may represent hyperplasia secondary to end-organ failure
  - Prolactin-secreting adenoma is most common functional adenoma

Imaging

- Upward extension of macroadenoma = most common suprasellar mass in adults
- Best imaging technique
  - MR with sagittal/coronal thin-section imaging through sella + T1 C+ with FS
- Sellar mass without separate identifiable pituitary gland = macroadenoma
- Mass **is** the pituitary gland
- Usually isointense with gray matter
- Enhance strongly, often heterogeneously
- Cavernous sinus invasion difficult to determine

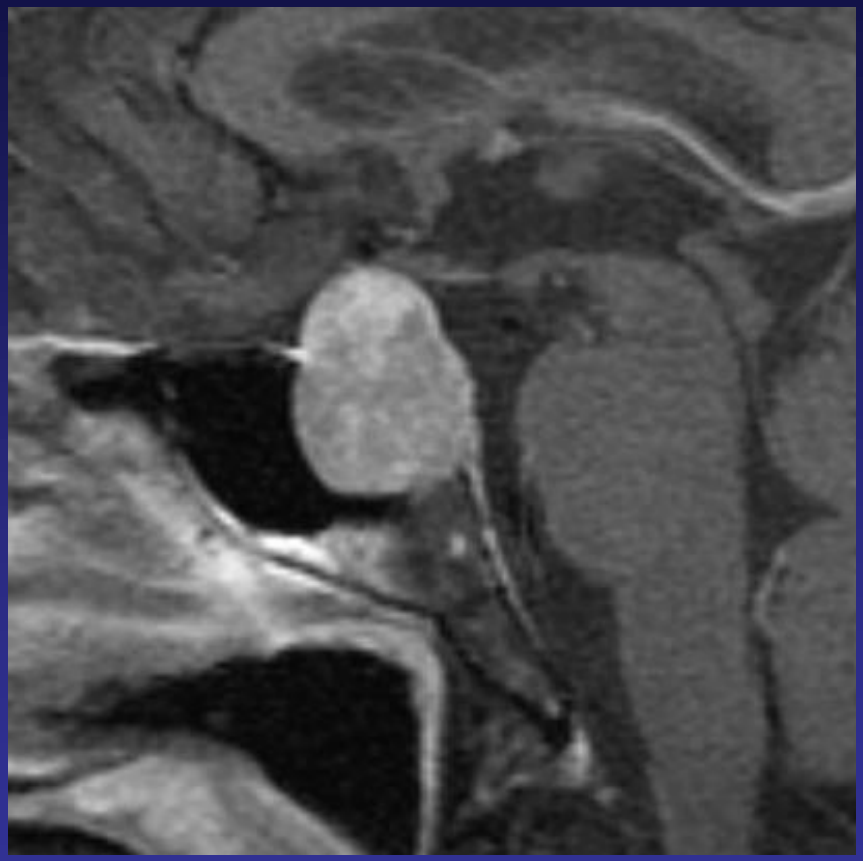
DDX:

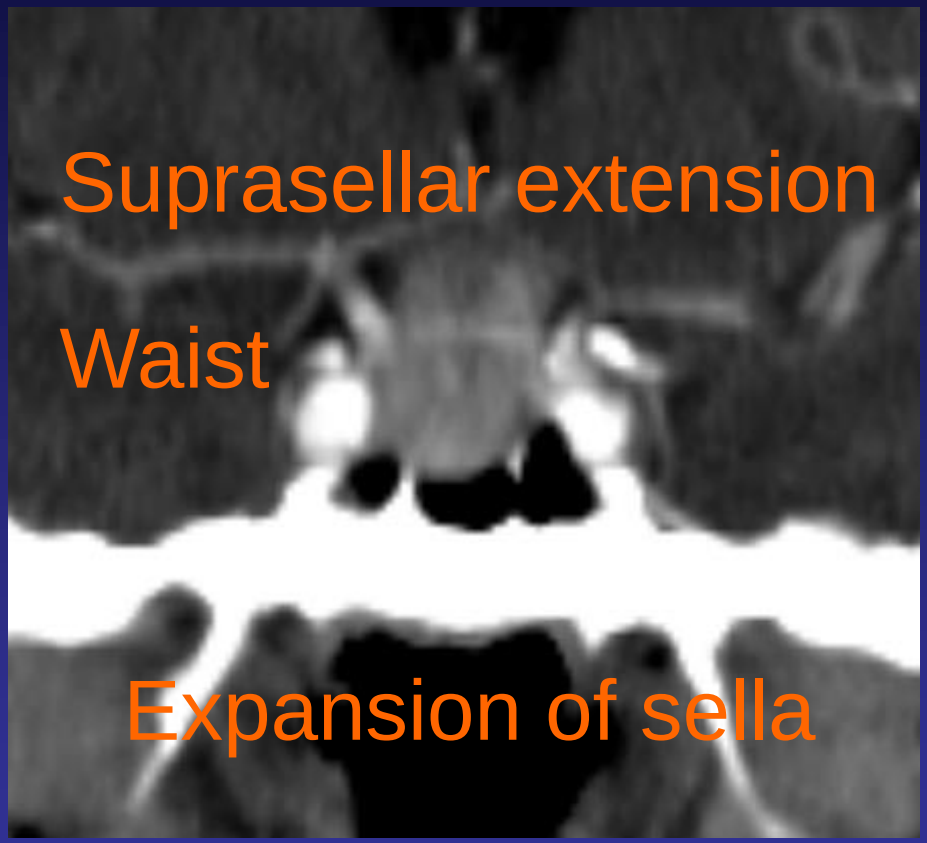
- Pituitary hyperplasia
- Saccular aneurysm
- Meningioma (diaphragma sellae)
- Metastasis
- Lymphocytic hypophysitis
- Craniopharyngioma

Diagnostic Check List

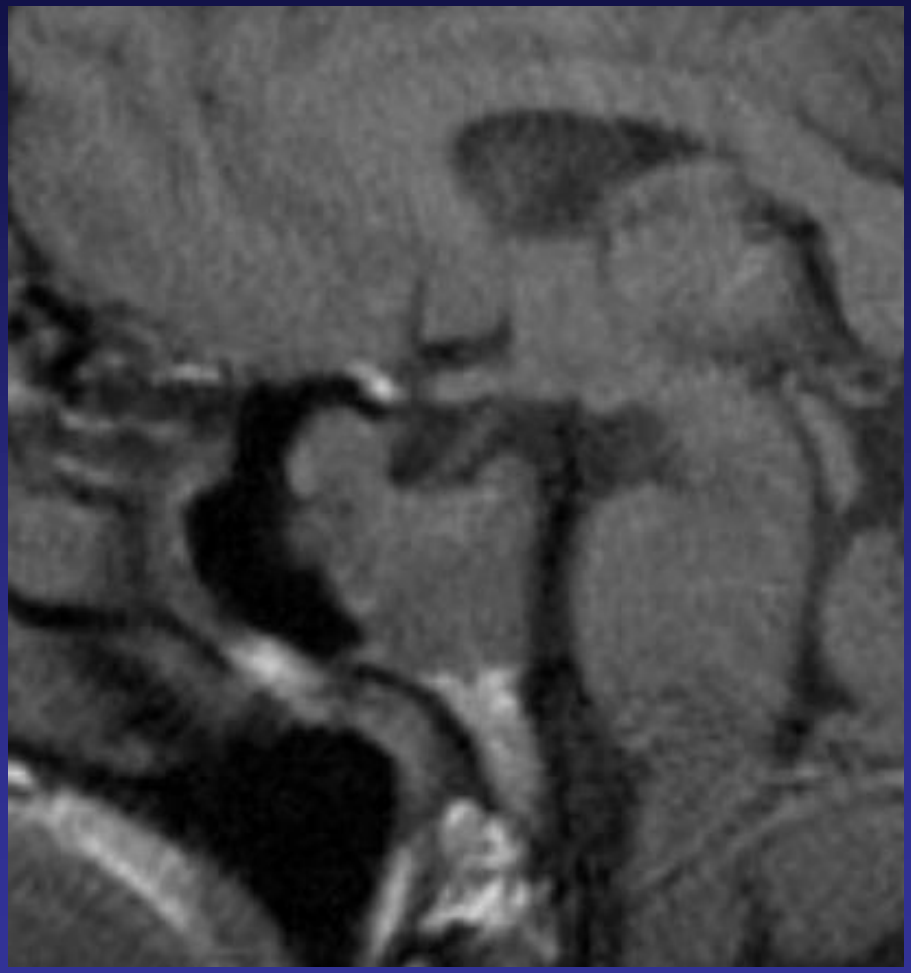
- **Consider**
  - Could sellar mass be nonneoplastic (e.g., hyperplasia, hypophysitis, etc.)
  - Check prolactin levels in male with giant invasive skull base mass; it may be giant adenoma
- **Image Interpretation Pearls**
  - No matter how aggressive/invasive it looks, pituitary tumors are almost never malignant

