Imagerie de l’ hypophyse

SFR Rhône alpes 5 juin 2013

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Plan

- Technique
- Anatomie
- Les adénomes sécrétants
- Bilan d’extension
- Aspects post opératoires
- Cas cliniques

Imagerie hypophysaire
Matrice élevée

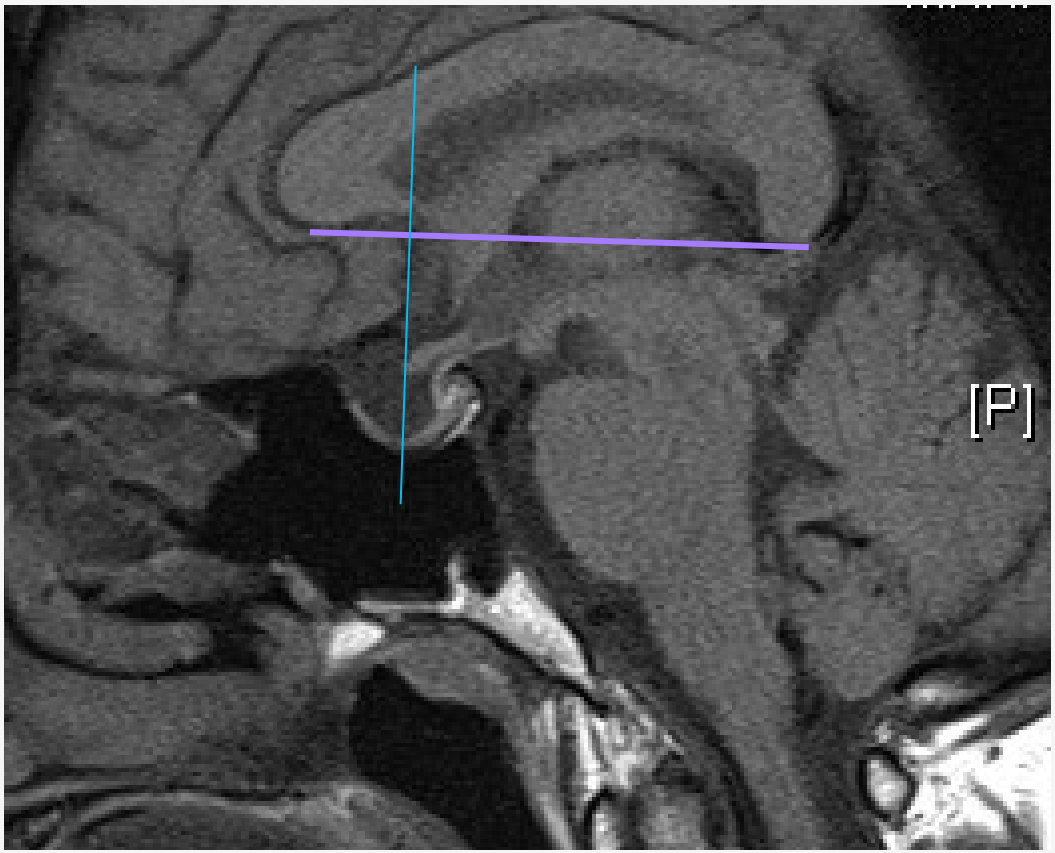
Les séquences obligatoires

- Sagittale T1
- Coronale T2
- Coronale et sagittale après injection de gadolinium
- gadolinium pleine dose 0.1mmol/kg ou demi dose

Les séquences optionnelles

- Coronale T1
- Sagittale T2
- Dynamique après injection
- Coupes tardives 30 à 40 mn
- Axiale (suprasellaire et post hypophyse)
- Diffusion 3T
- *Soustraction/Flair/Fat Sat*

Axe coronal perpendiculaire au plan sous calleux



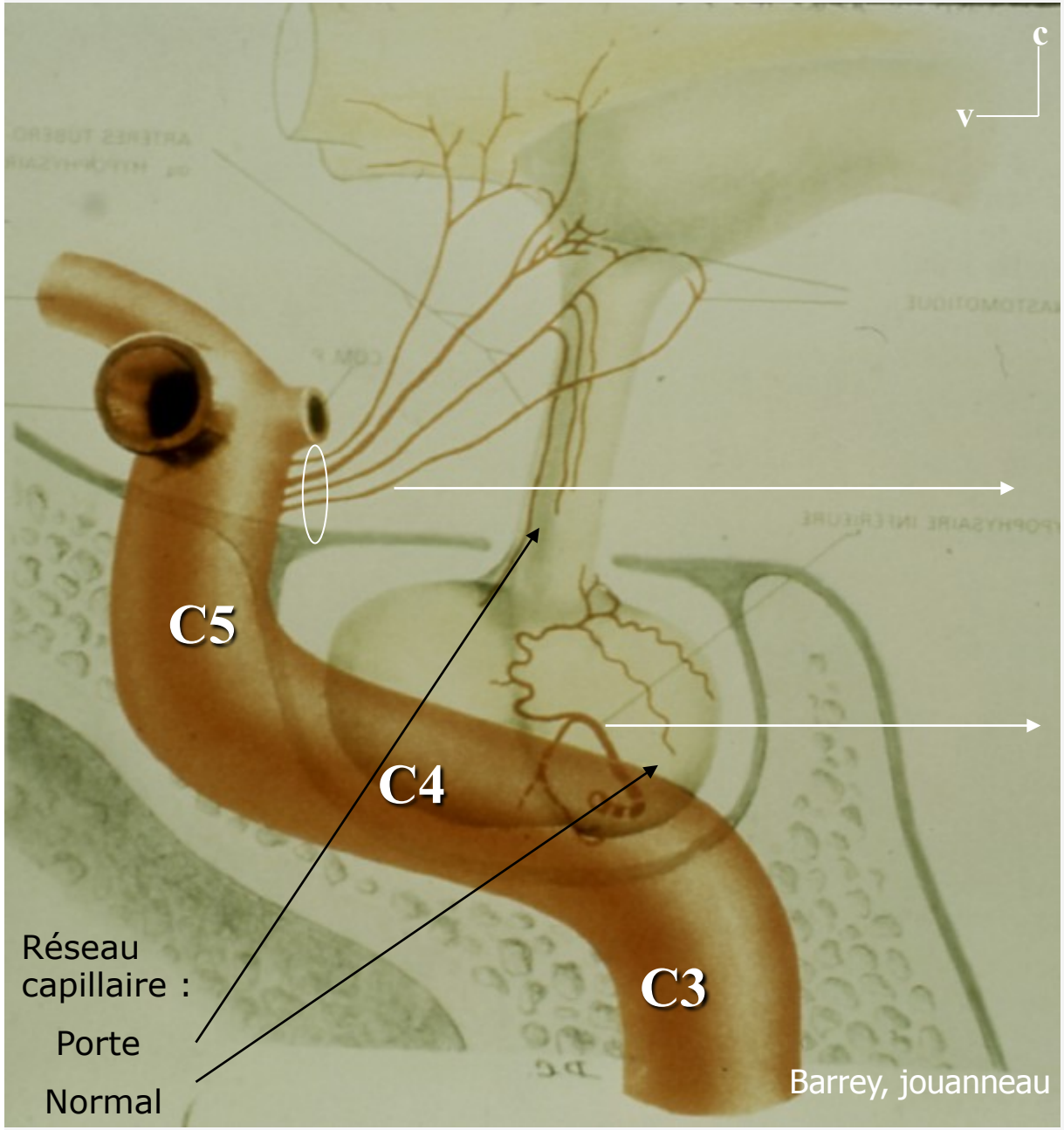
Indication des séquences dynamiques

- Suspiçion de Cushing
- Adénome non vu sur un examen classique

Séquence du CHLS

- 6 séquences de 3 coupes de 3mm
- 6 x 15,3 secondes
- TSE TR 450 TE 14
- 2 nex
- Fov 130
- matrice 164x144

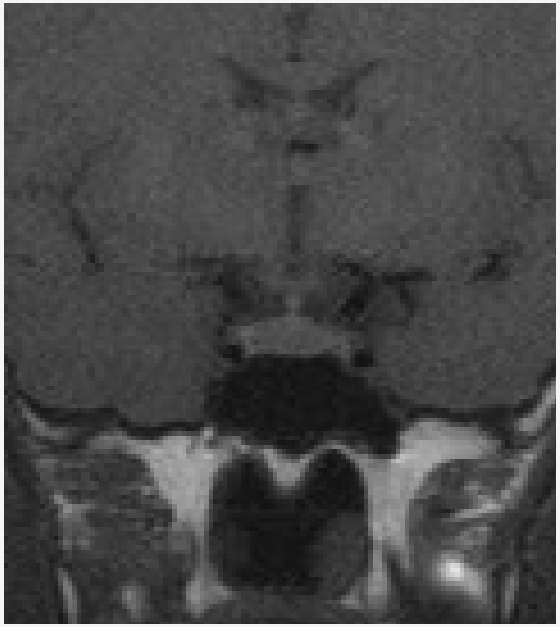
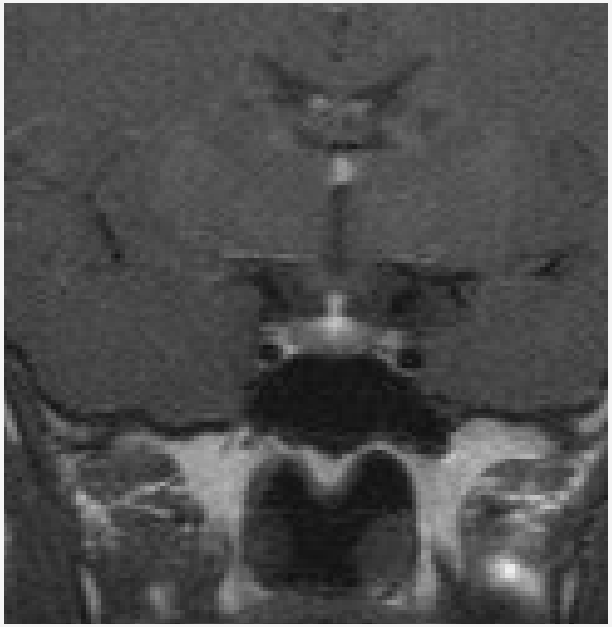
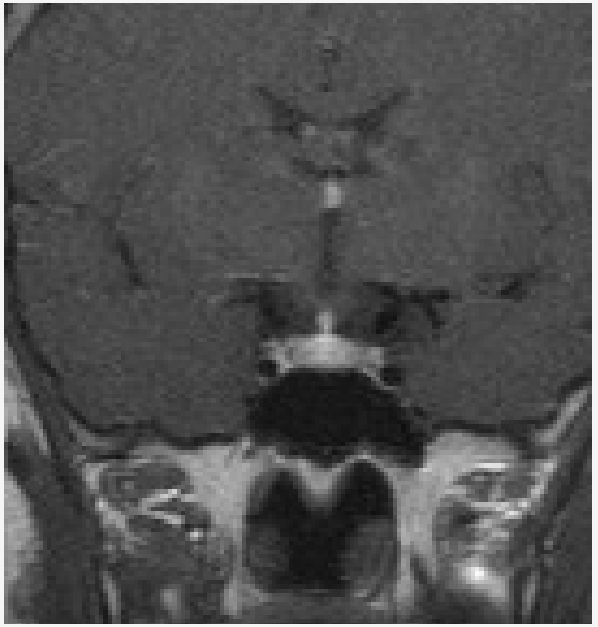
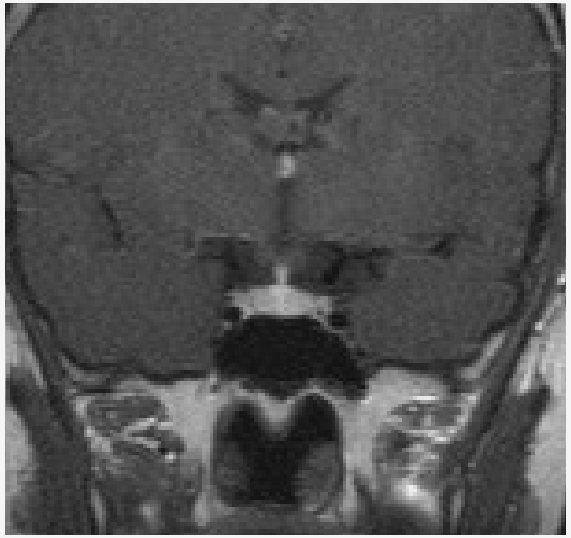
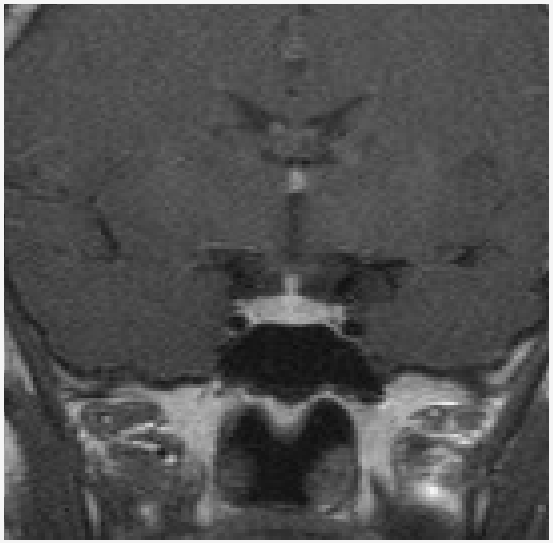
Vascularisation de l’ hypophyse



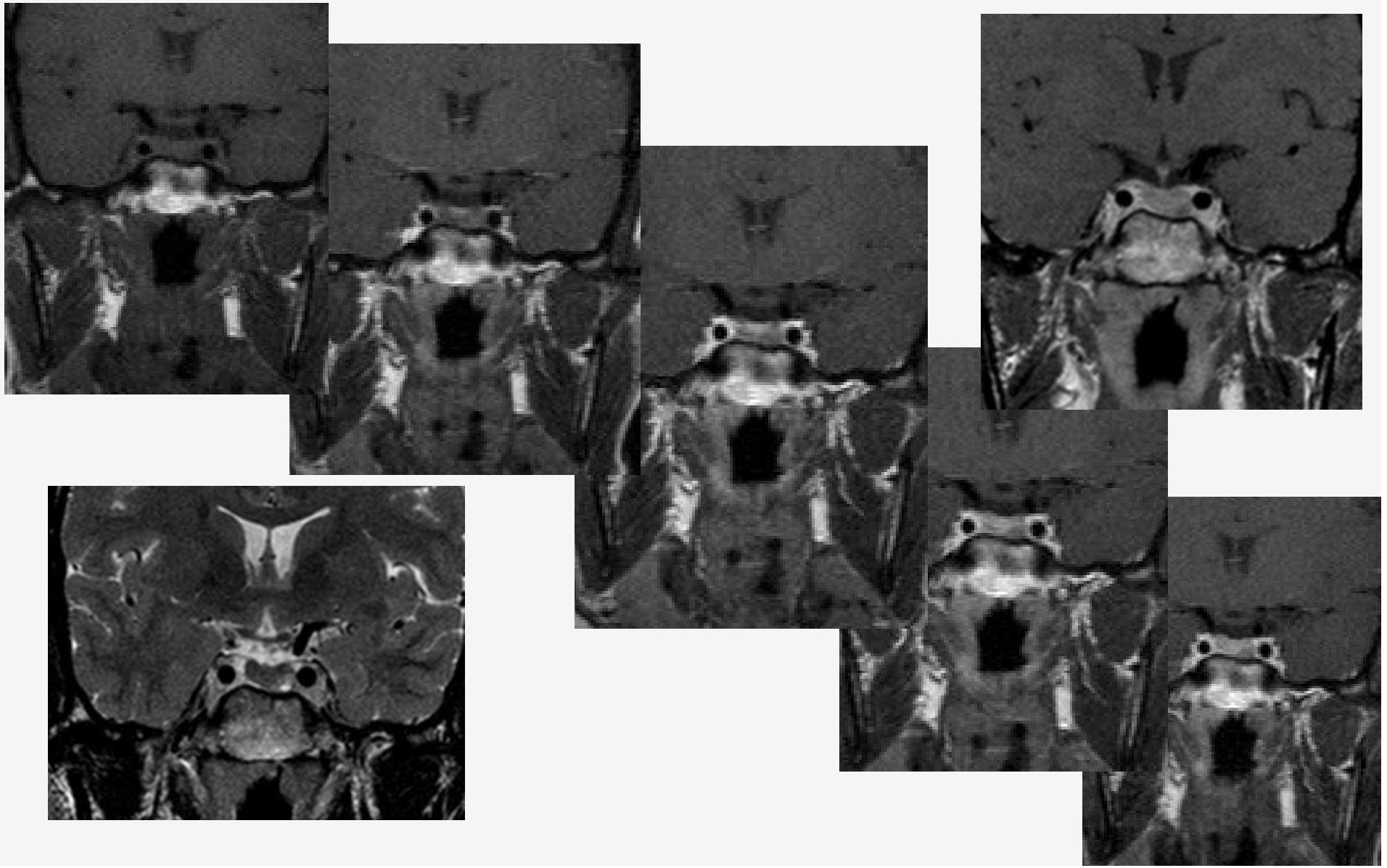
Artères hypophysaires supérieures

Artère hypophysaire inférieure (Tronc méningo-hypophysaire)

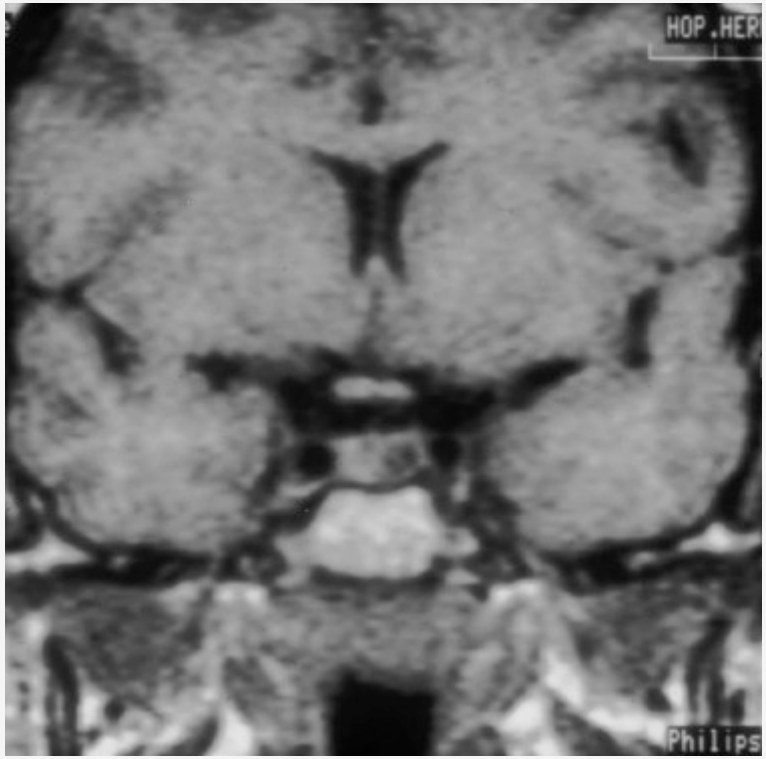
IRM séquence dynamique

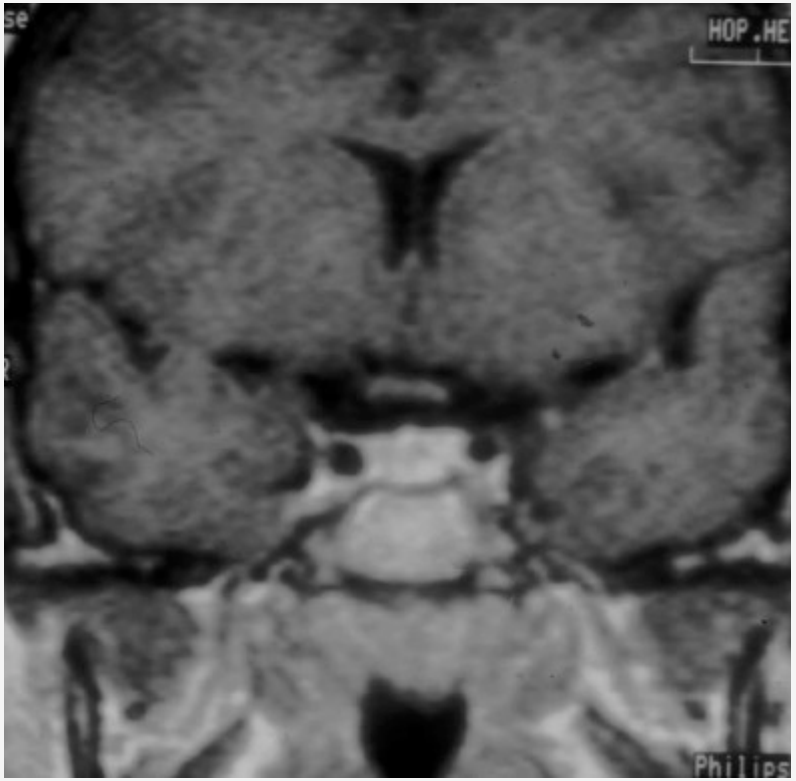






Séquence dynamique



Les pièges de l’ injection



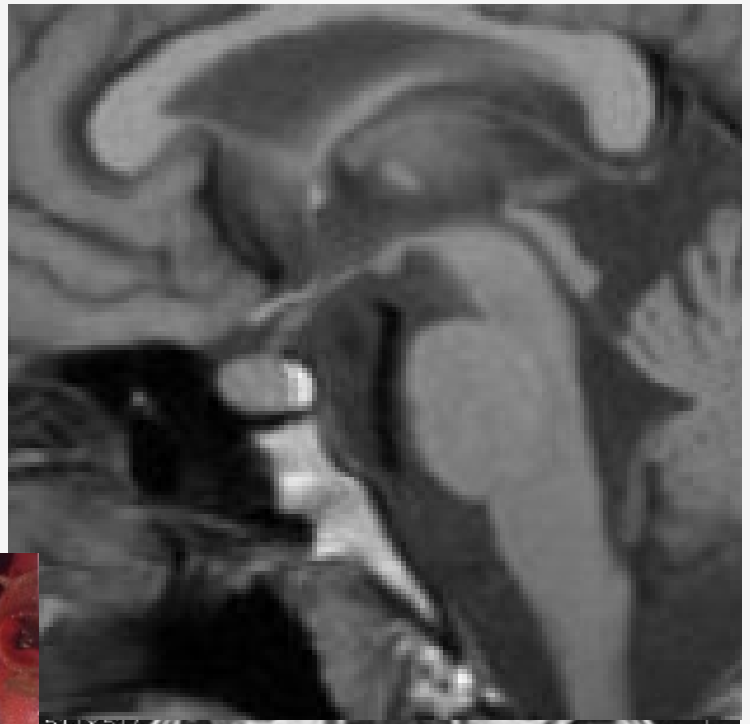


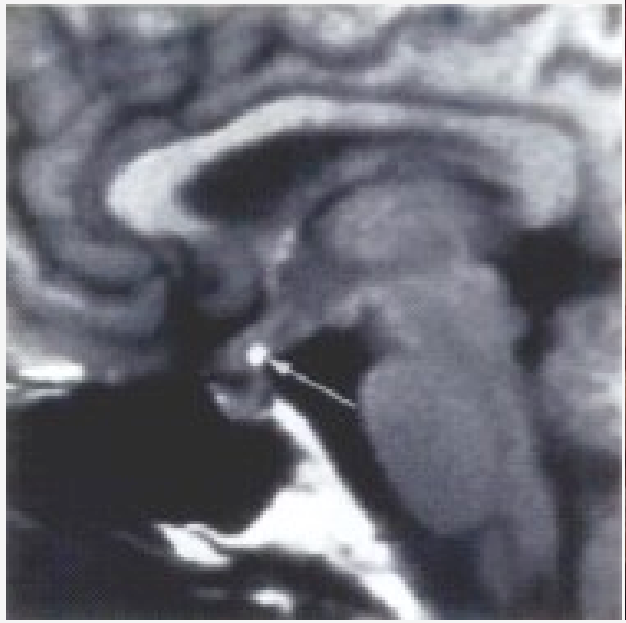
Radio anatomie sagittale

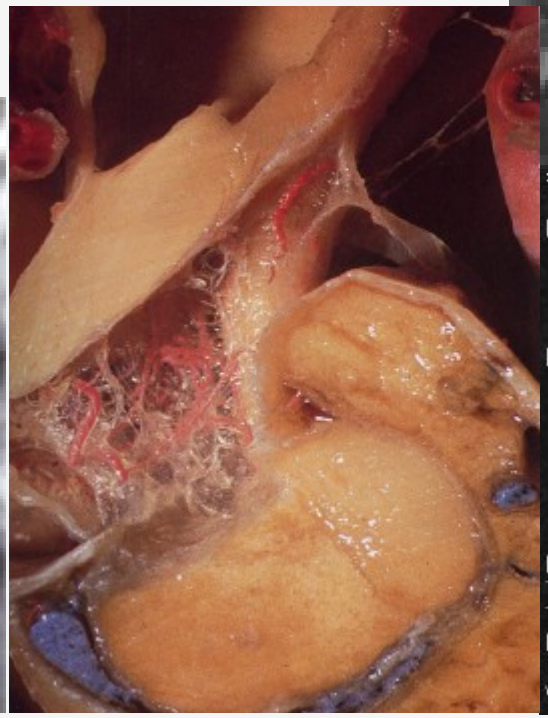
- Lobe antérieur
- Zone intermédiaire
- Lobe postérieur en hypersignal T1