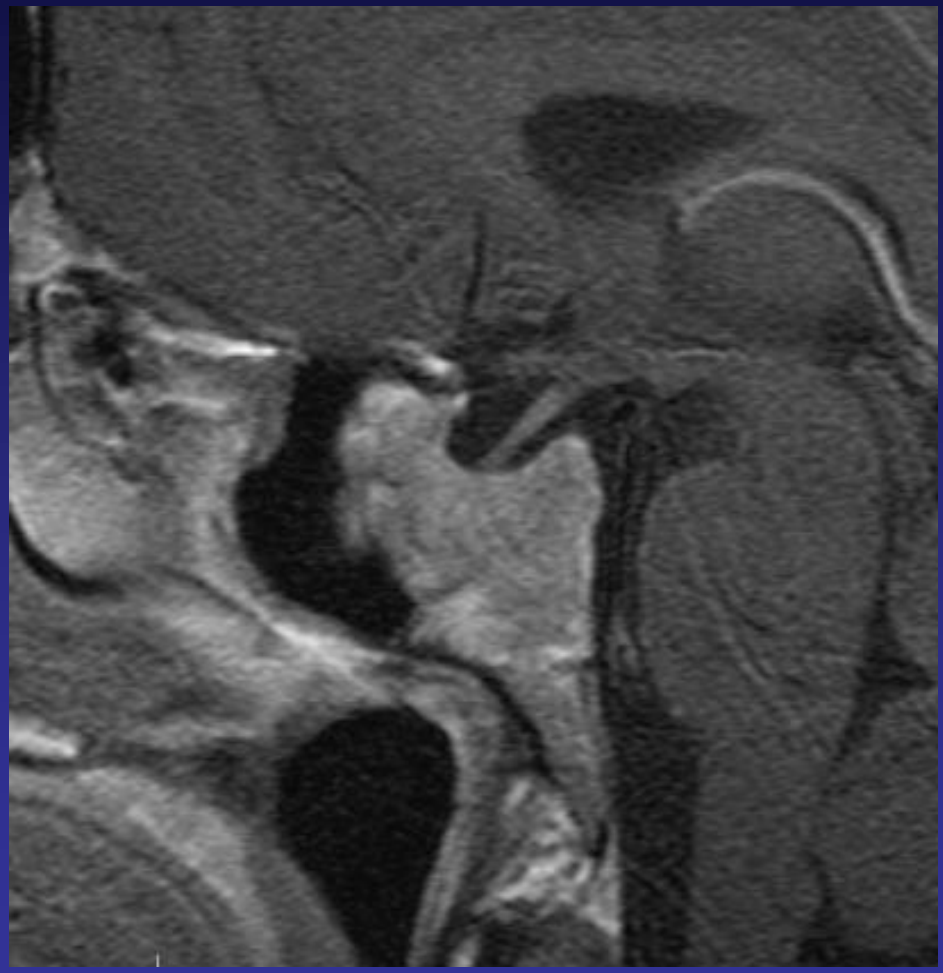
Classic Macroadenoma





“Invasive” Macroadenoma (Prolactinoma) with predominant infrasellar growth





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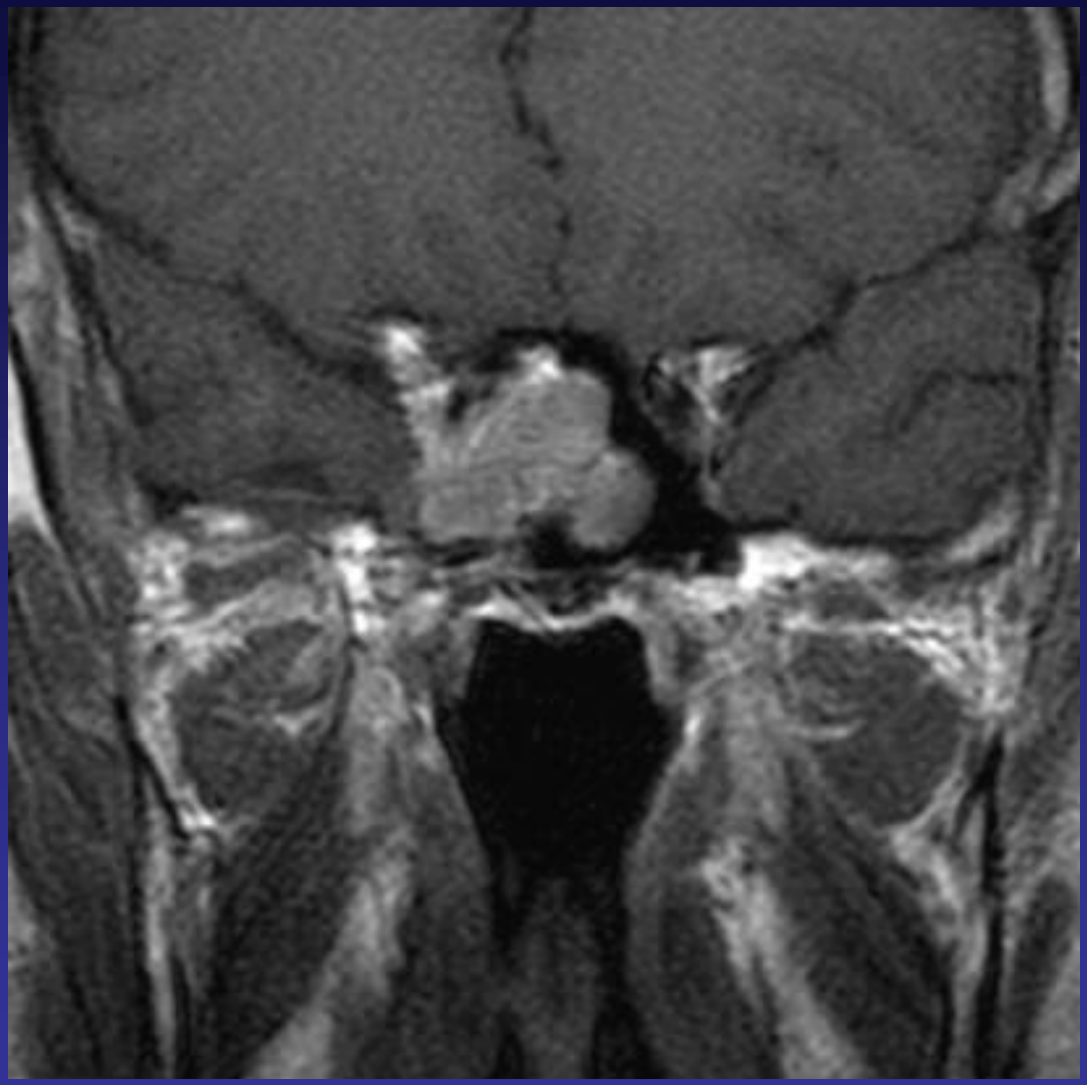

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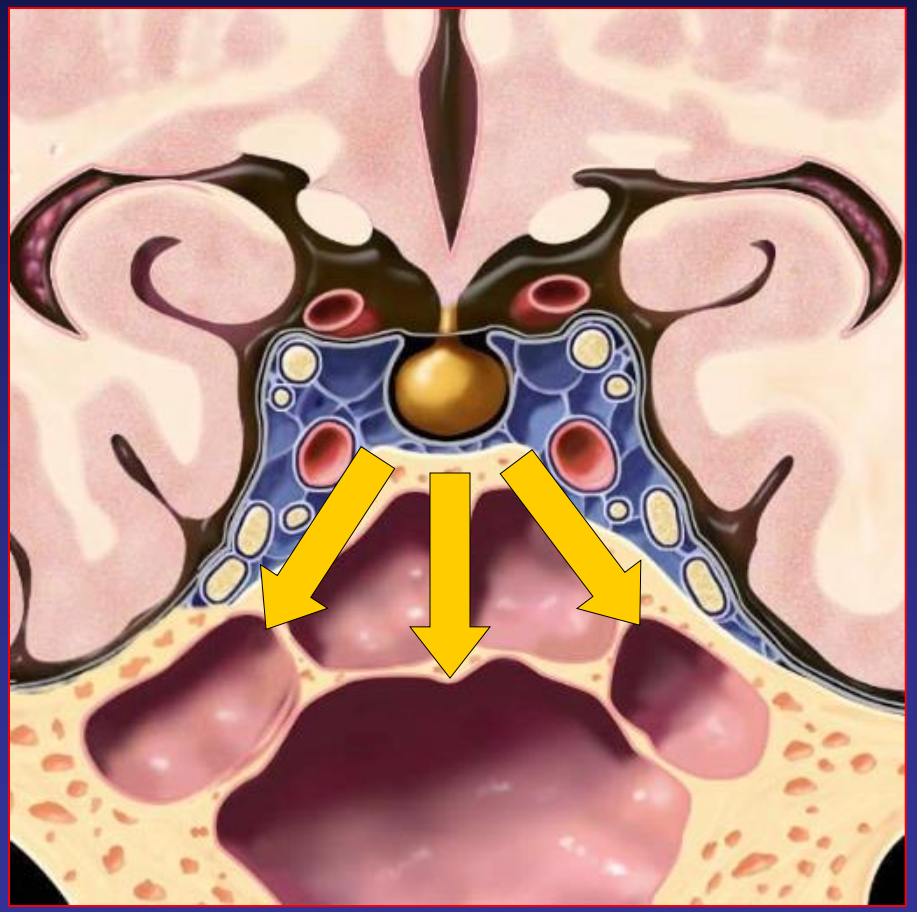
Invasive Skull Base Macroadenoma

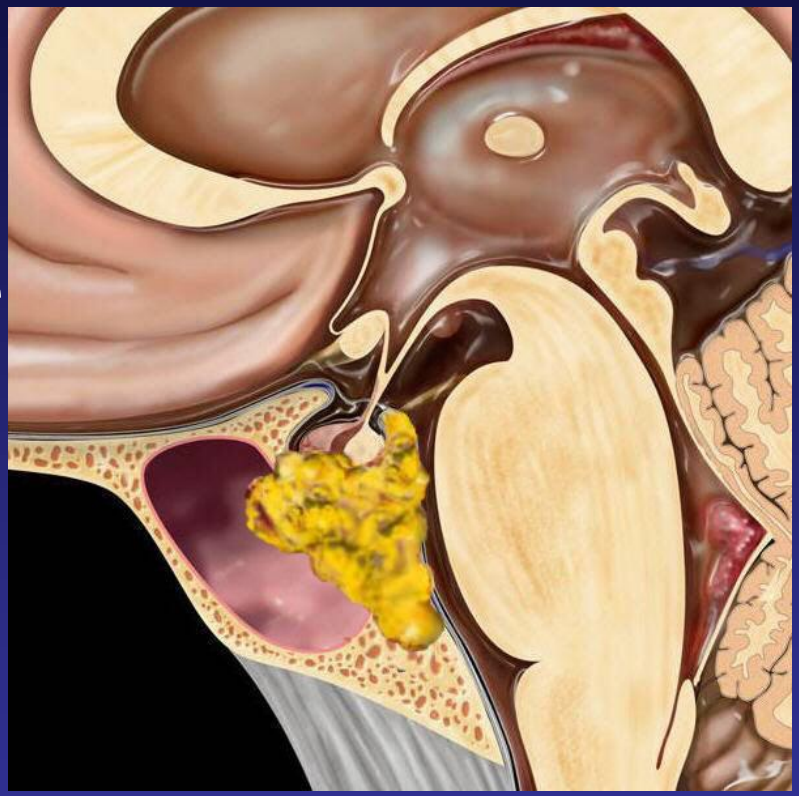
Predominant Growth Pattern is Infrasellar

1. Solid
2. Necrotic
3. Cystic

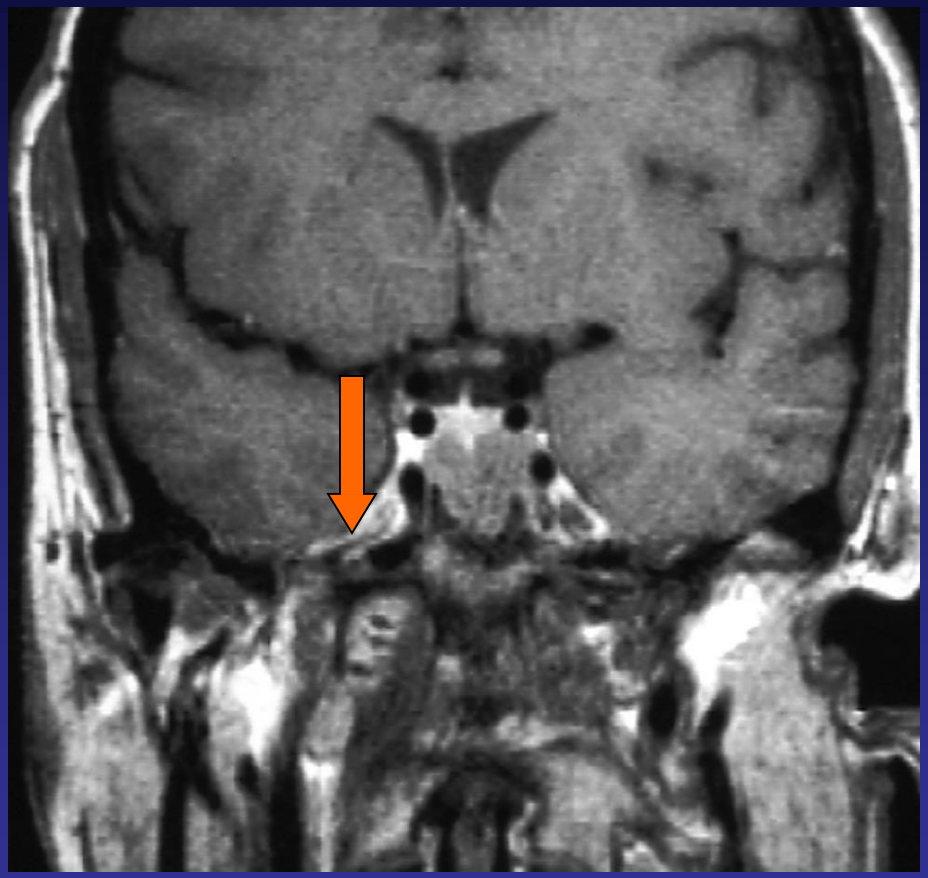


Features: Invasive Macroadenoma

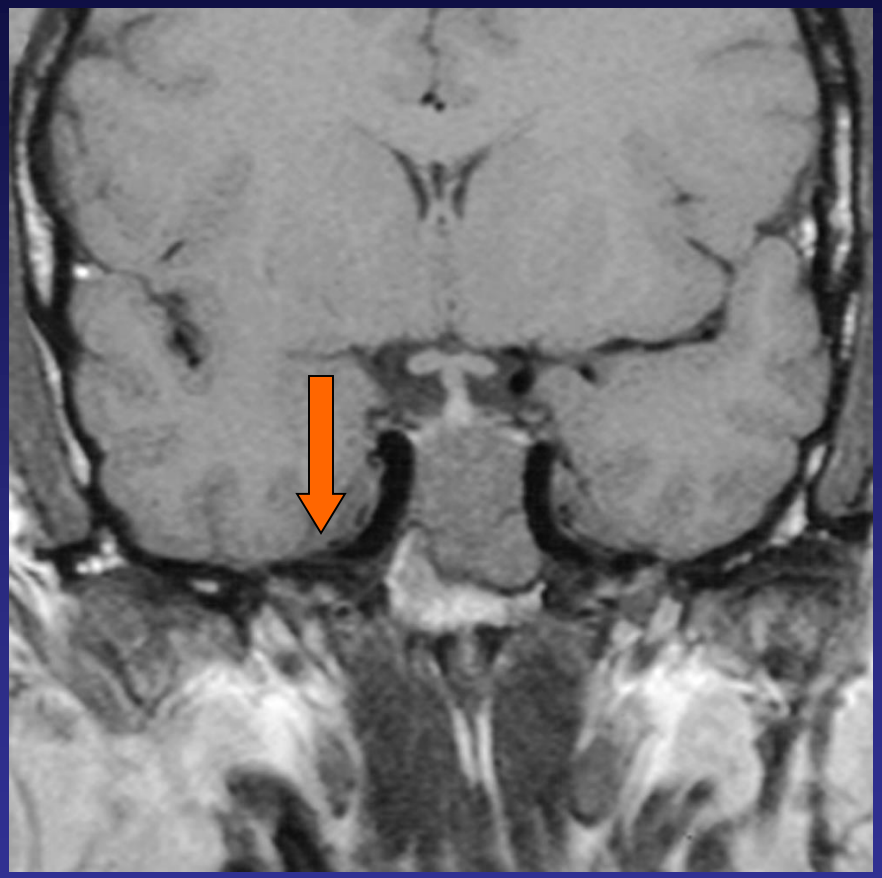
- Suprasellar cistern Normal
- Pituitary stalk normal position
- Upper margin of pituitary may be normal
- Lower pituitary gland indistinguishable from the clival mass
- Cavernous sinus frequently invaded
- Extension into sphenoid sinus



Infrasellar: Solid



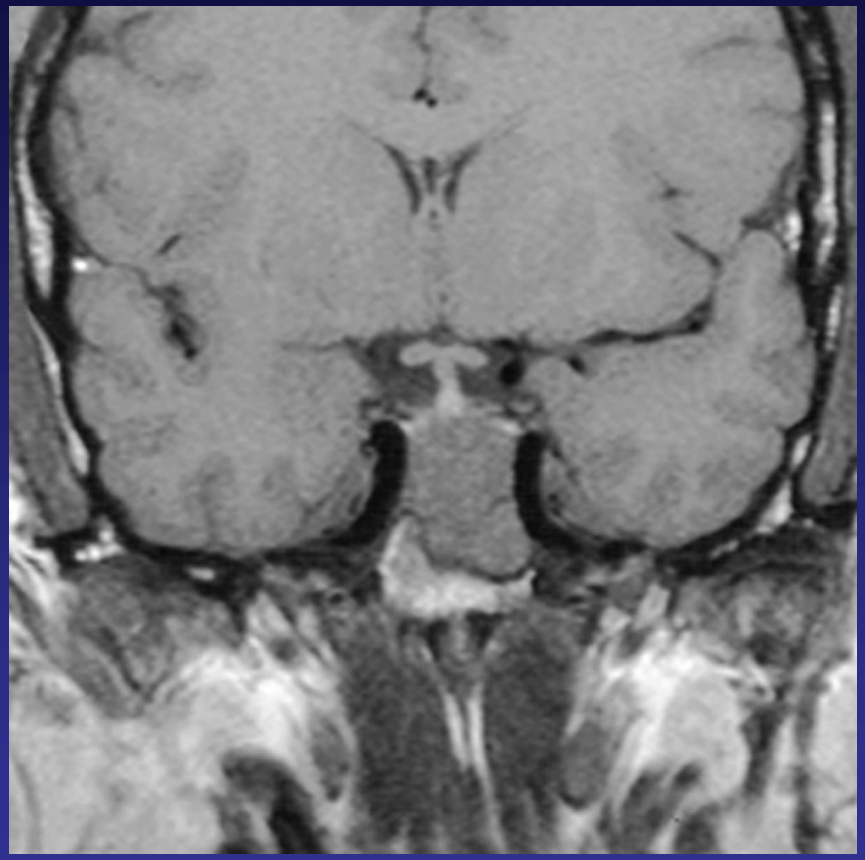
Growth hormone secreting



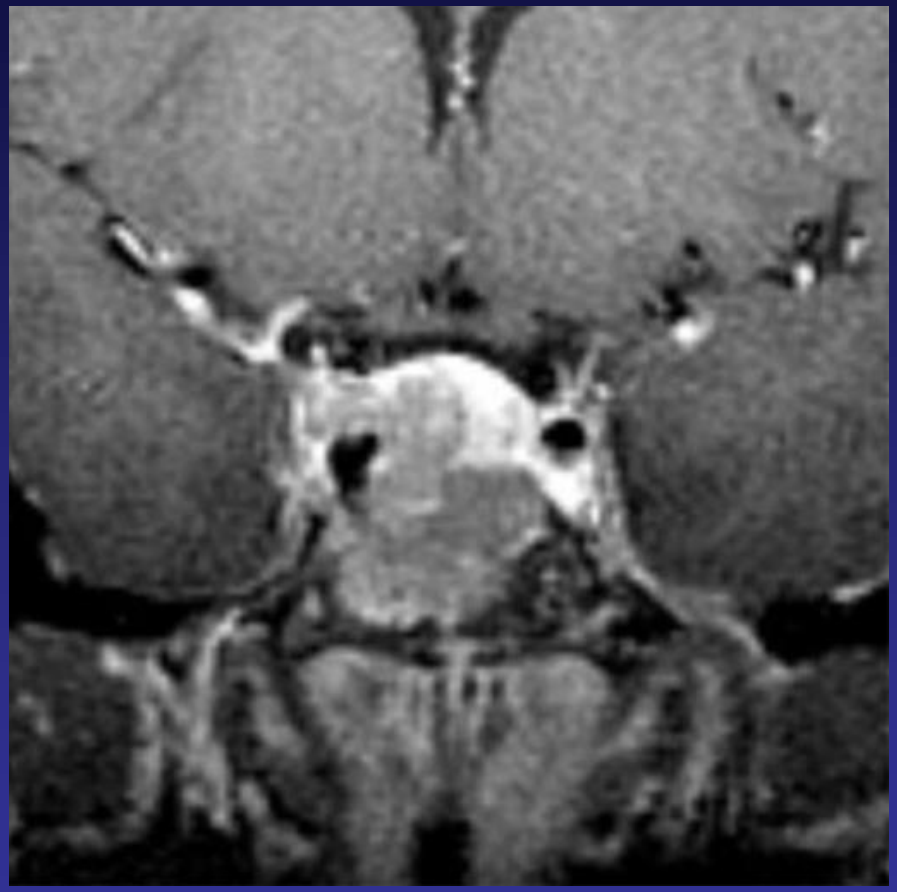
Prolactin secreting

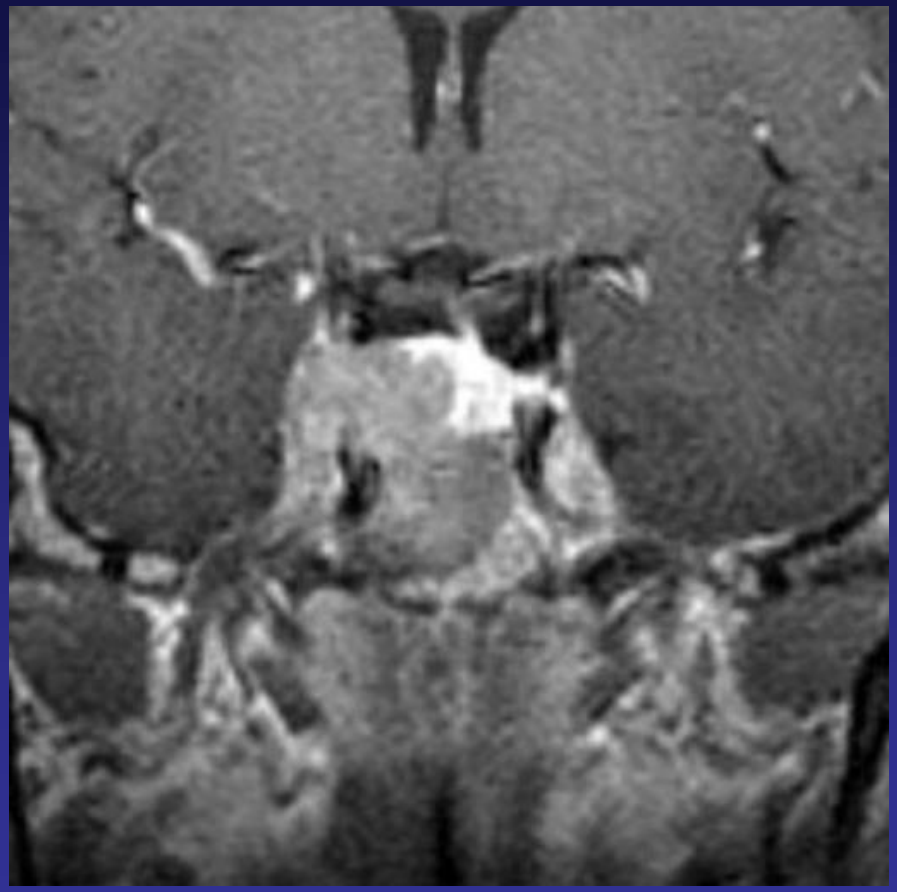
Bony changes

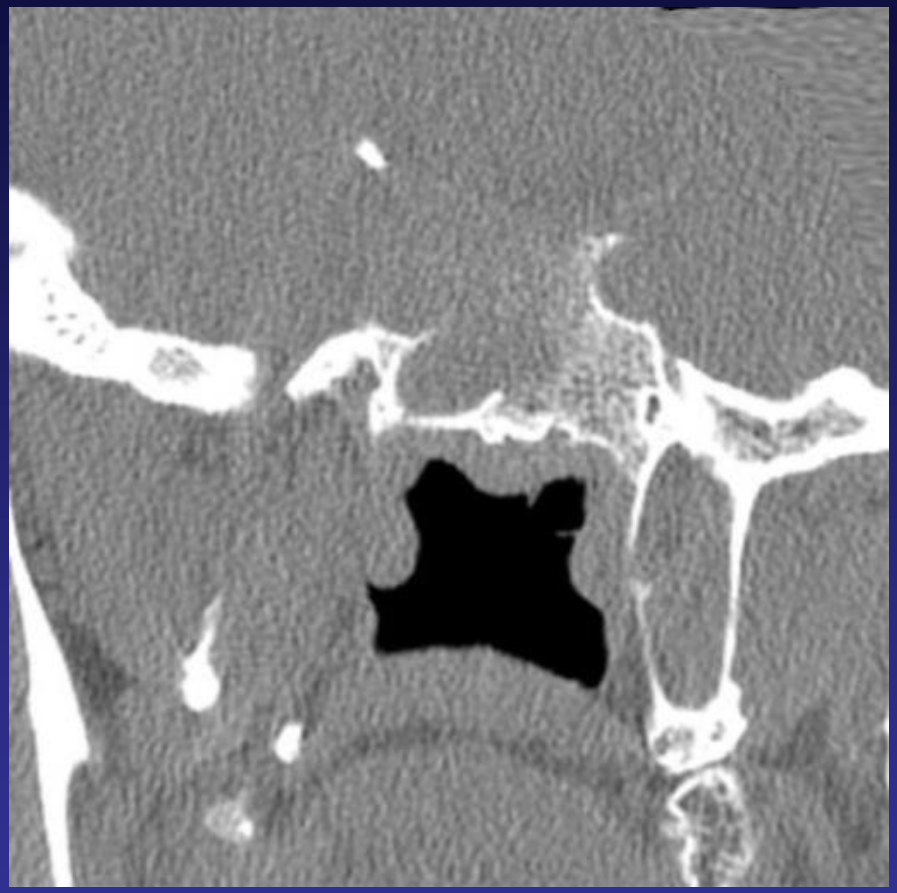
- Sellar Expansion
- Remodeling
- Scalloping
- Permeative change of clivus
- Lytic/Destructive

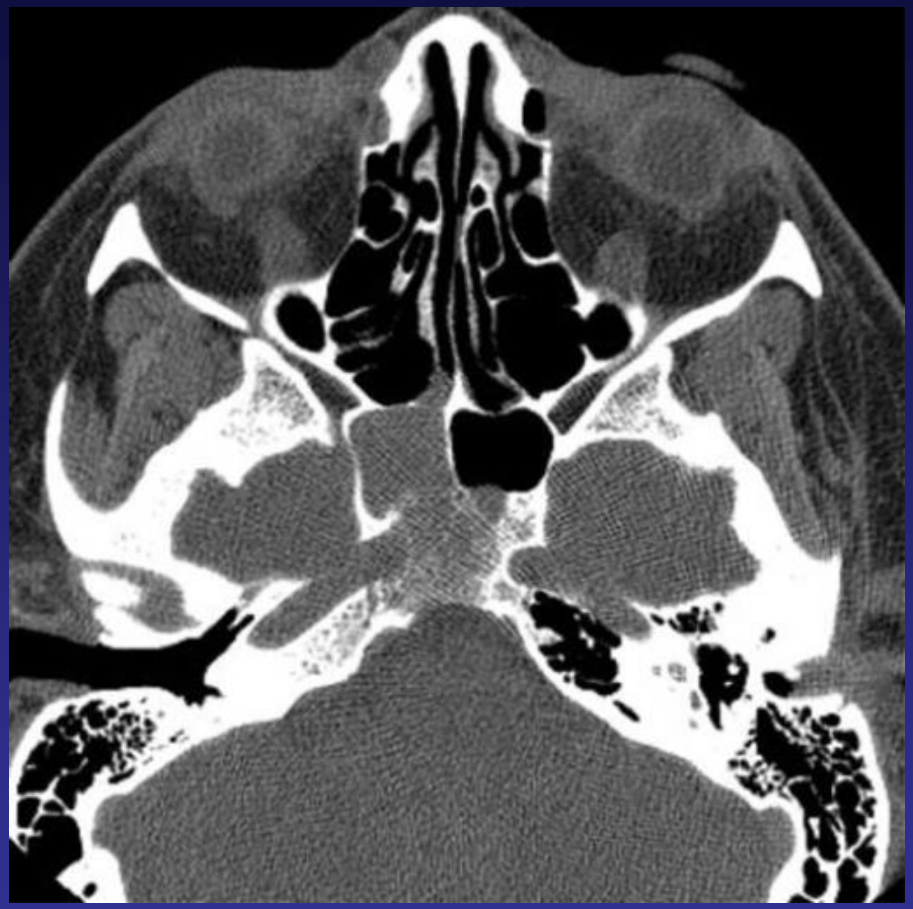


“Incidental Macroadenoma”