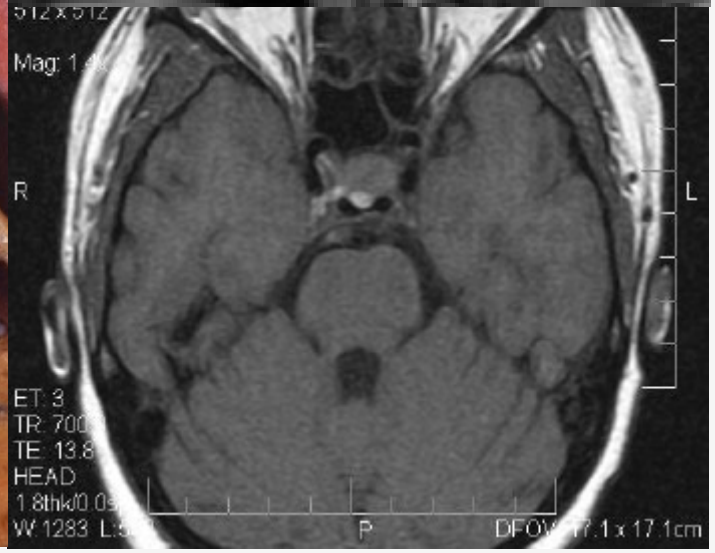
sa présence = intégrité de l'axe hypothalamo neuro hypophysaire