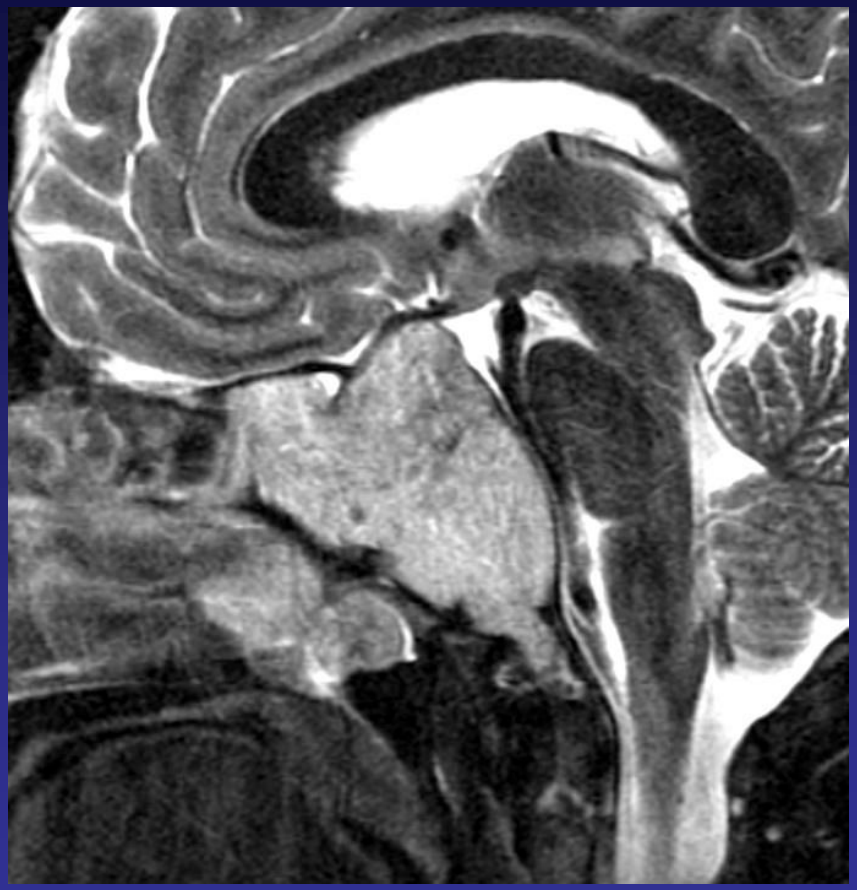


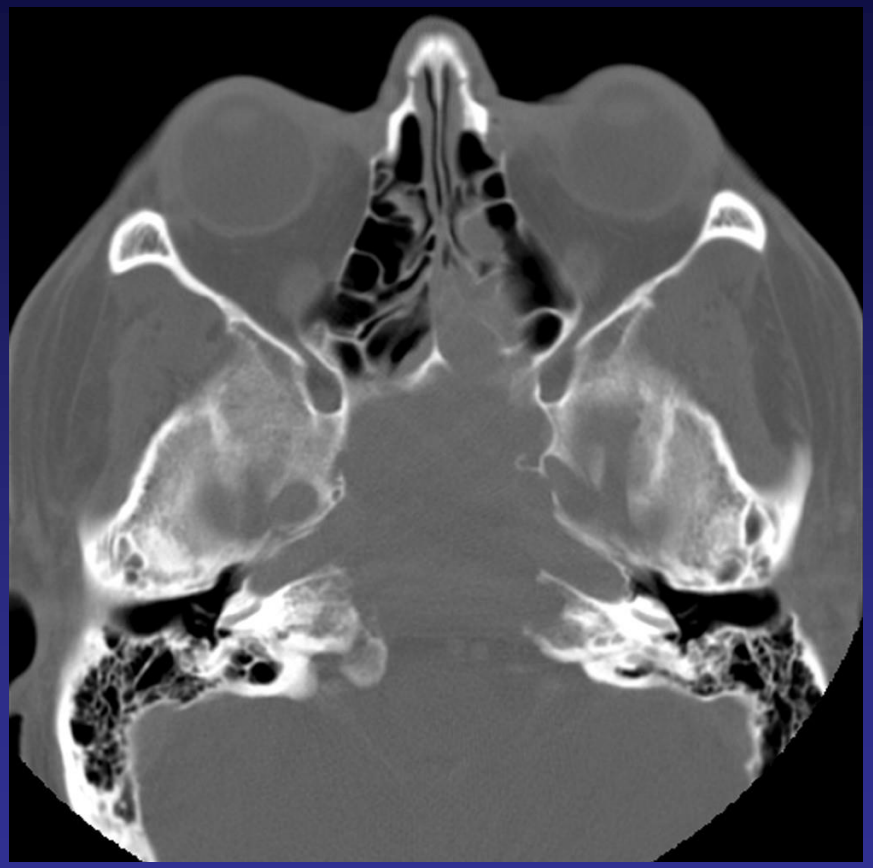






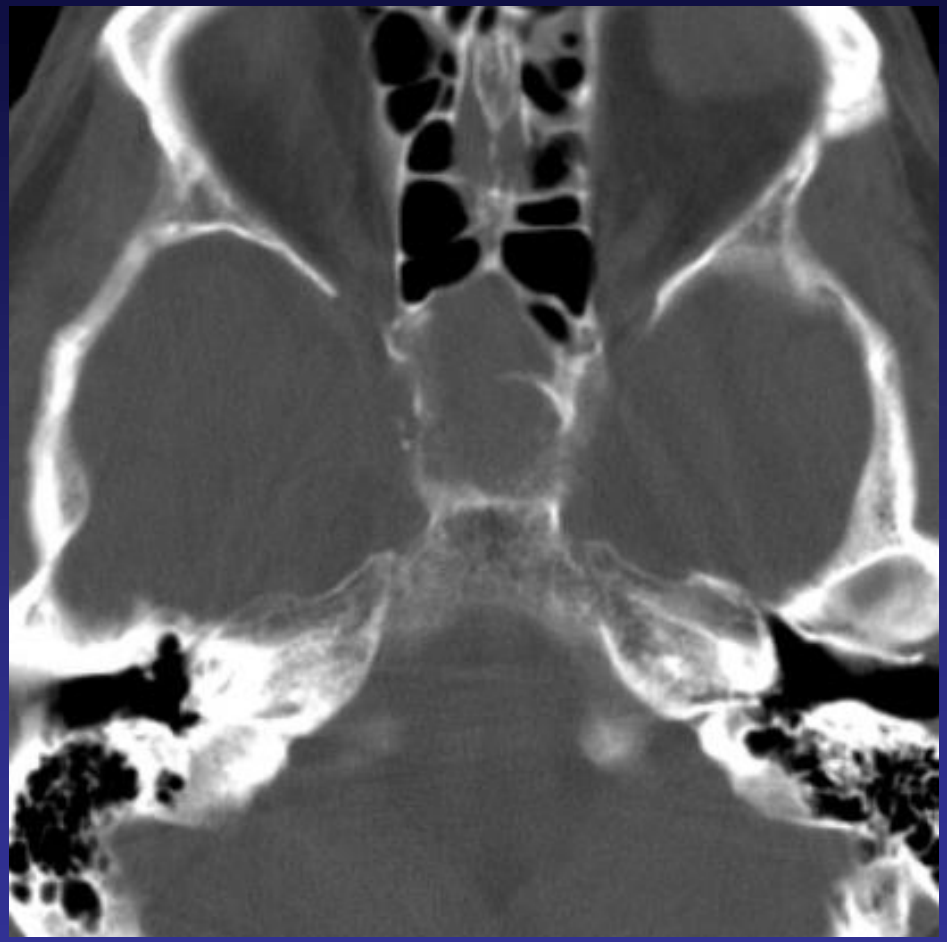
Giant Prolactinoma

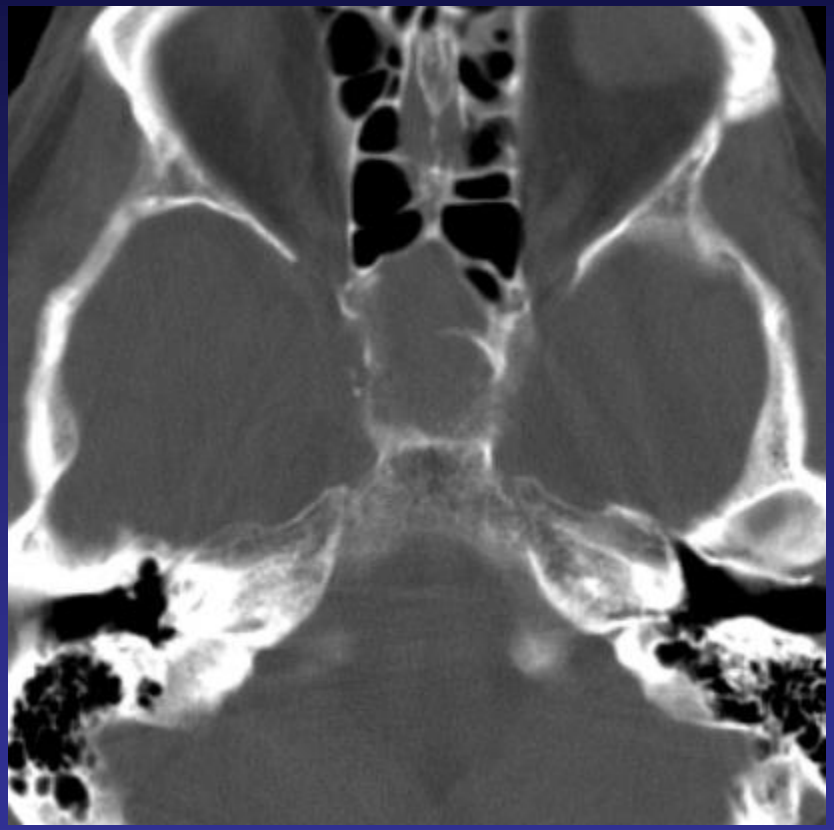


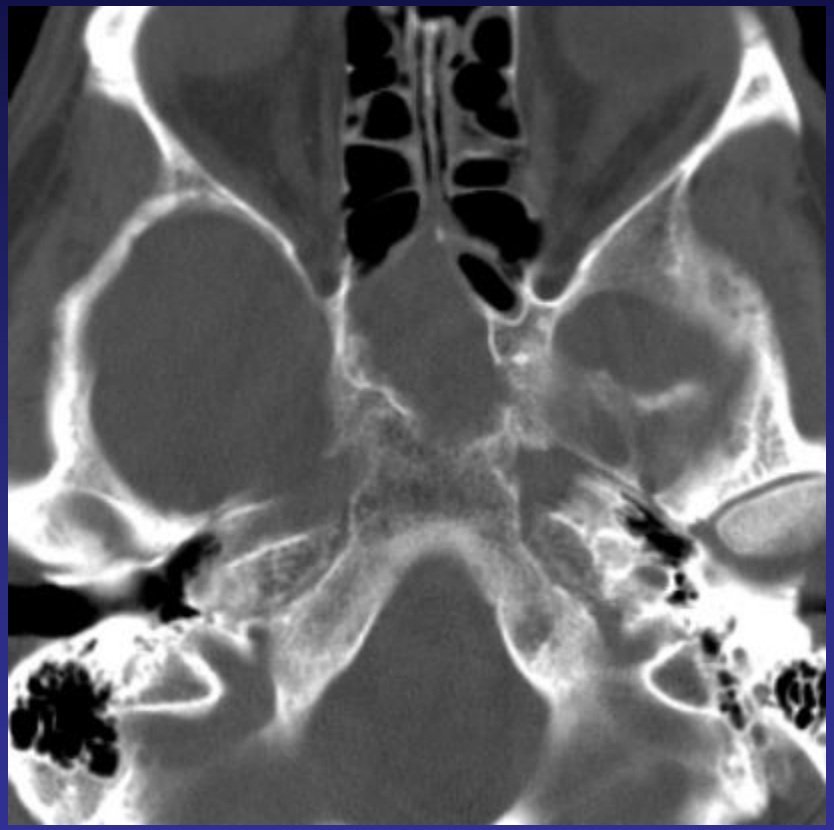