Varie avec l'osmolalité sanguine



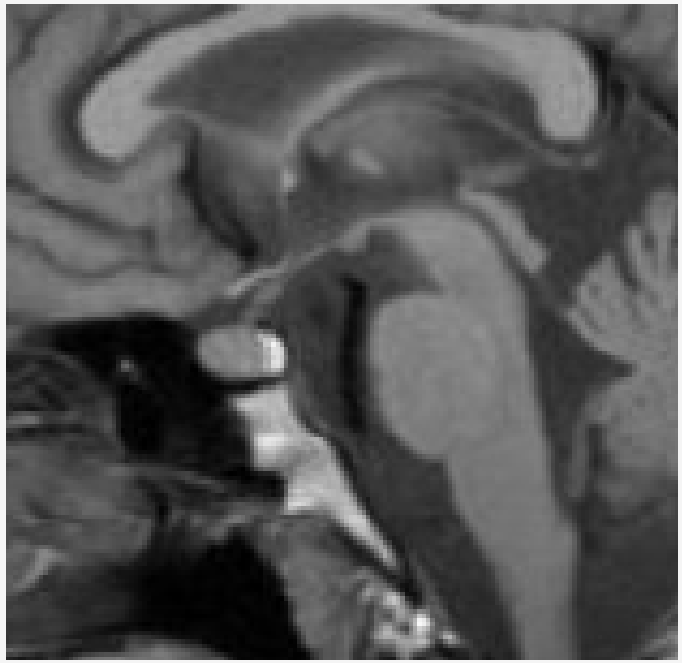


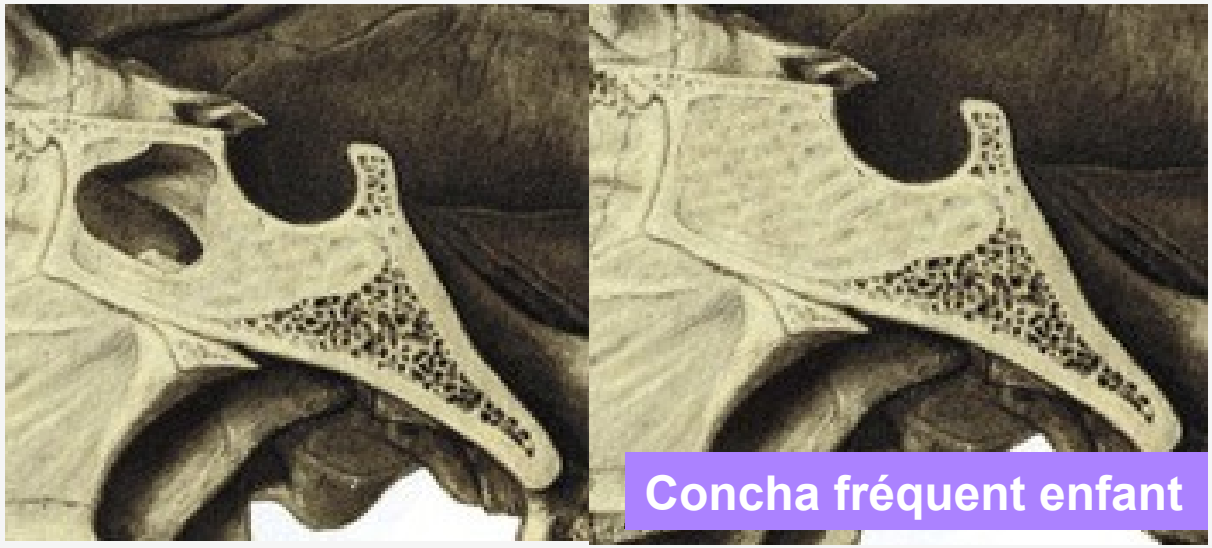




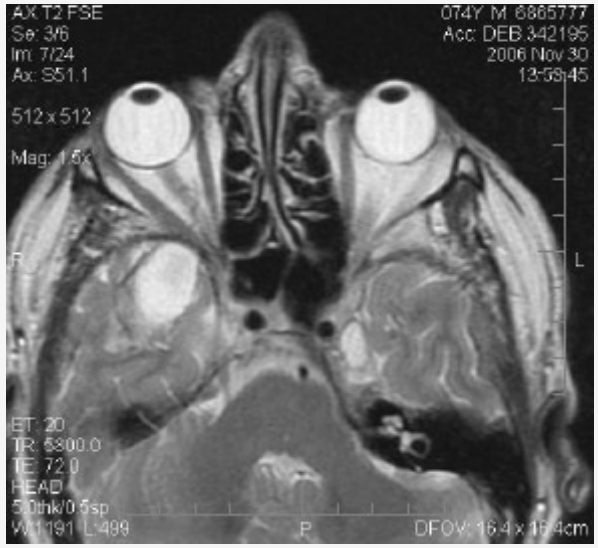
Sinus sphénoïdal

- Pneumatisation du sinus sphénoïdal
- Procidence carotidienne





Concha fréquent enfant



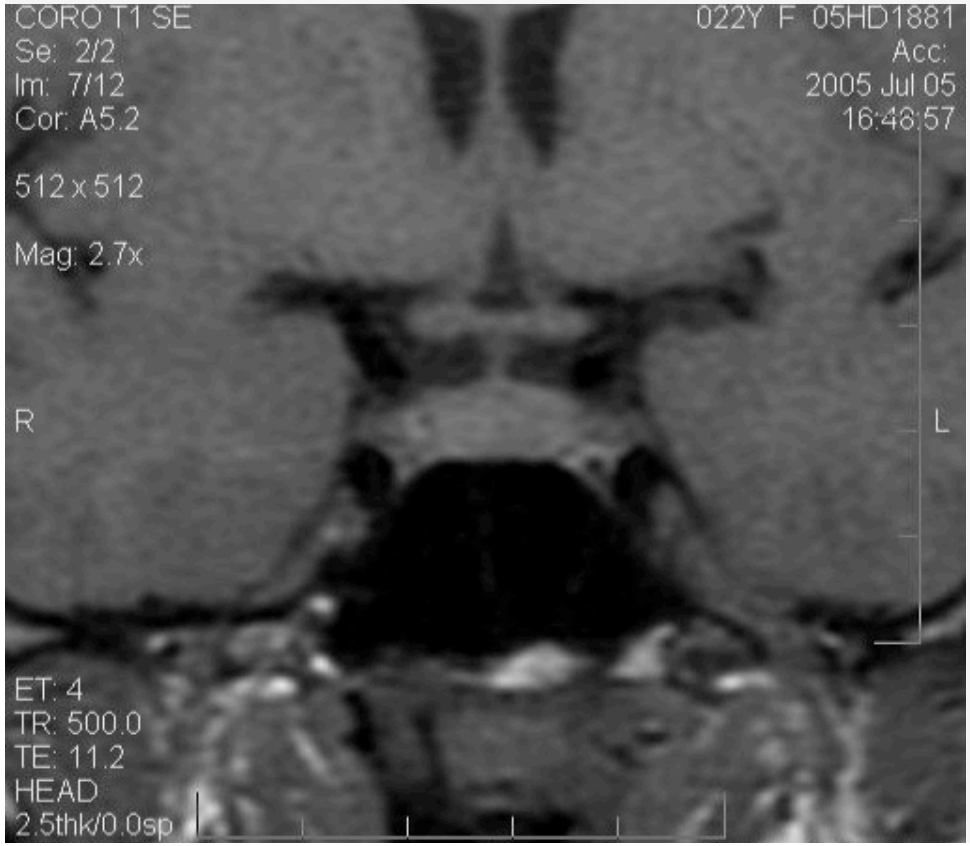
Radio anatomie coronale

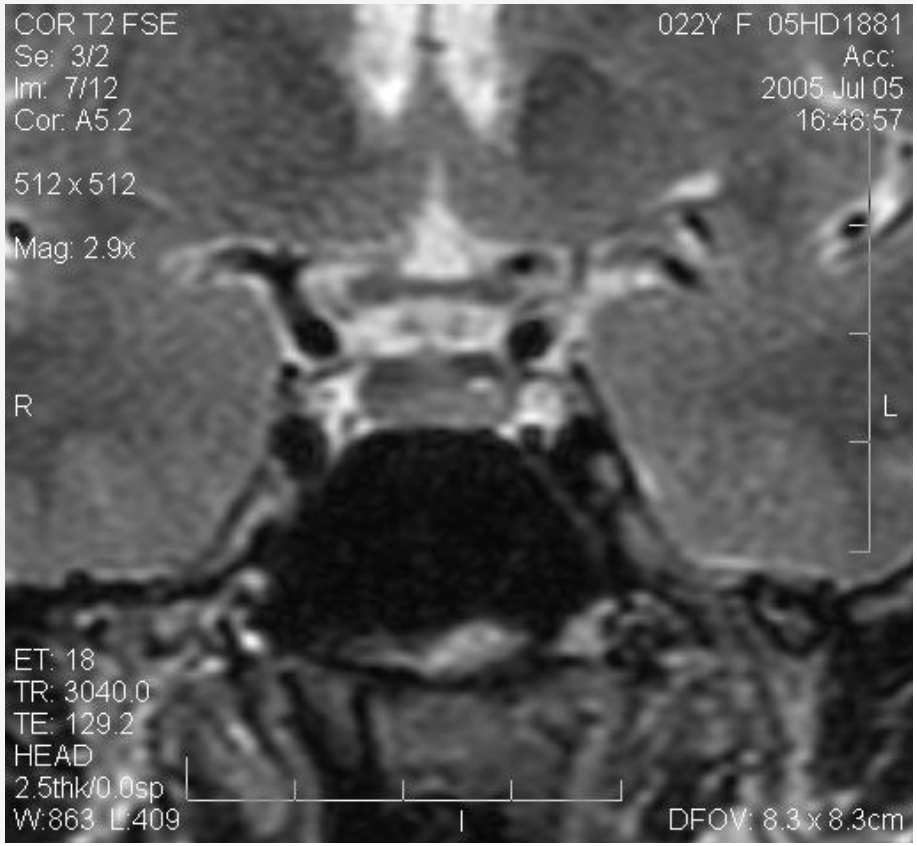
Tige fine < 3mm

Plancher

Parenchyme hauteur

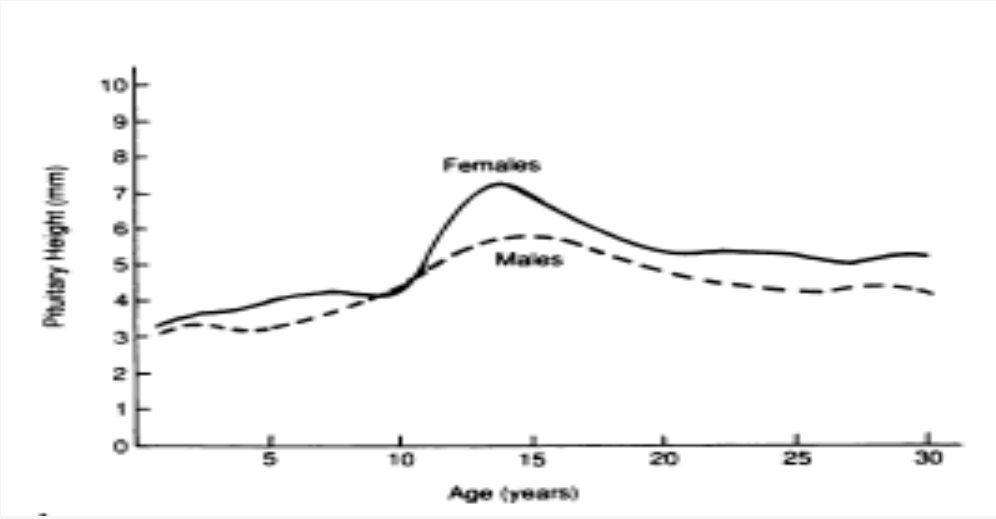
Forme du diaphragme sellaire



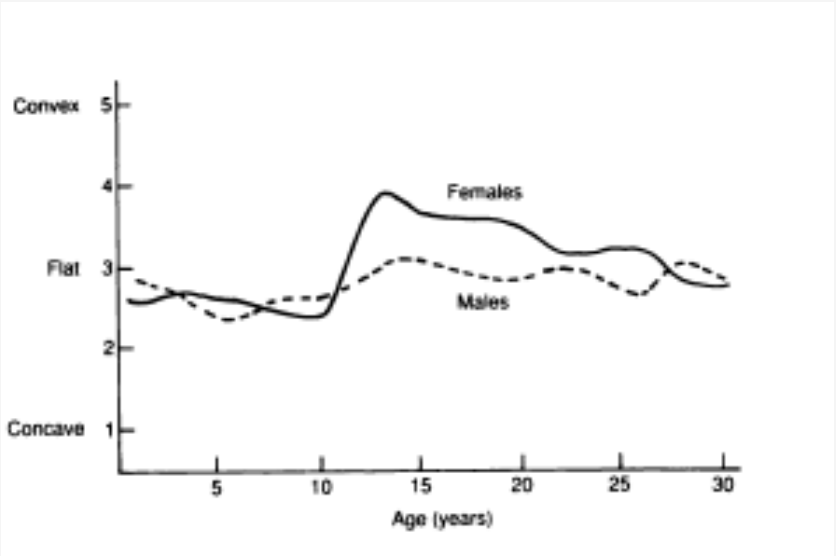


Variations de hauteur maximum 9 mm

- Allen d Elster Radiology 1990

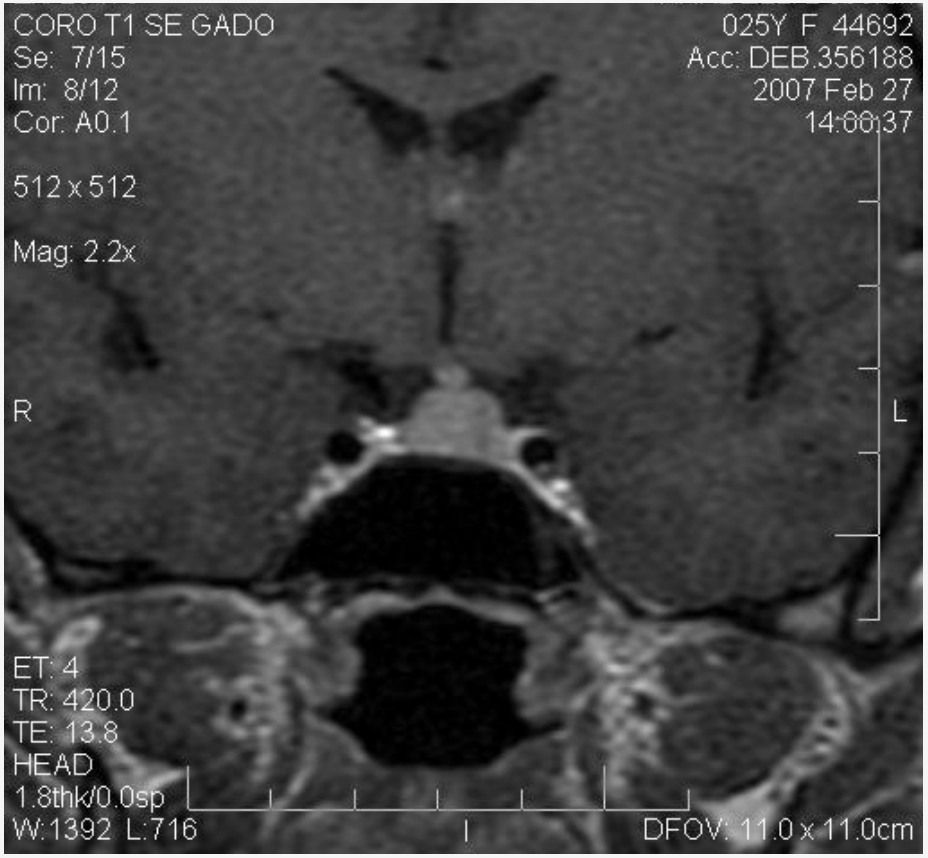


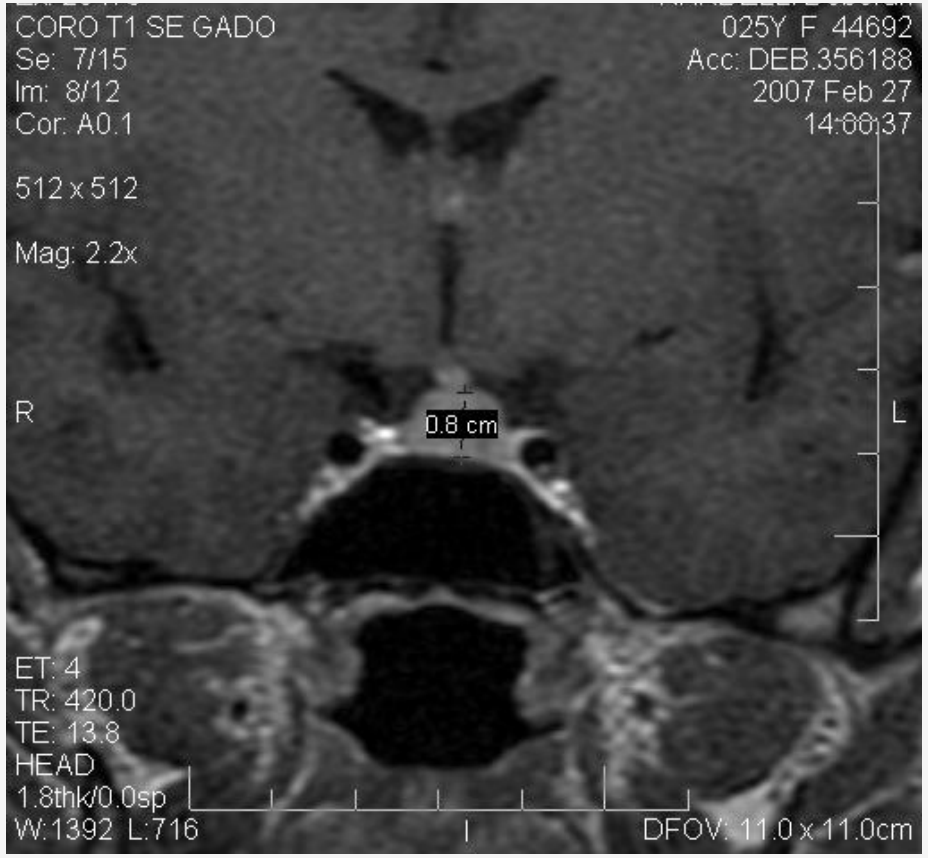
Hauteur de l'hypophyse



Diaphragme sellaire

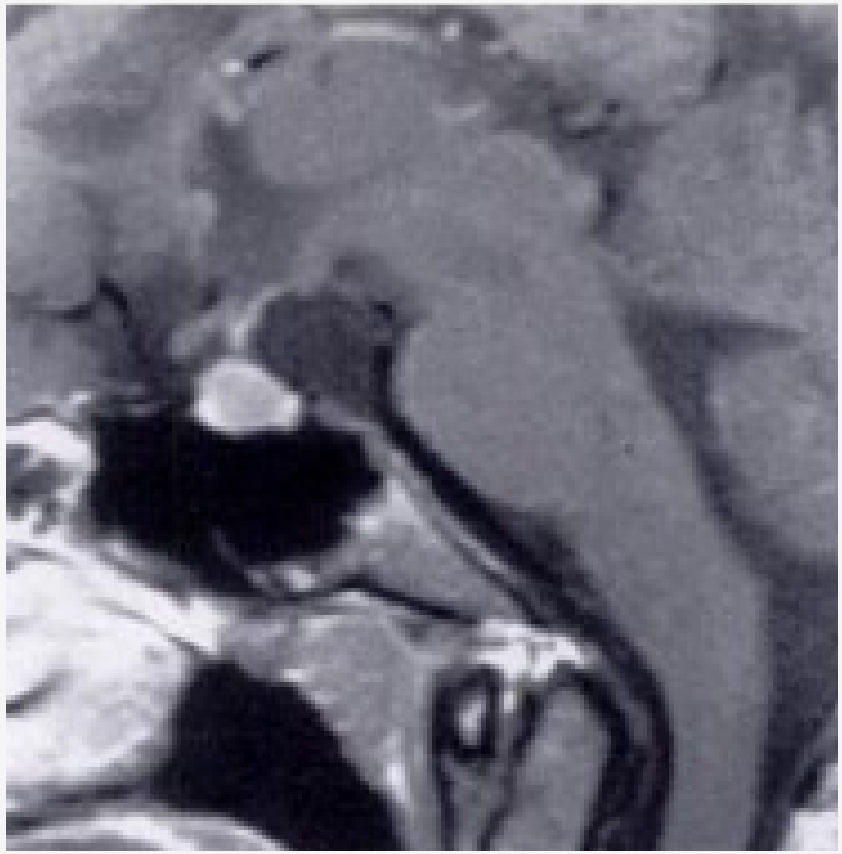
Hypophyse convexe



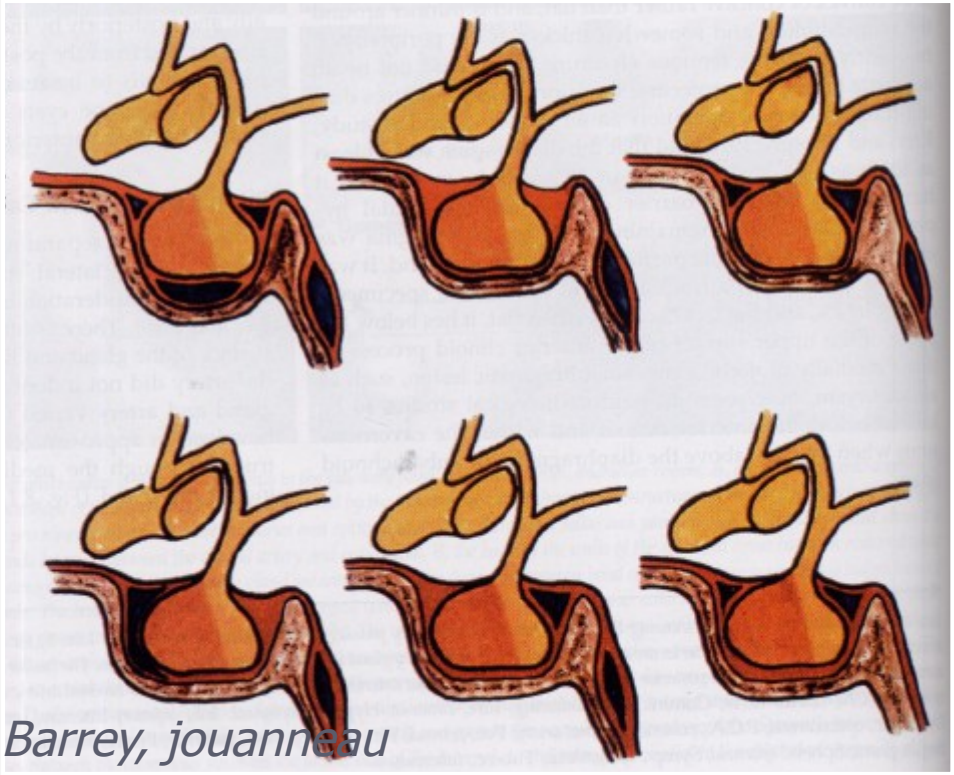


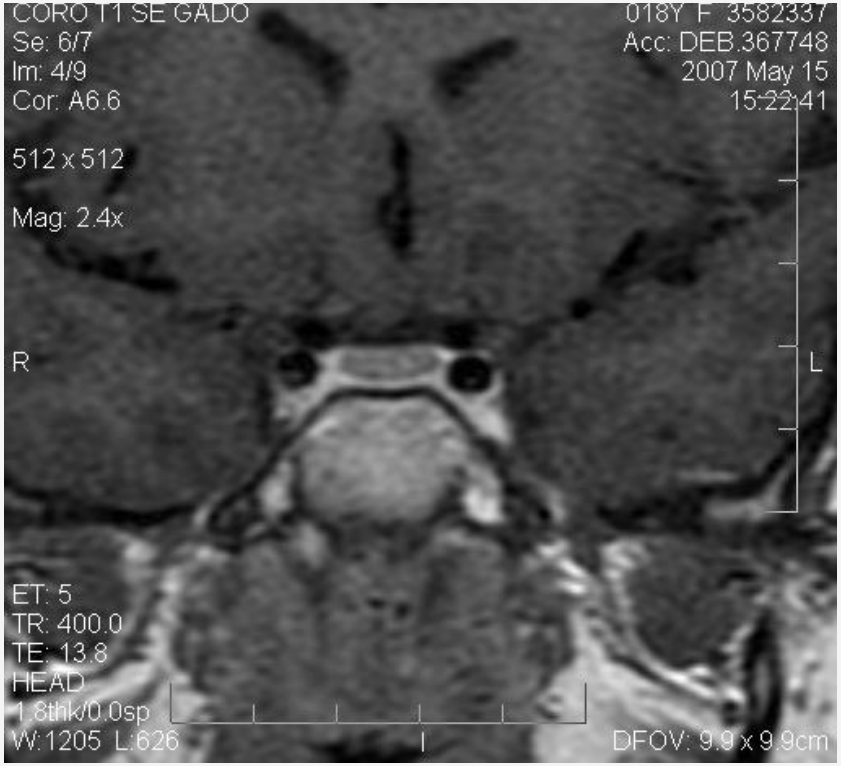
Hypophyse convexe

- Puberté
- Grossesse
- Inadéquation de la selle (plancher trop étroit< 10 mm)
- Sinus intercaverneux