Infrasellar: Necrotic Variant

70 year old male with TIA; abnormal CT







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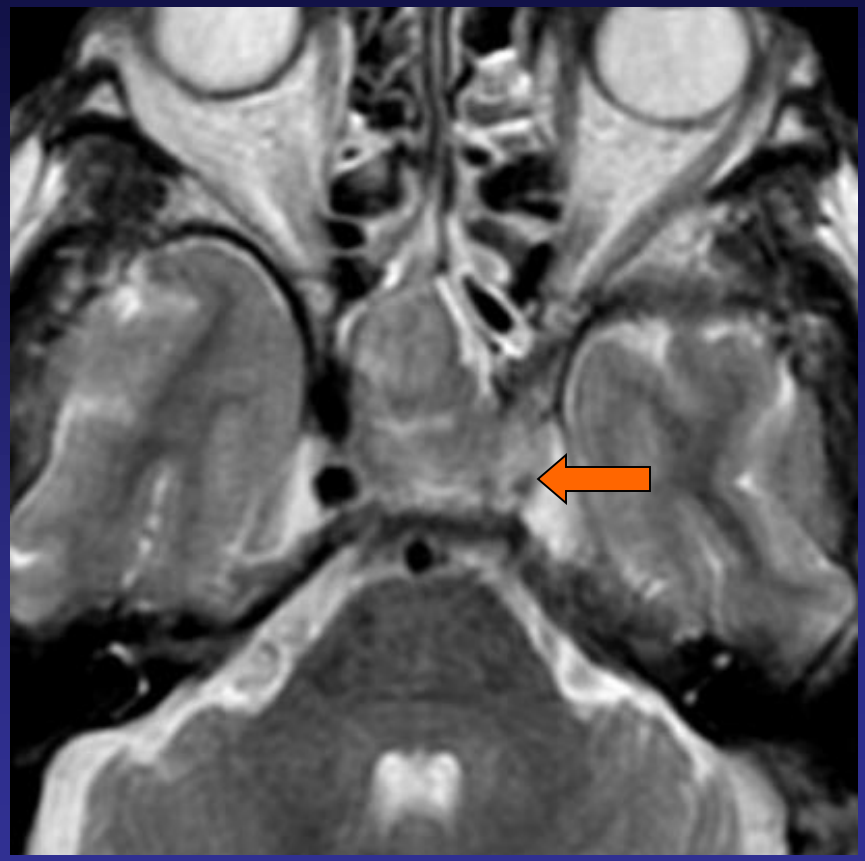
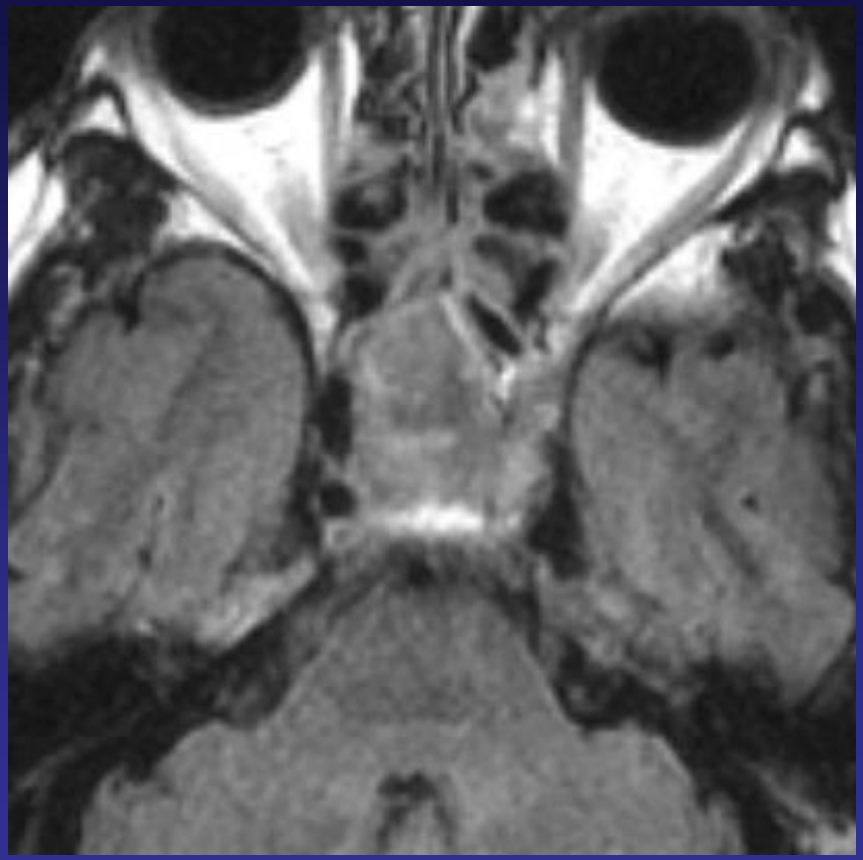
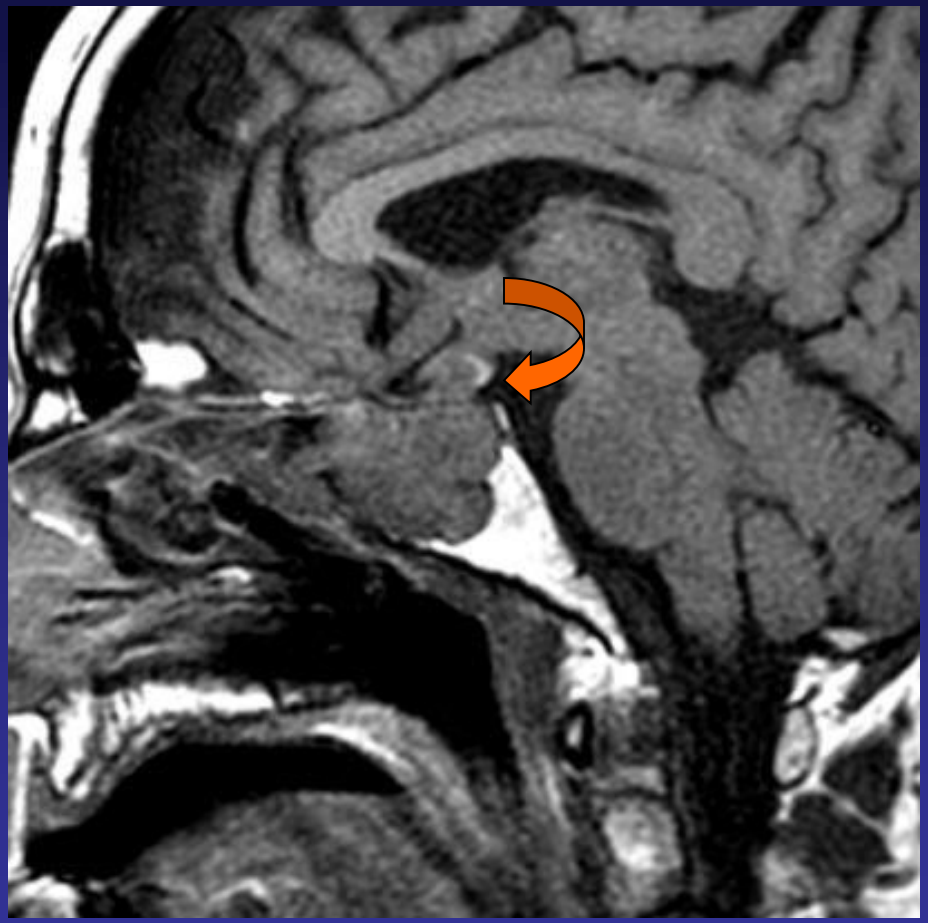
T2