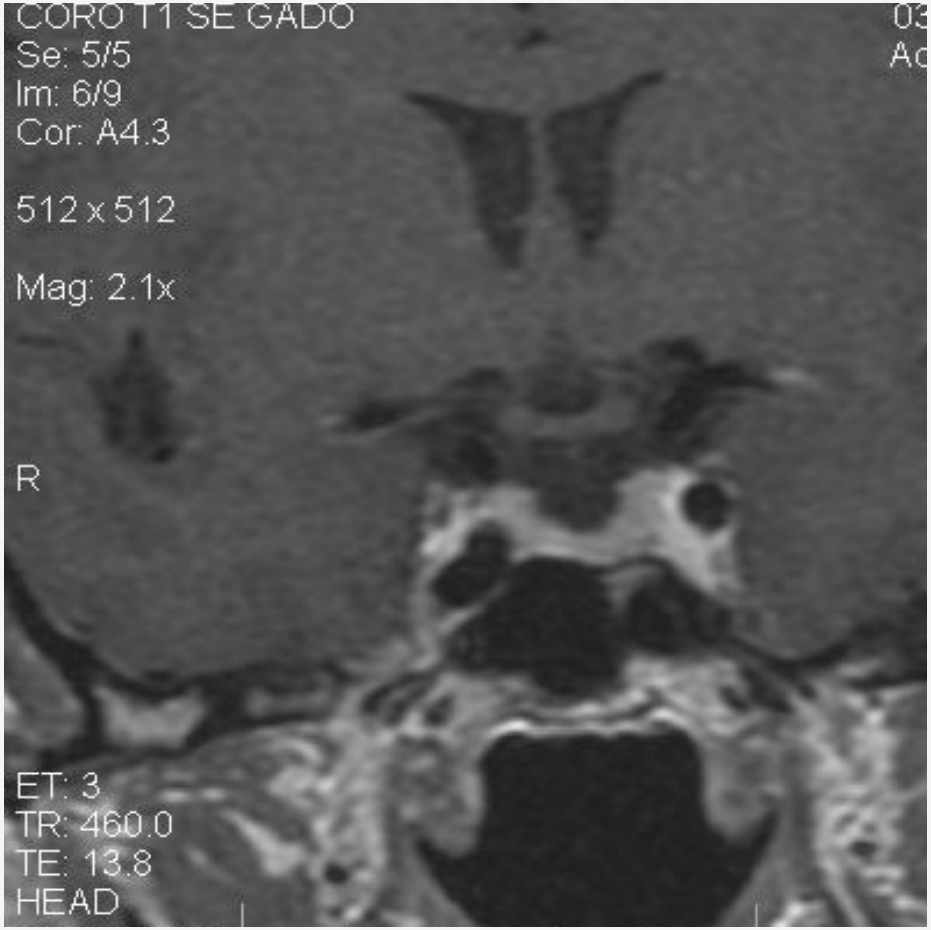


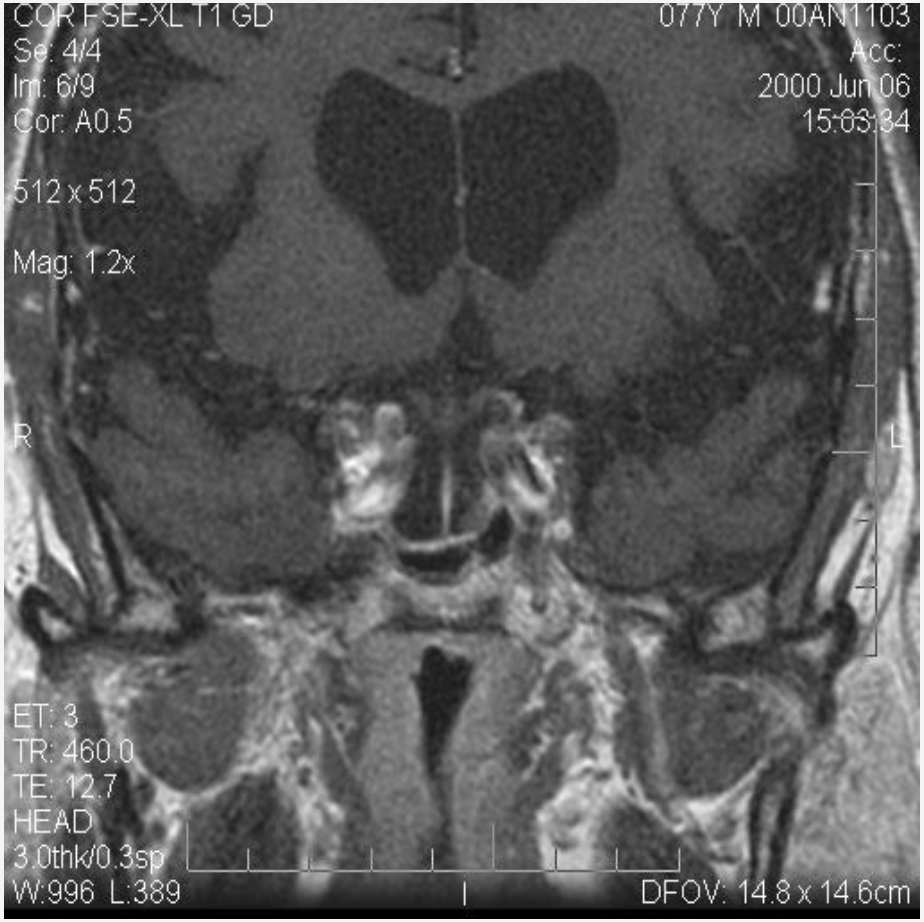
Variations sinus intercaverneux



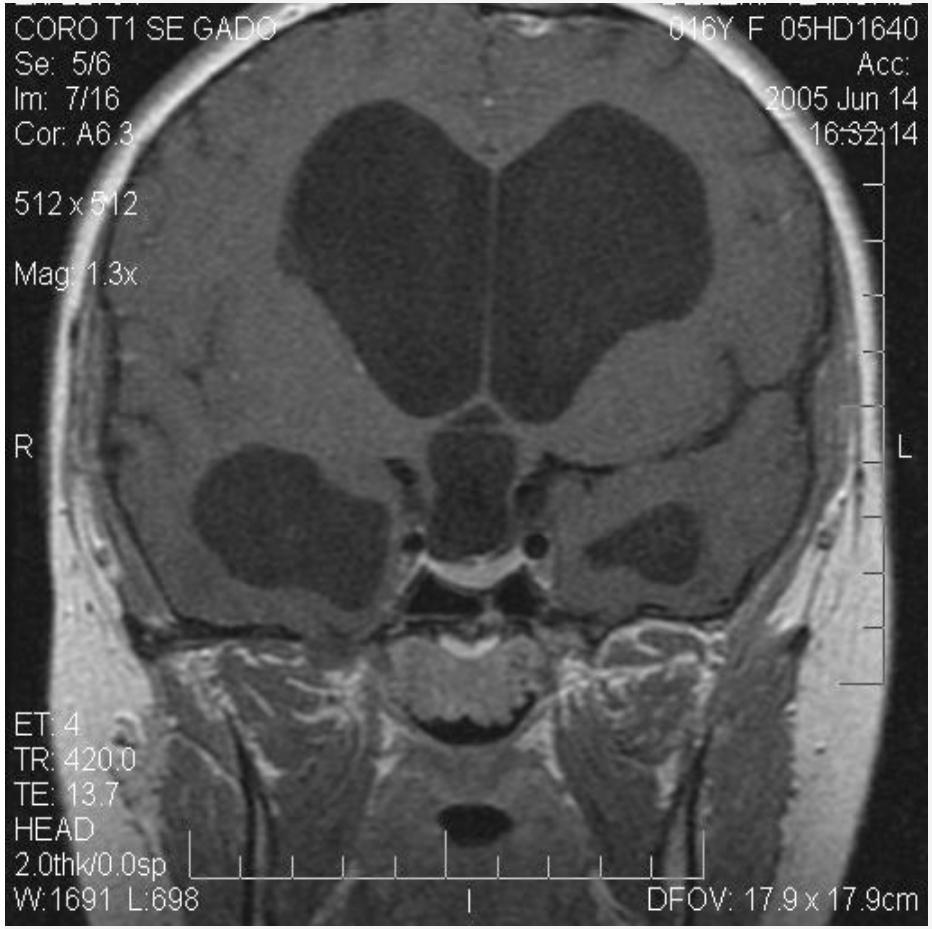


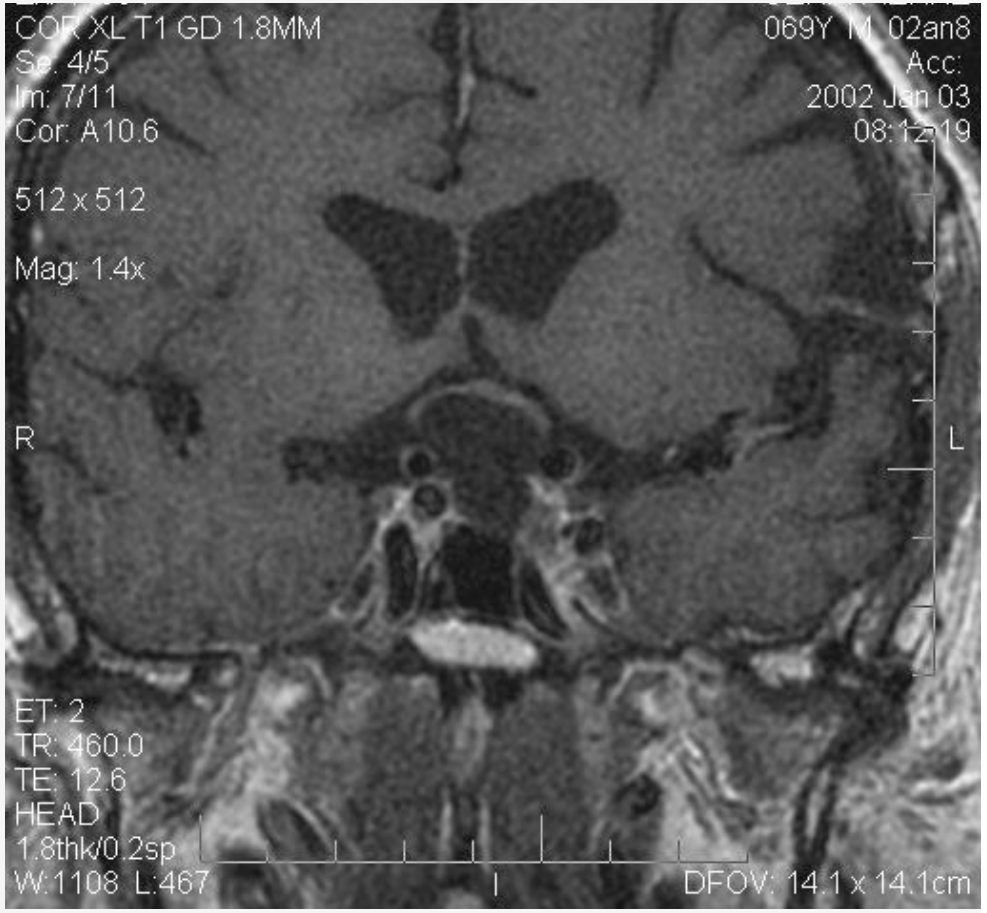
Hypophyse concave



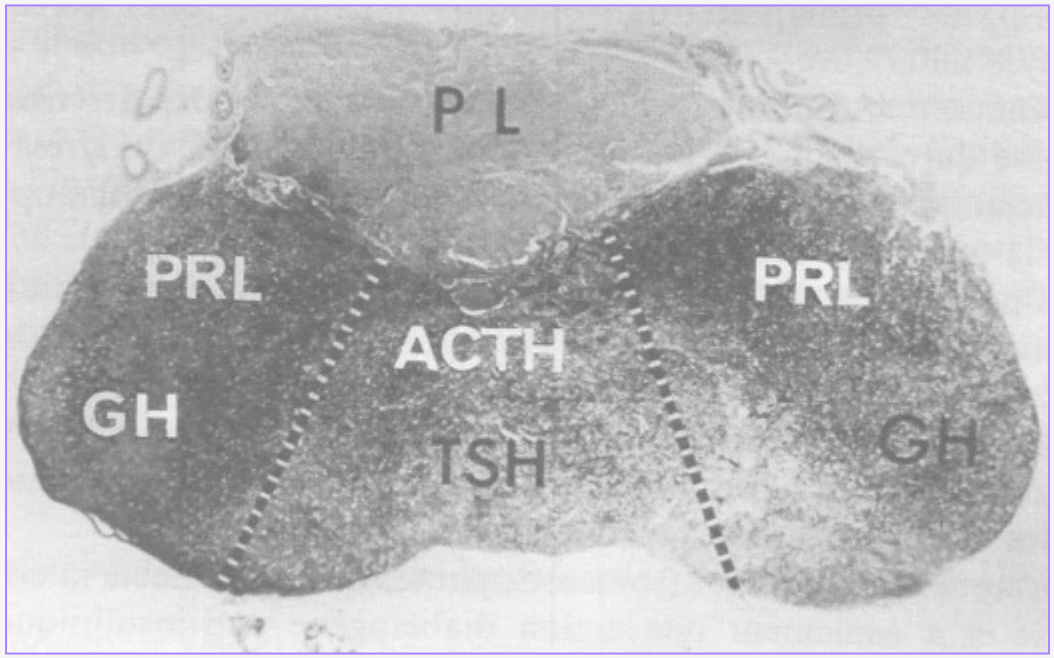


A ne pas confondre





Les adénomes sécrétants



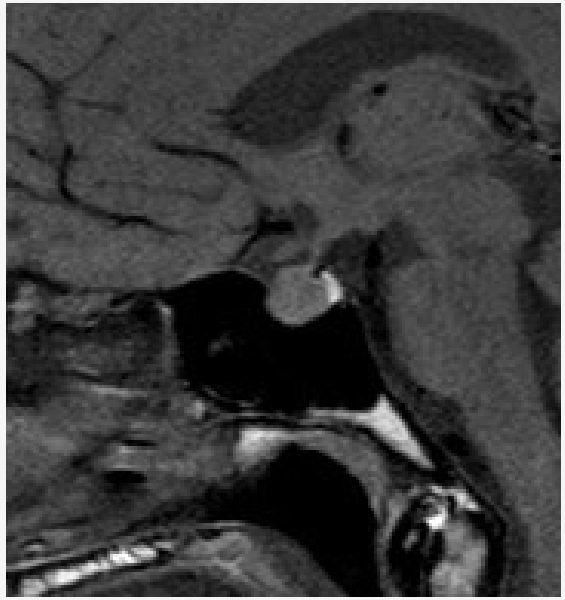
Macro-adénome > 1 cm

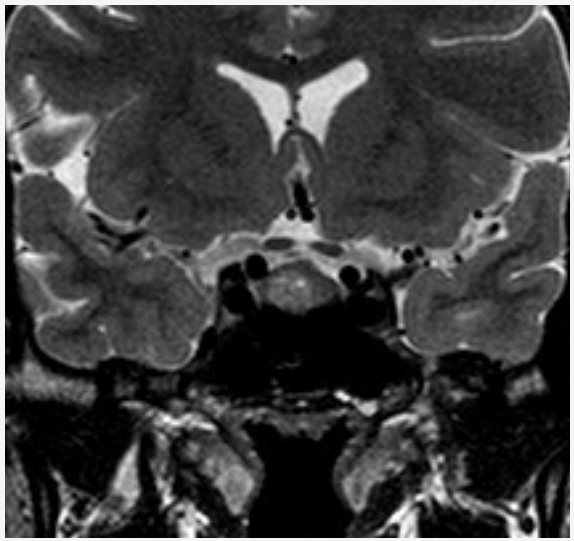
Micro-adénome < 1 cm

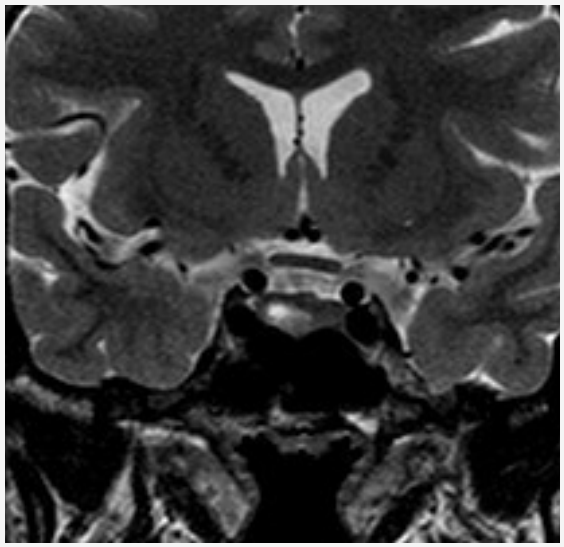
Pico adénome < 3 mm

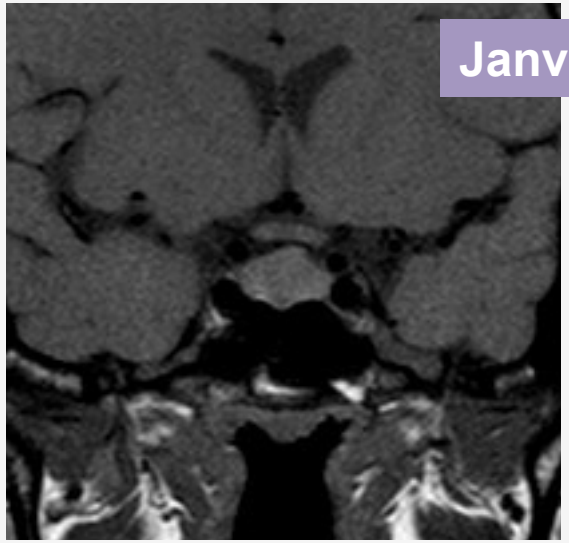
ADÉNOME À PROLACTINE

25 ans Galactorrhée. Règles régulières sous contraception oestro-progestative.
PRL 144 ng/ml.
Traitement par Dostinex permettant l'amélioration de la galactorrhée, normalisation de la PRL 47 ng/ml

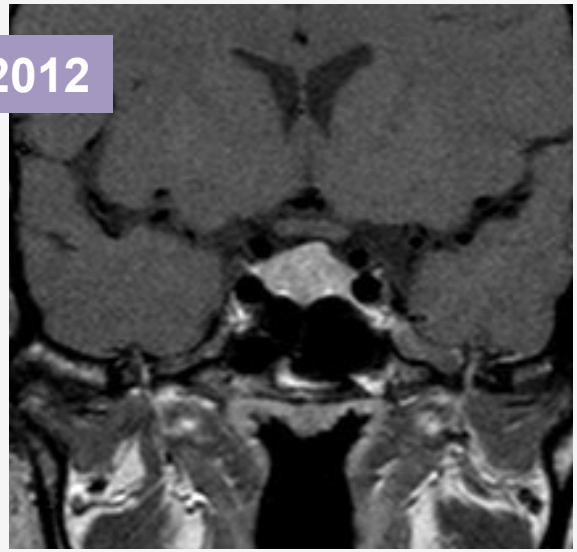


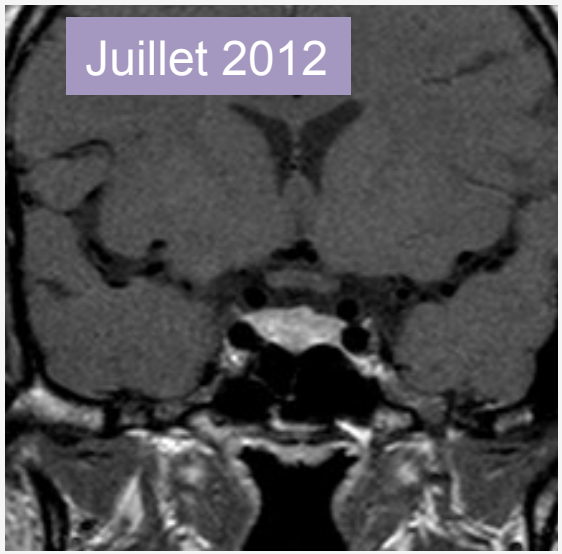




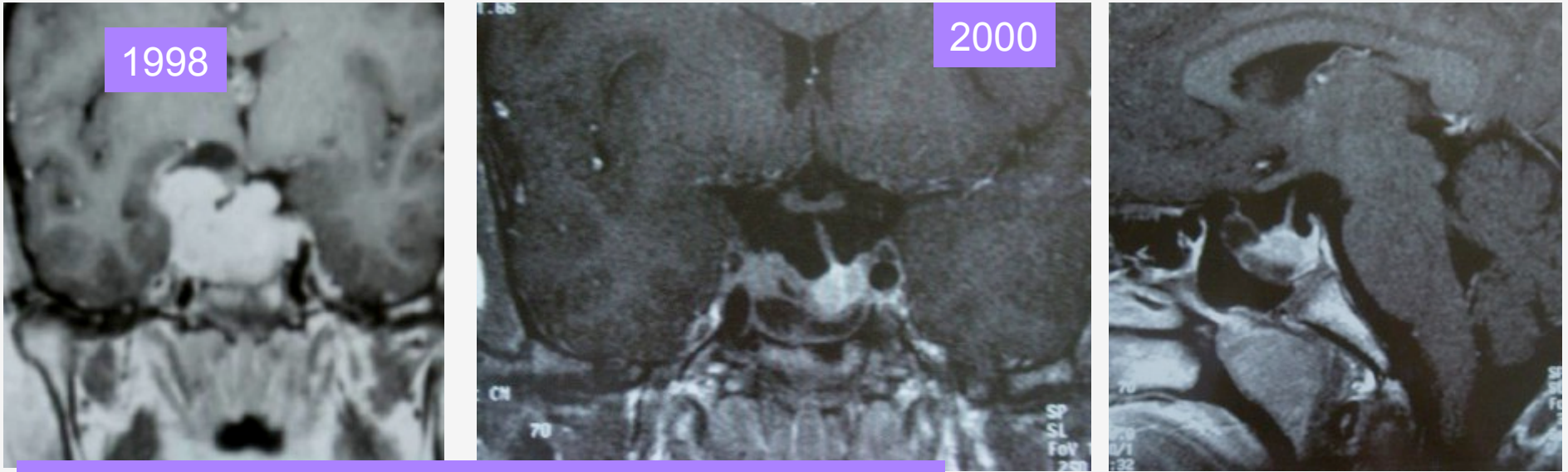


Janvier 2012

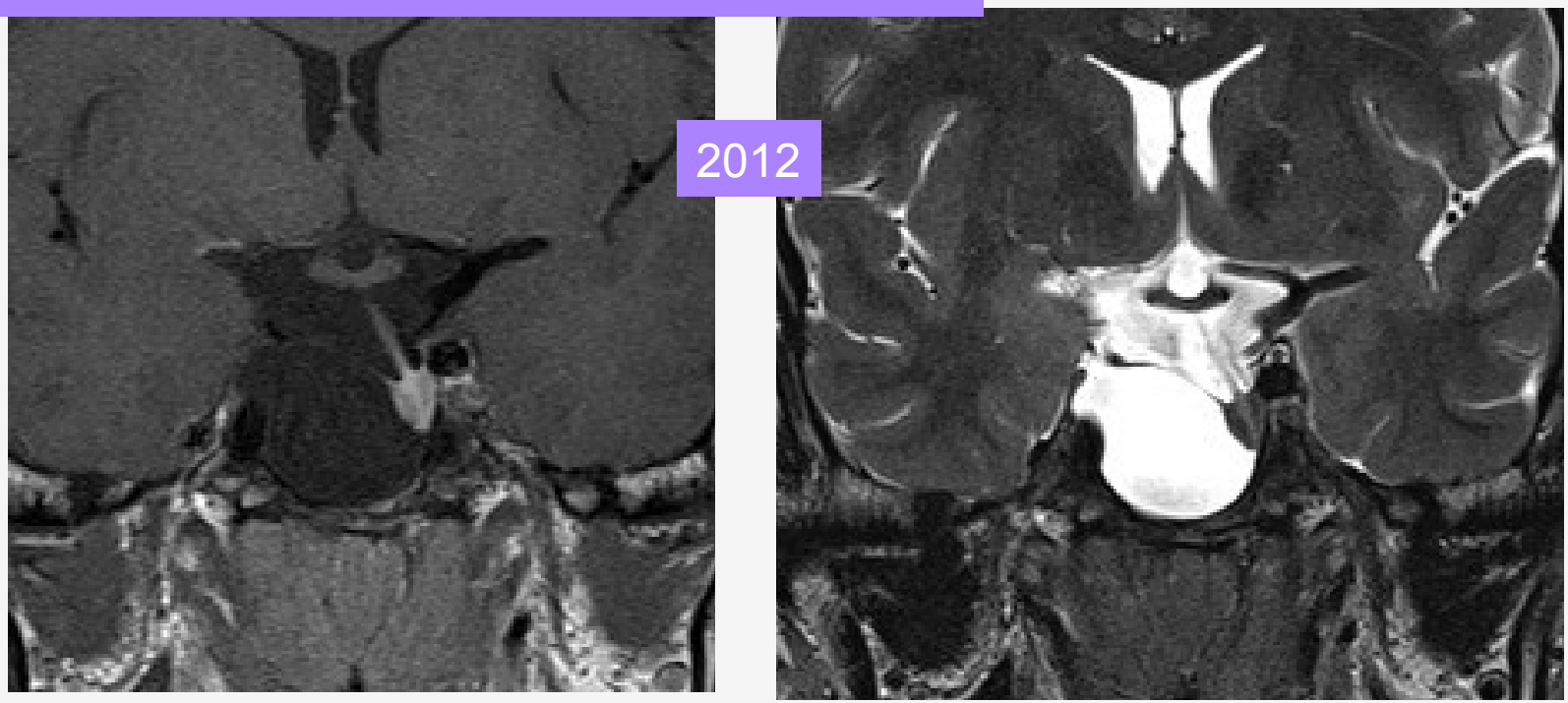


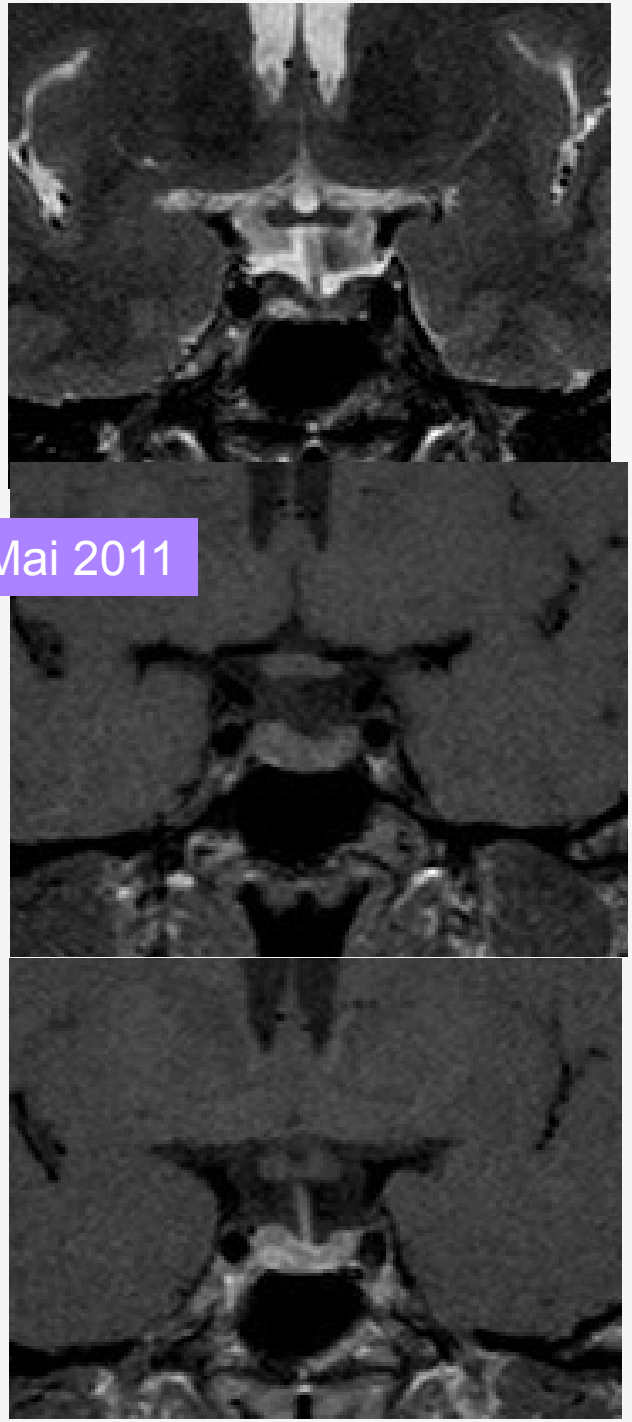


Juillet 2012

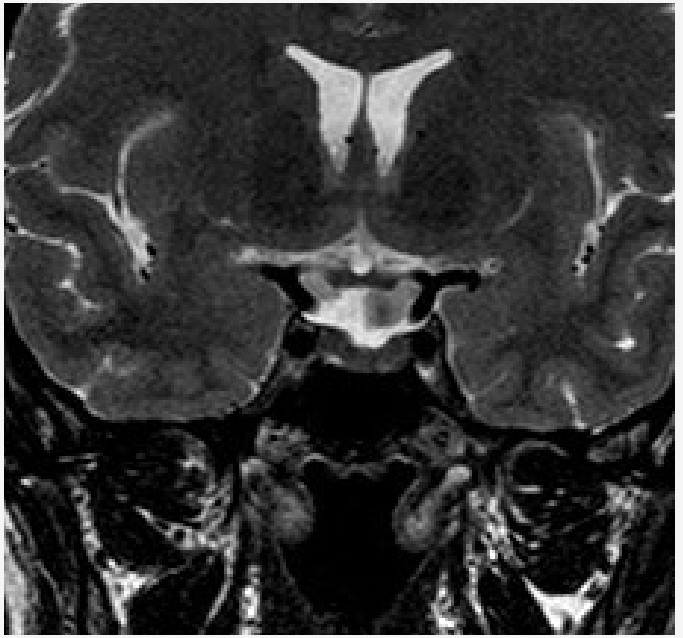


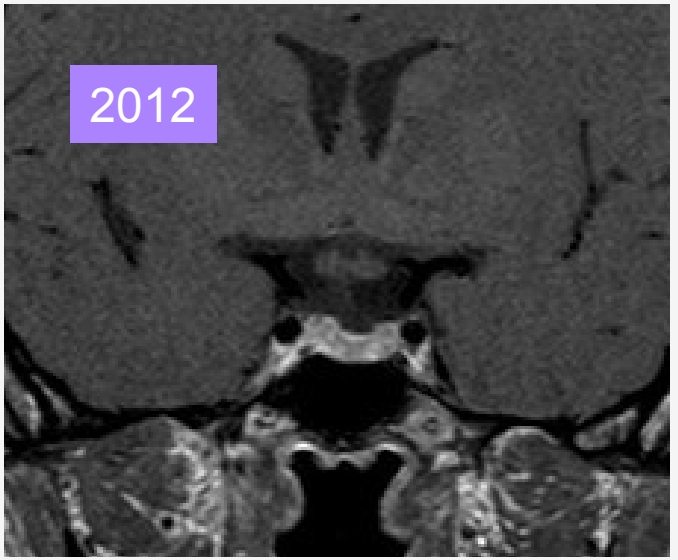
Macro adénome à PRL Traitement médical



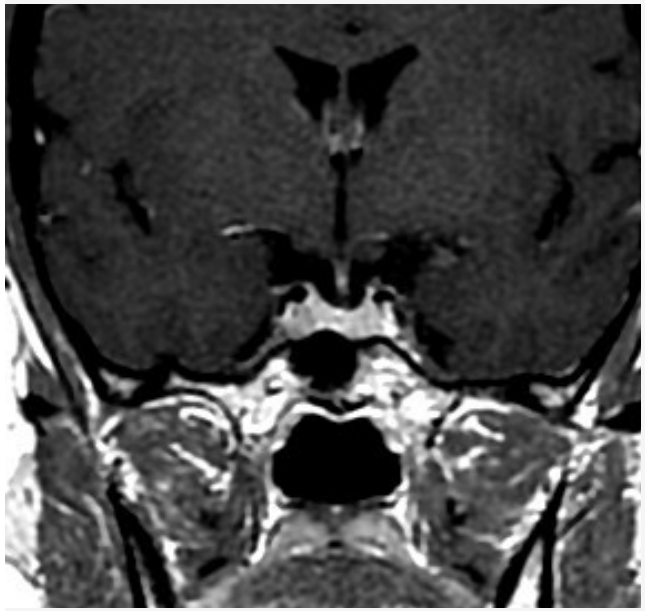
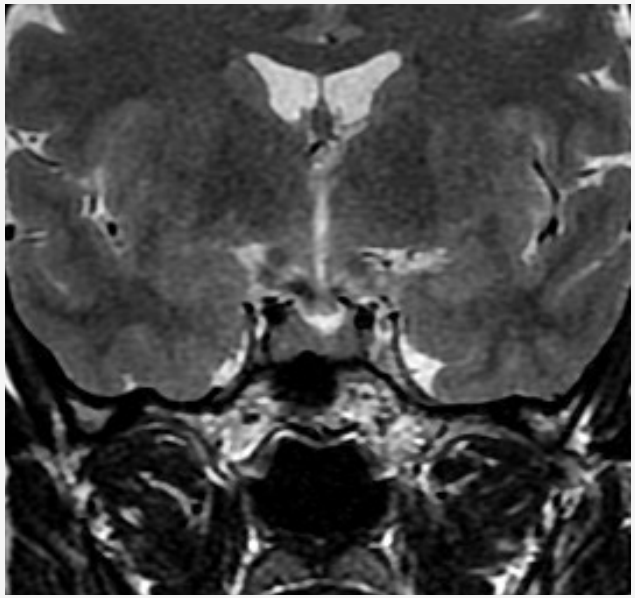
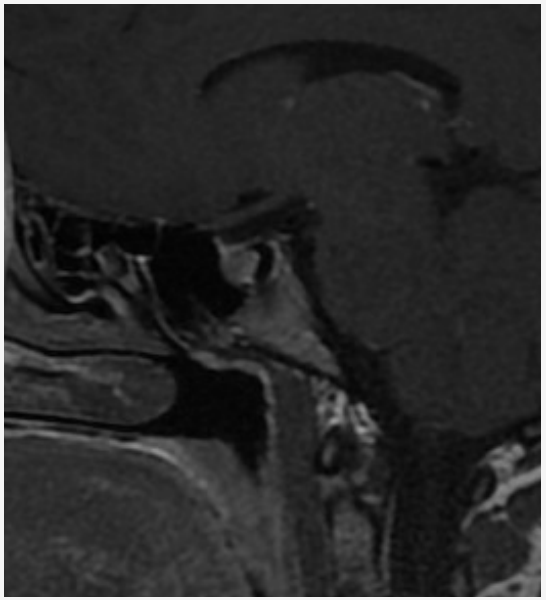


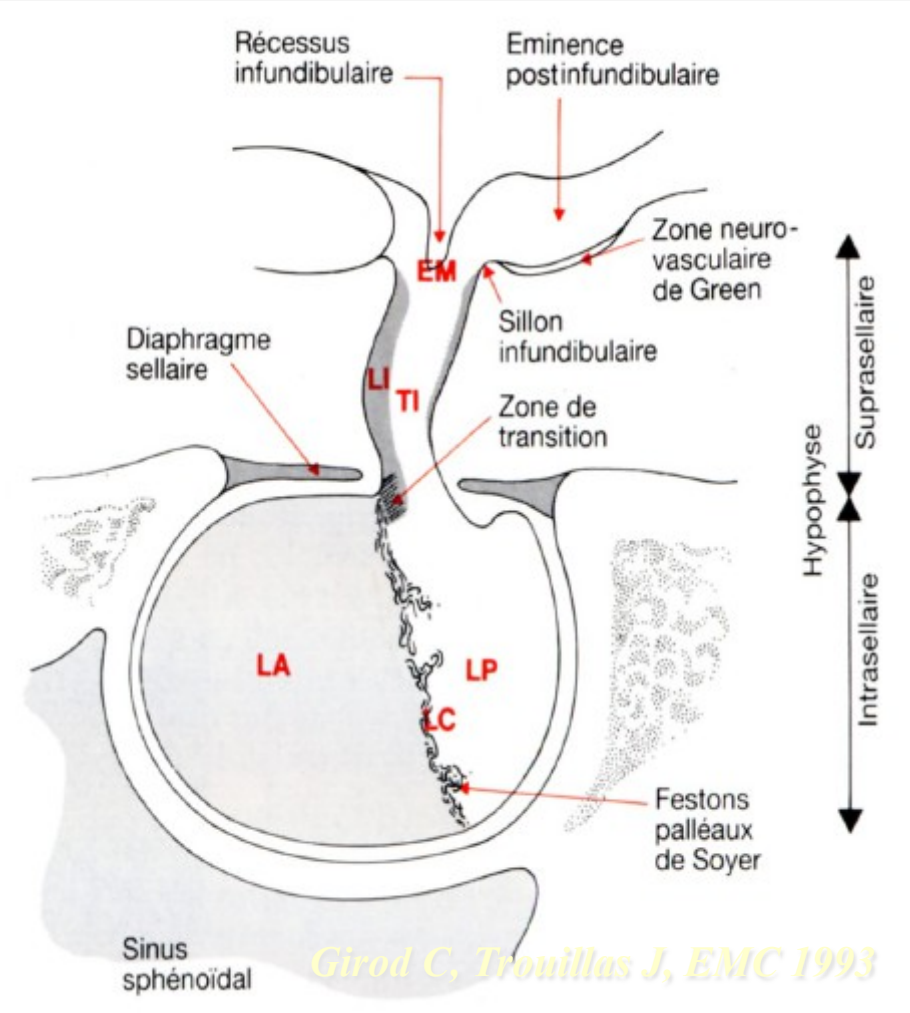
- PRL 4 x N
- PRL normalisée sous TT médical