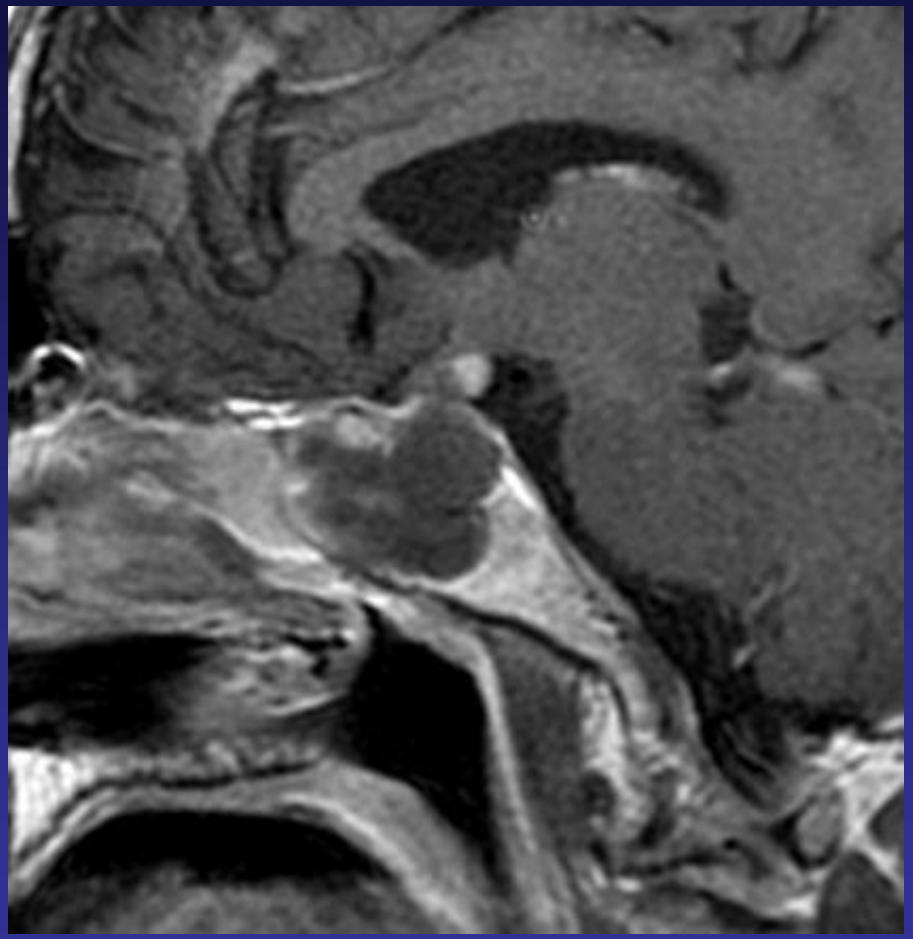
Flair



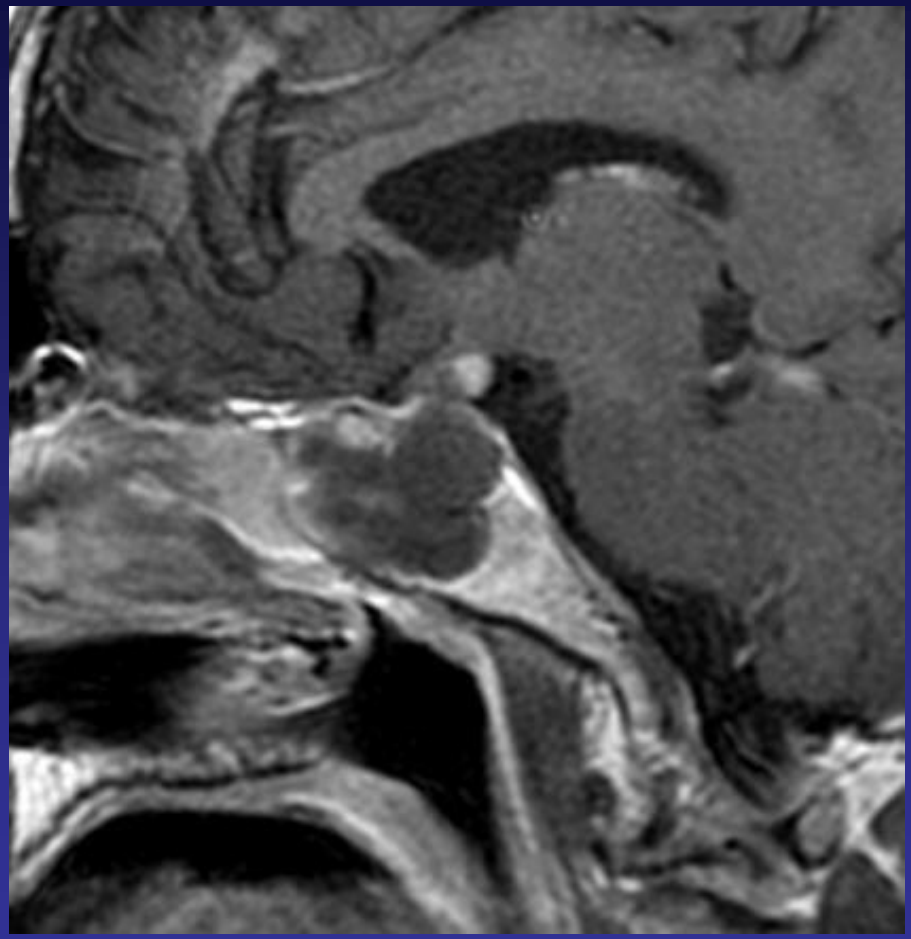
T1



T1 gad

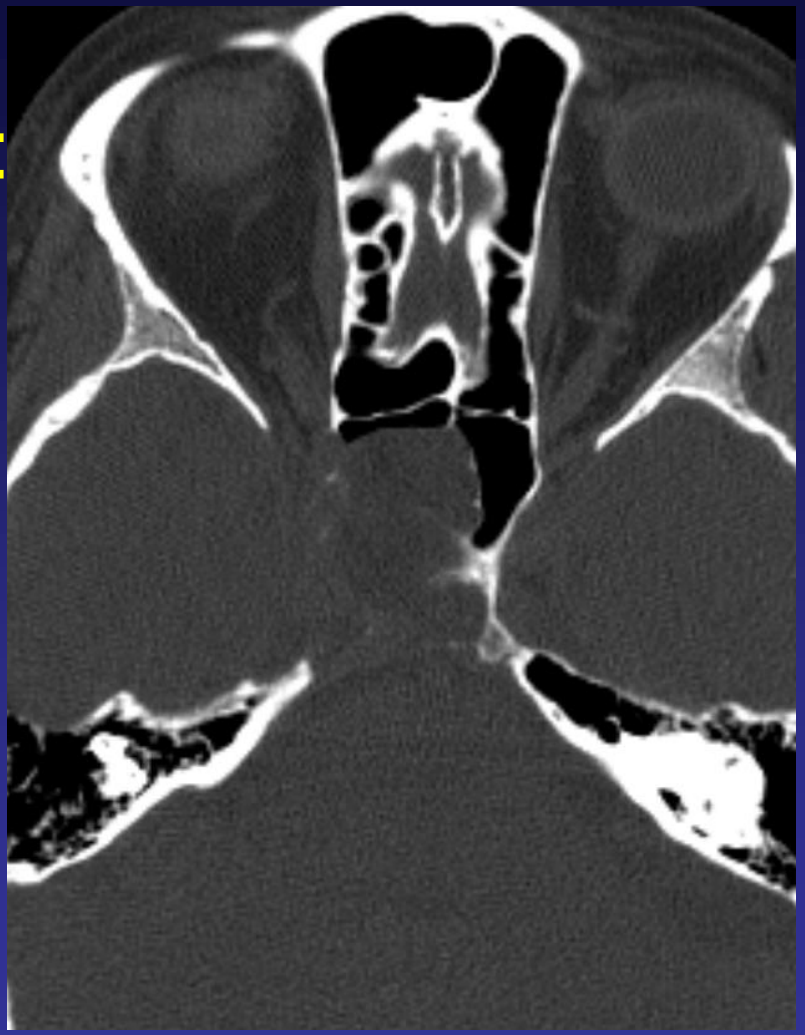


Dx: Nonsecreting Macroadenoma with Necrosis



Invasive Macroadenoma: "Cystic" Variant

58 year old with Incidental Sellar mass discovered on workup for HA



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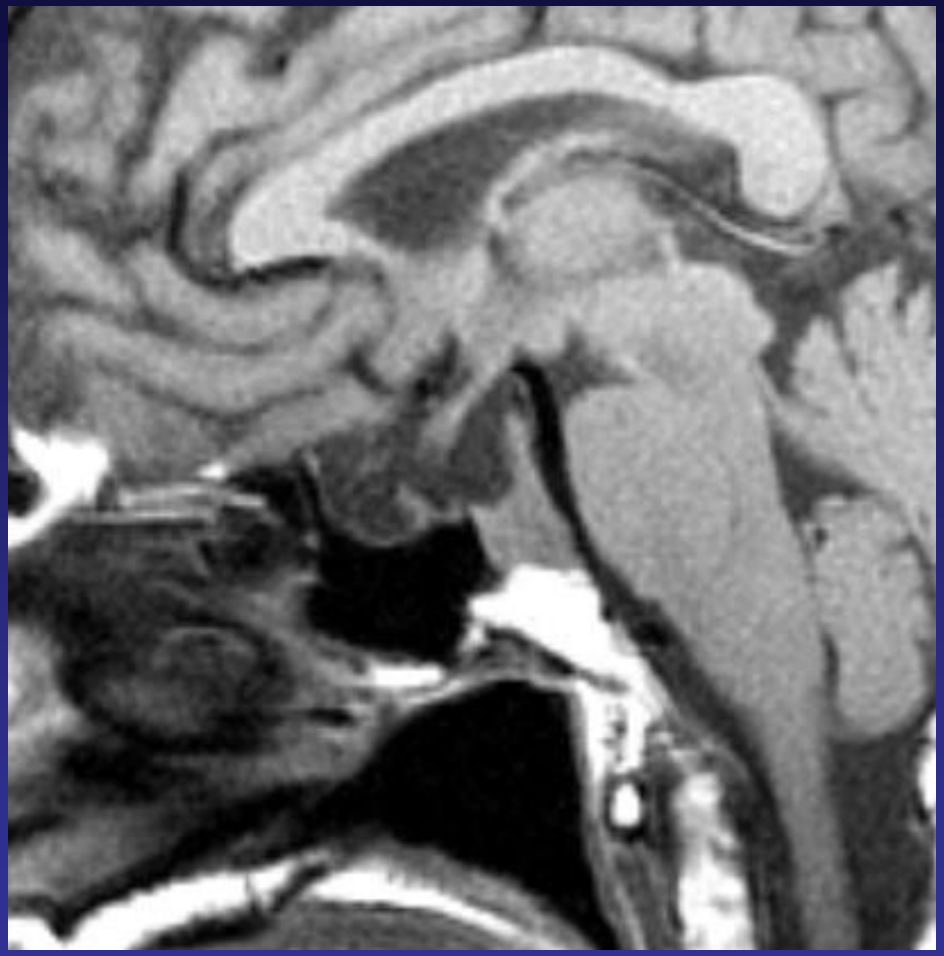
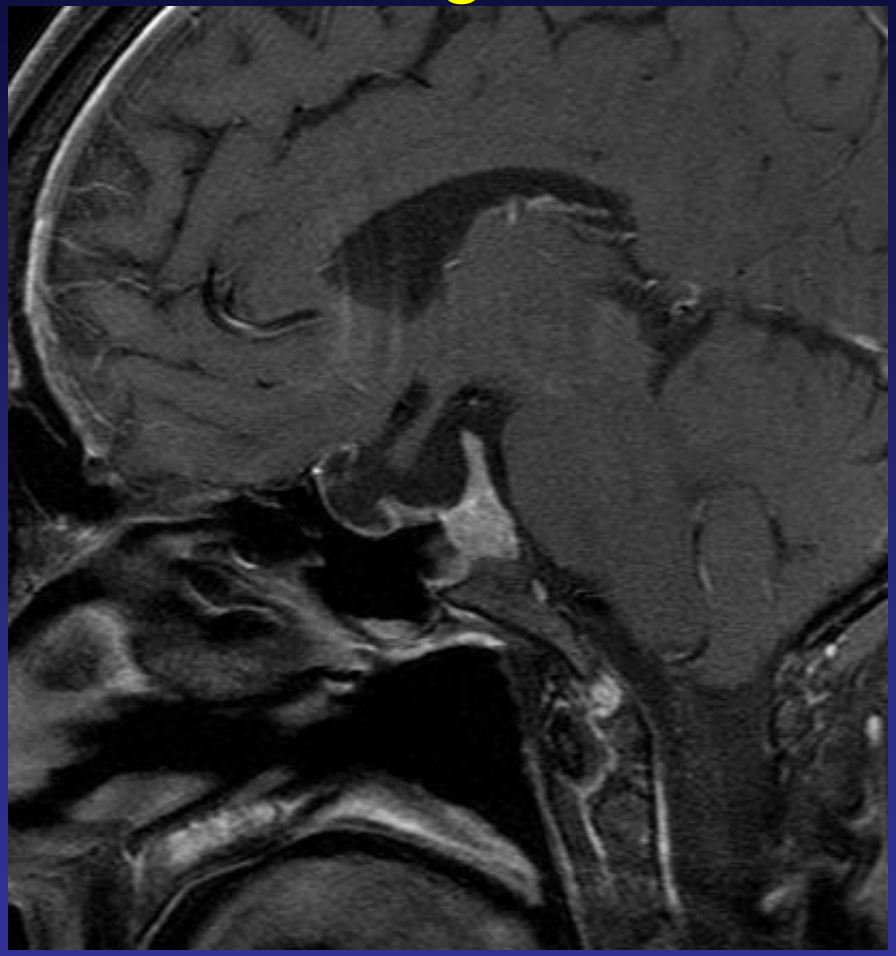
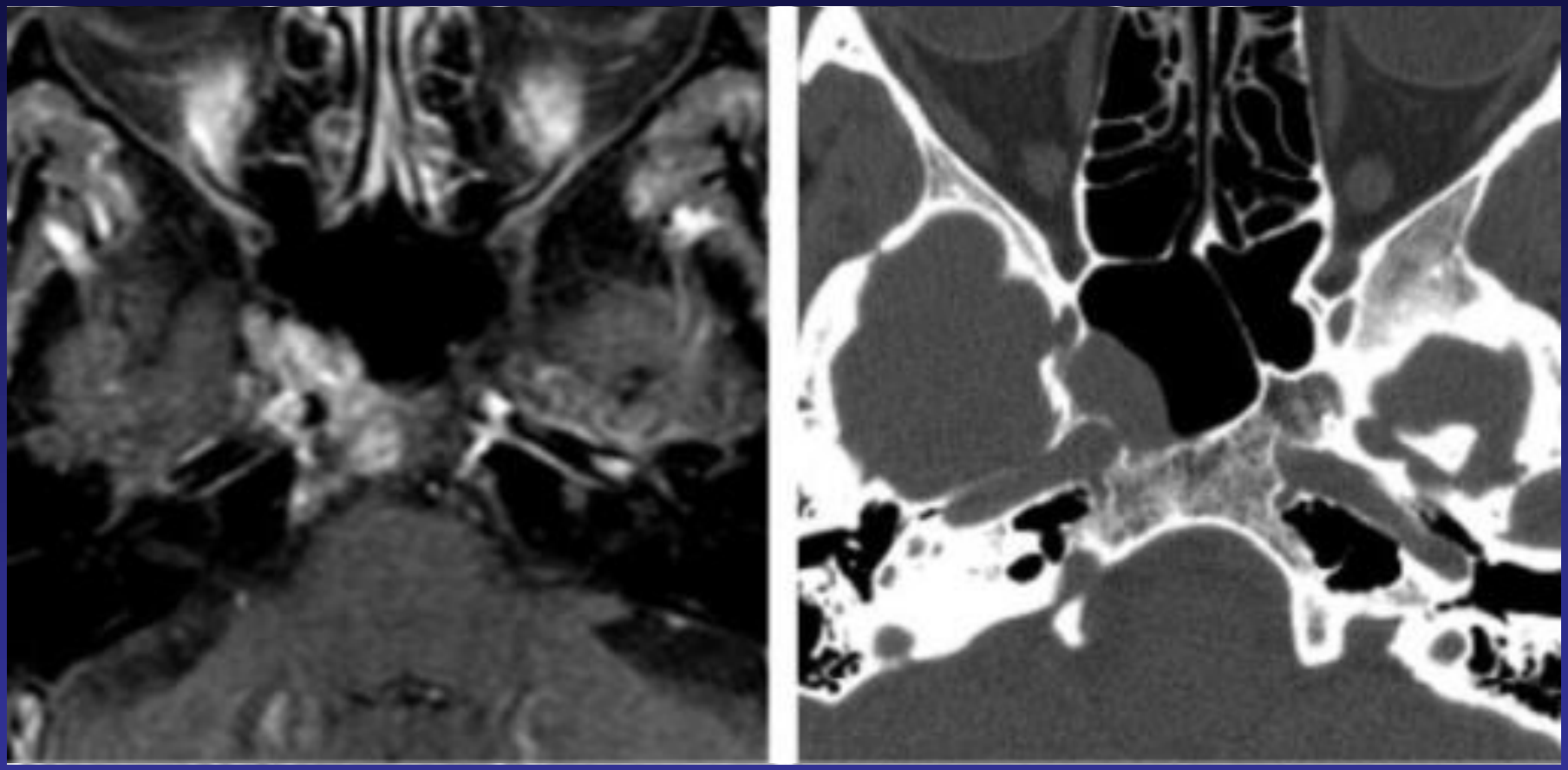


T1 gad

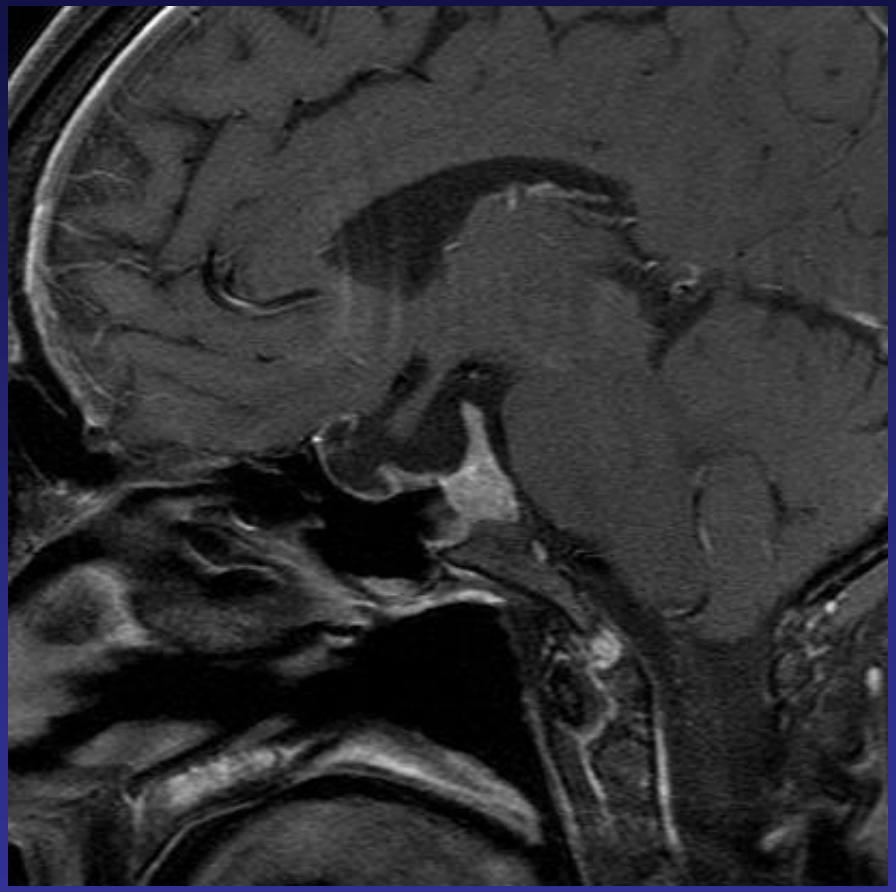


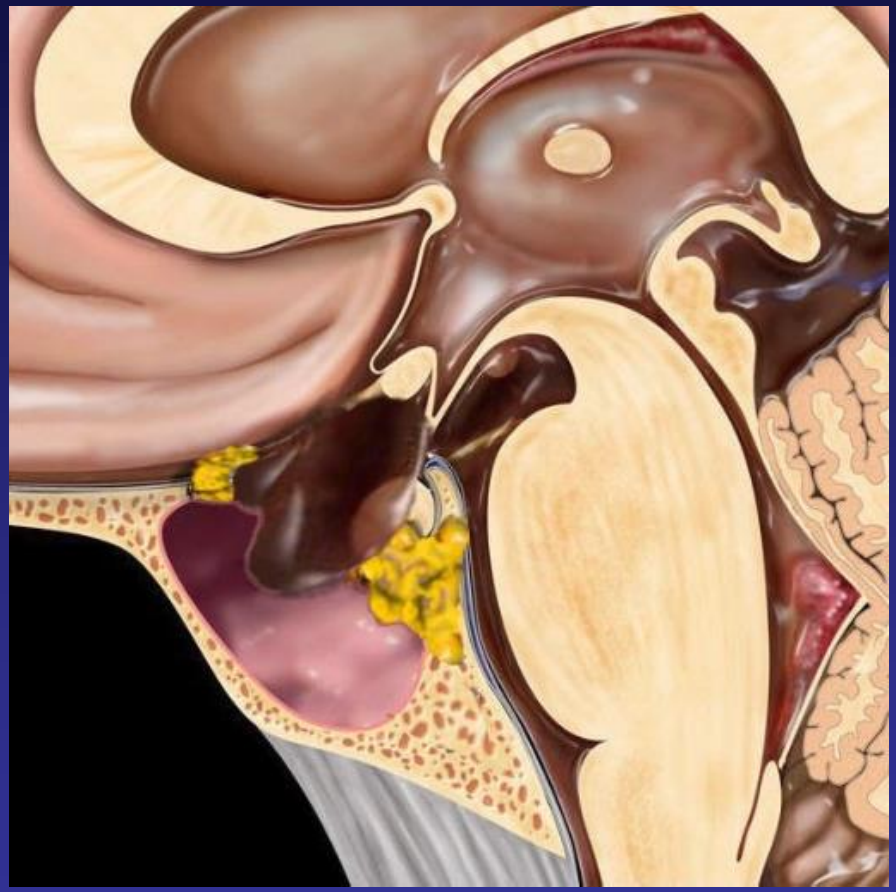
T1 gad

CT

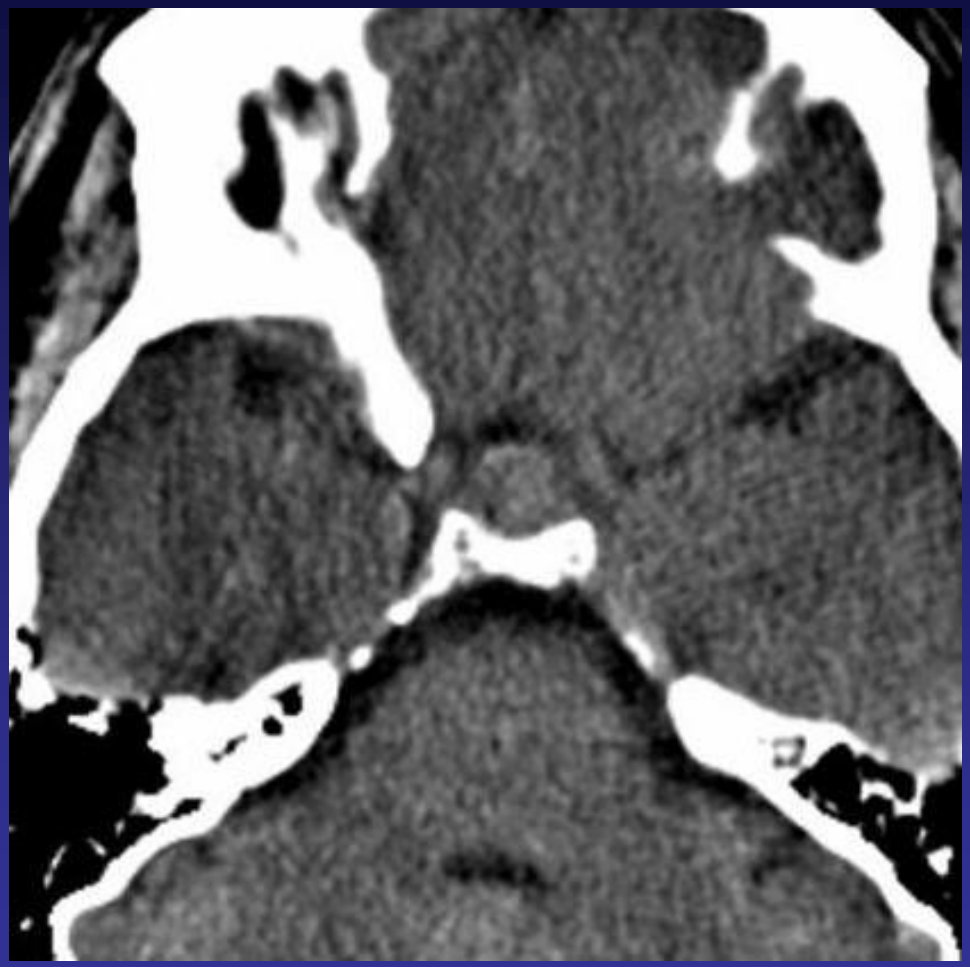


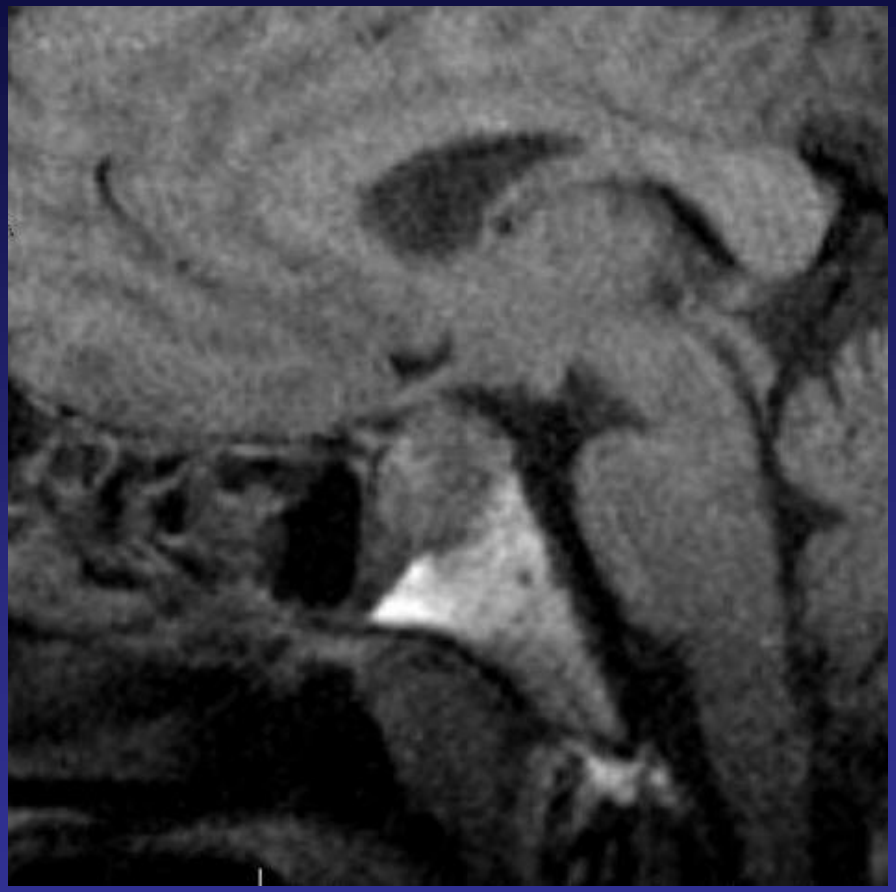
Cystic (Empty) Macroadenoma

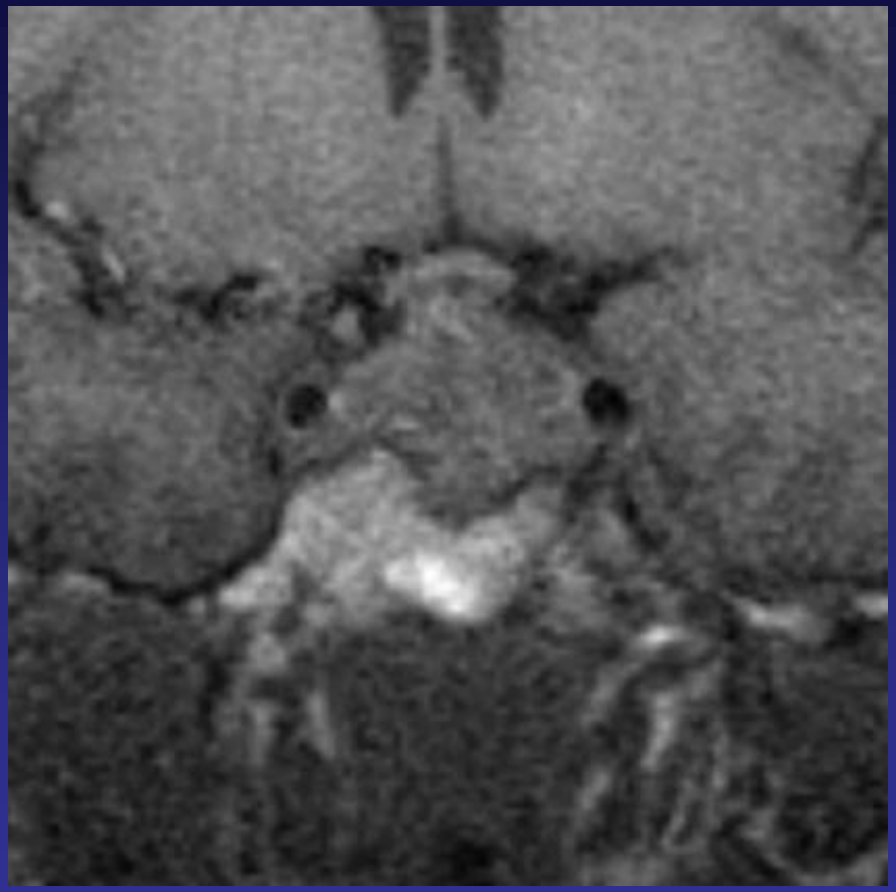




Unknown Case #11:
40 year old male
with severe HA for
12 hours







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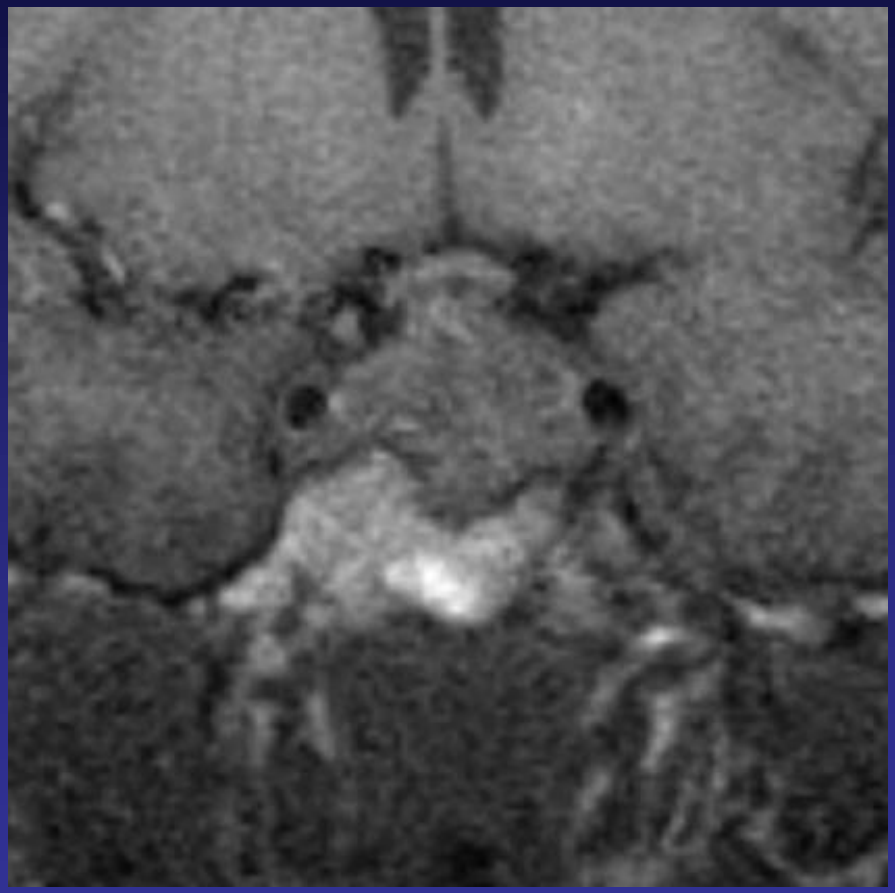
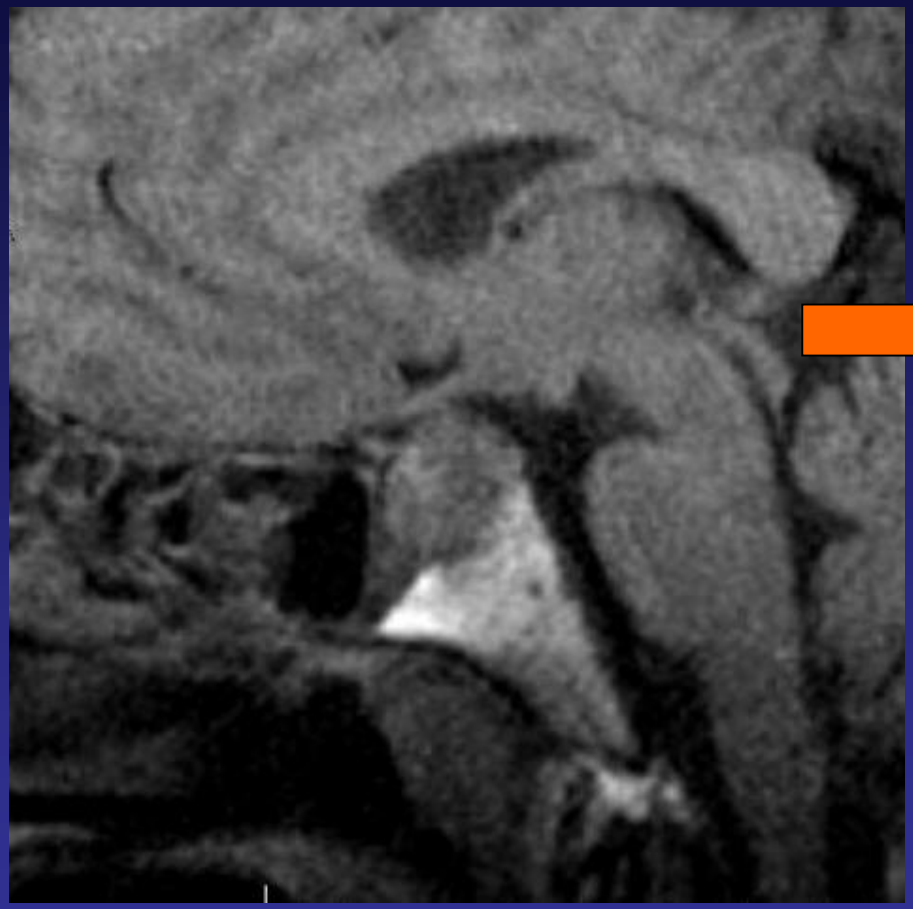
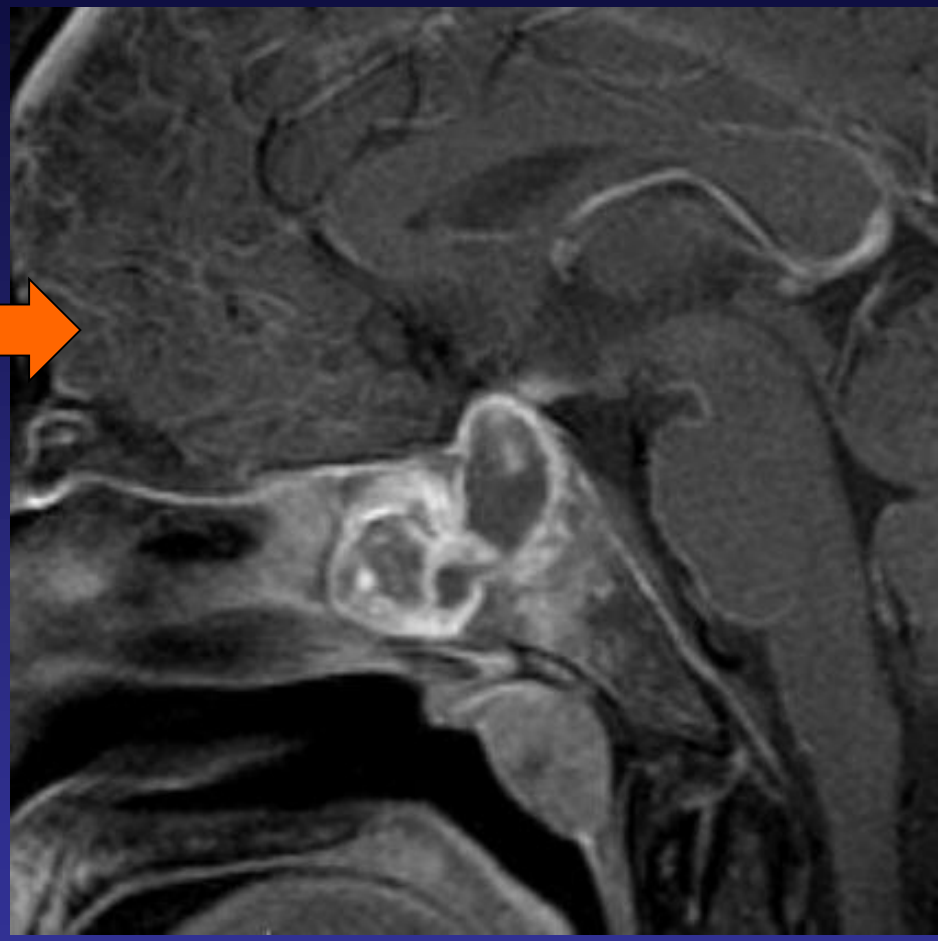
- Macroadenoma with necrosis
- Patient was referred for further evaluation

- Patient returned 6 days later with increasing headache, decreased vision and left 6th nerve palsy







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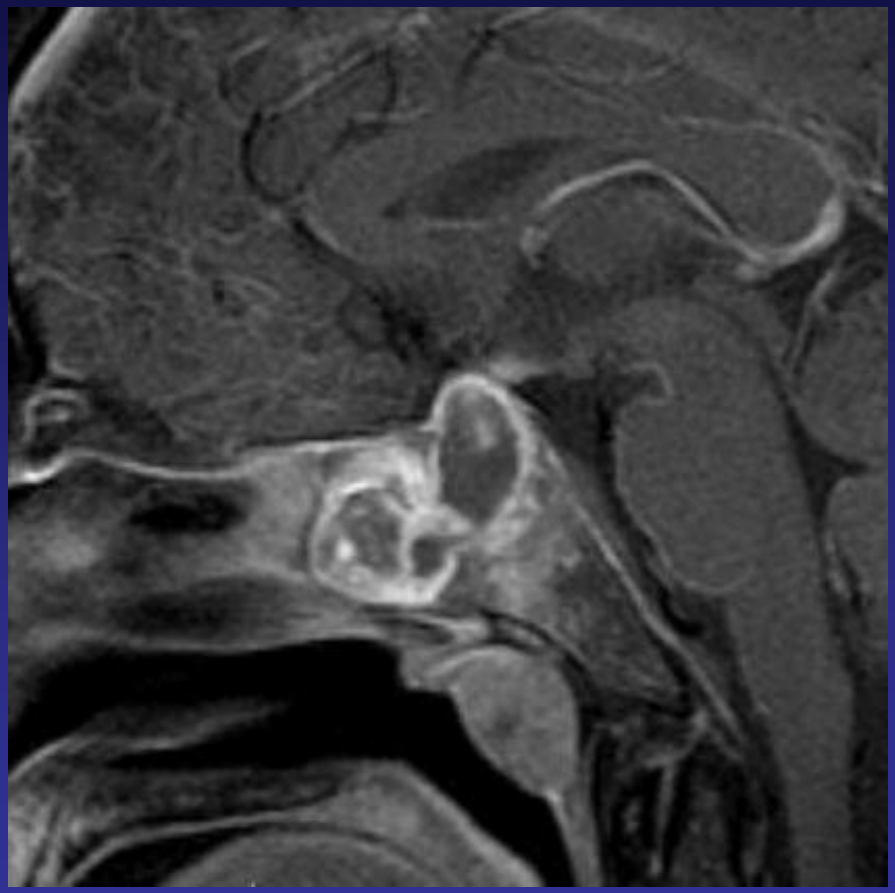

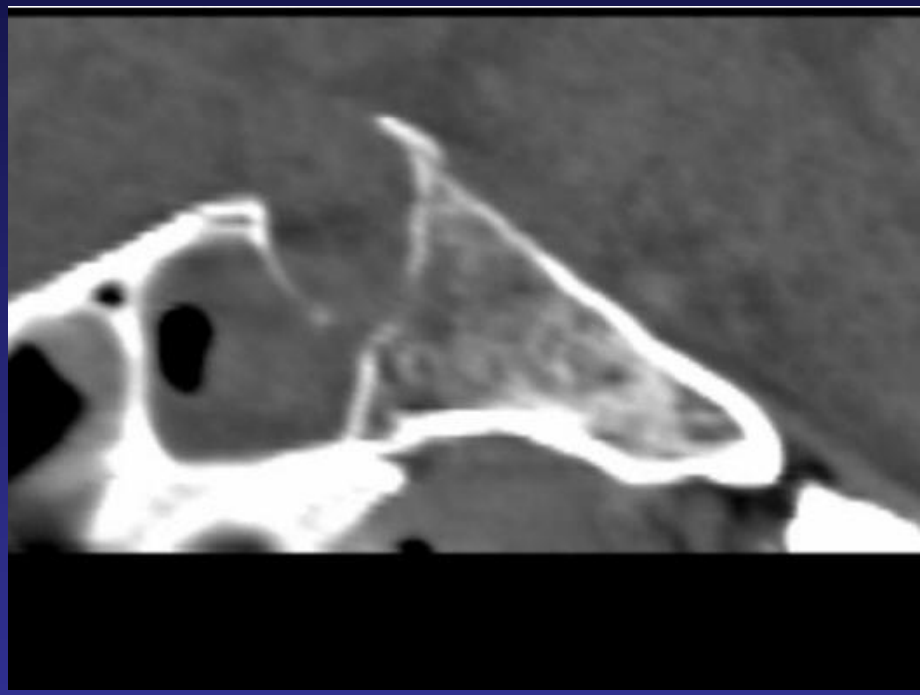

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