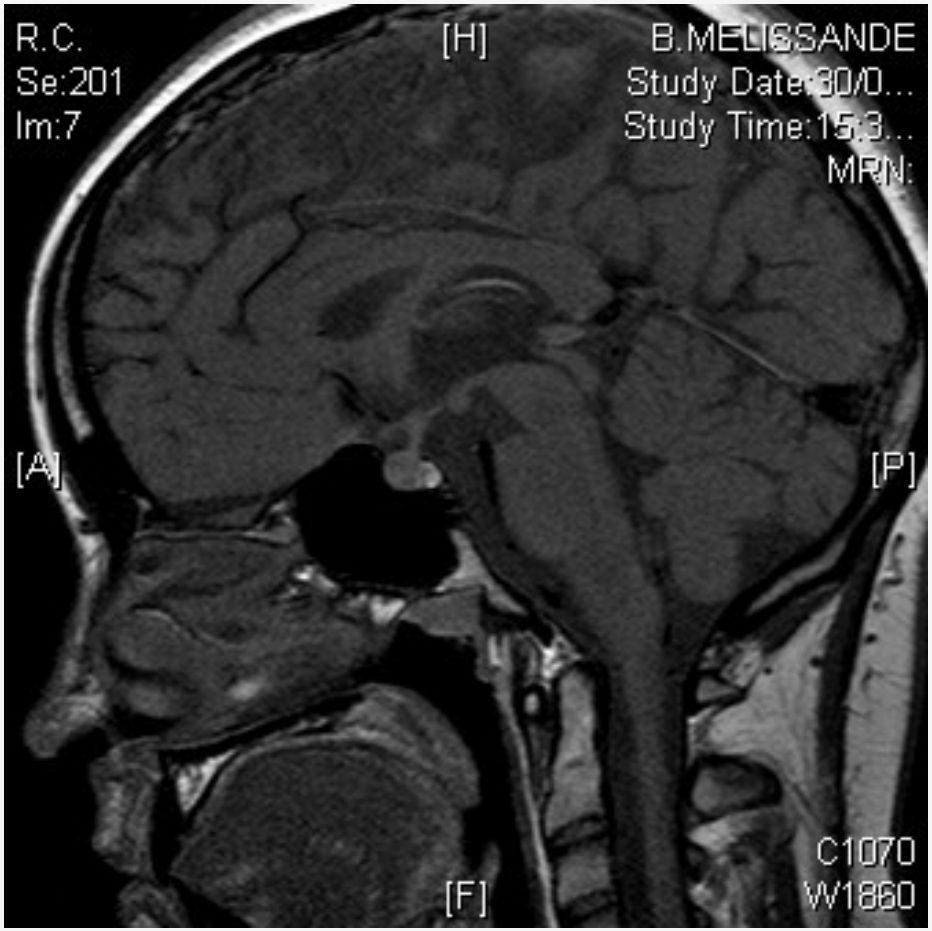
Infertilité PRL 120 -150 µg
IRM normale

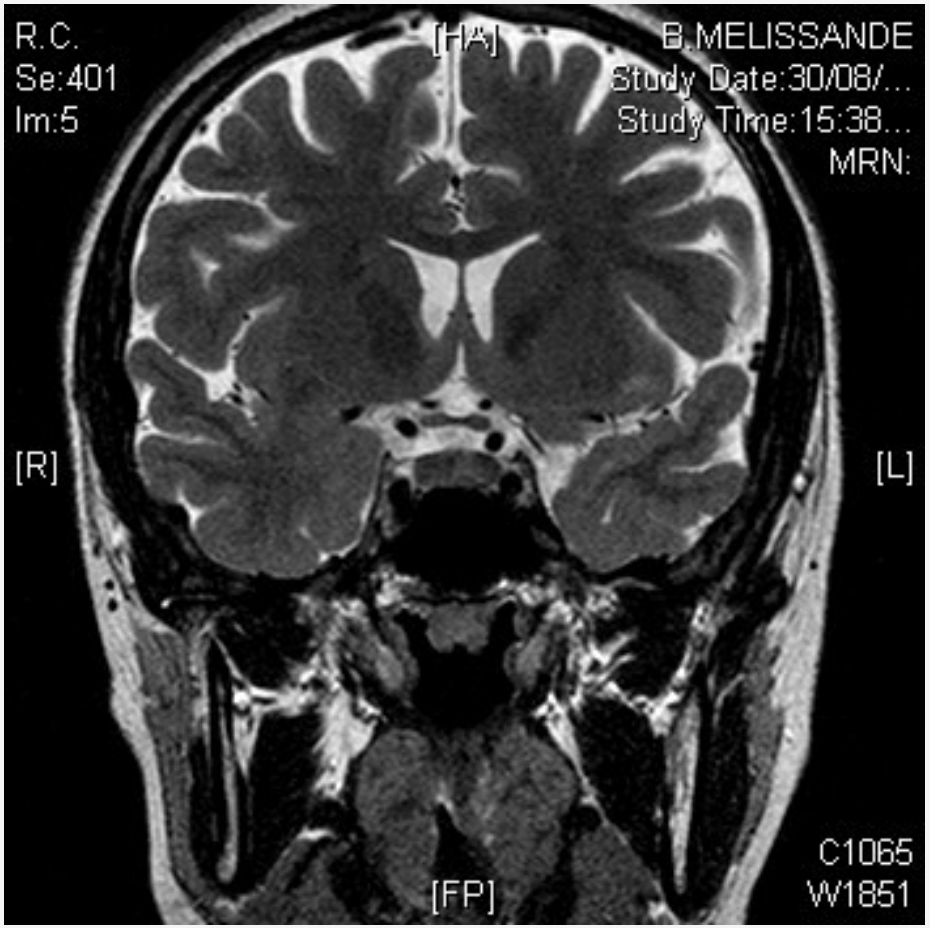




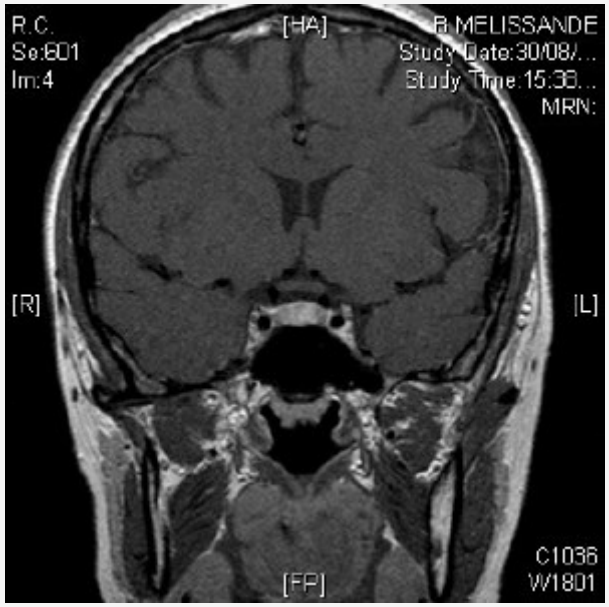


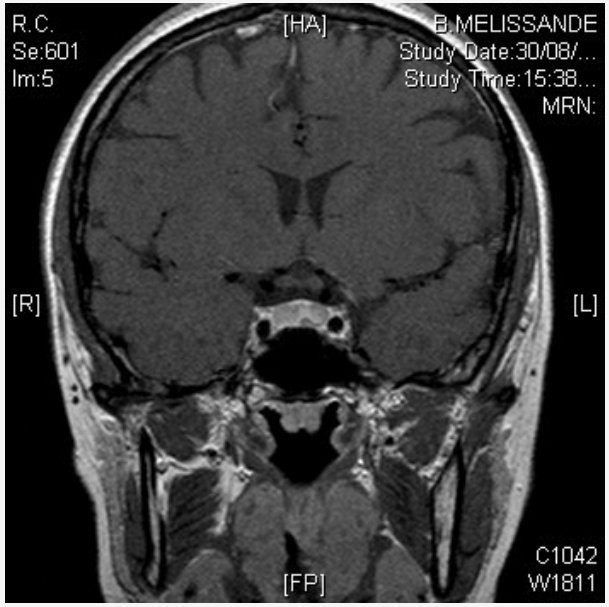
ADÉNOME CORTICOTROPE

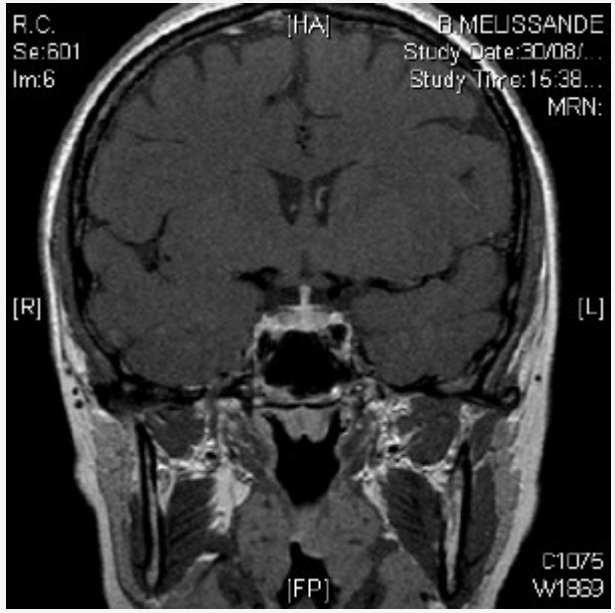
15 ans
Cassure de la croissance aménorrhée
hypercorticisme ACTH dependant



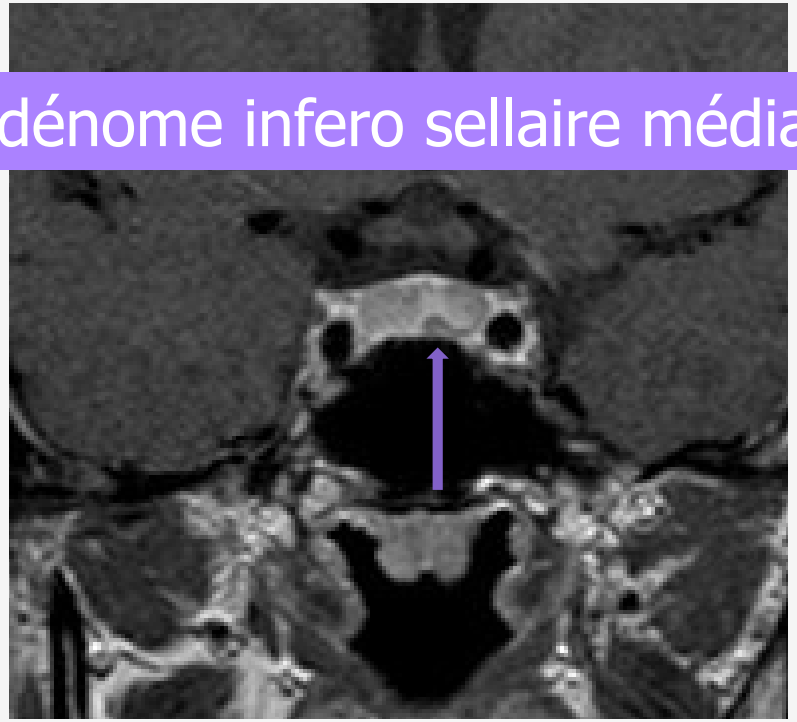


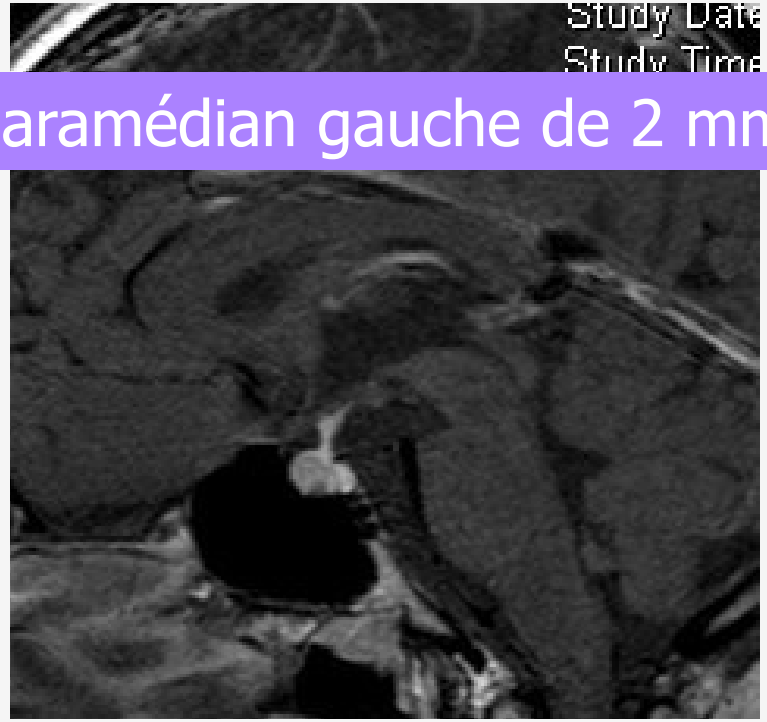






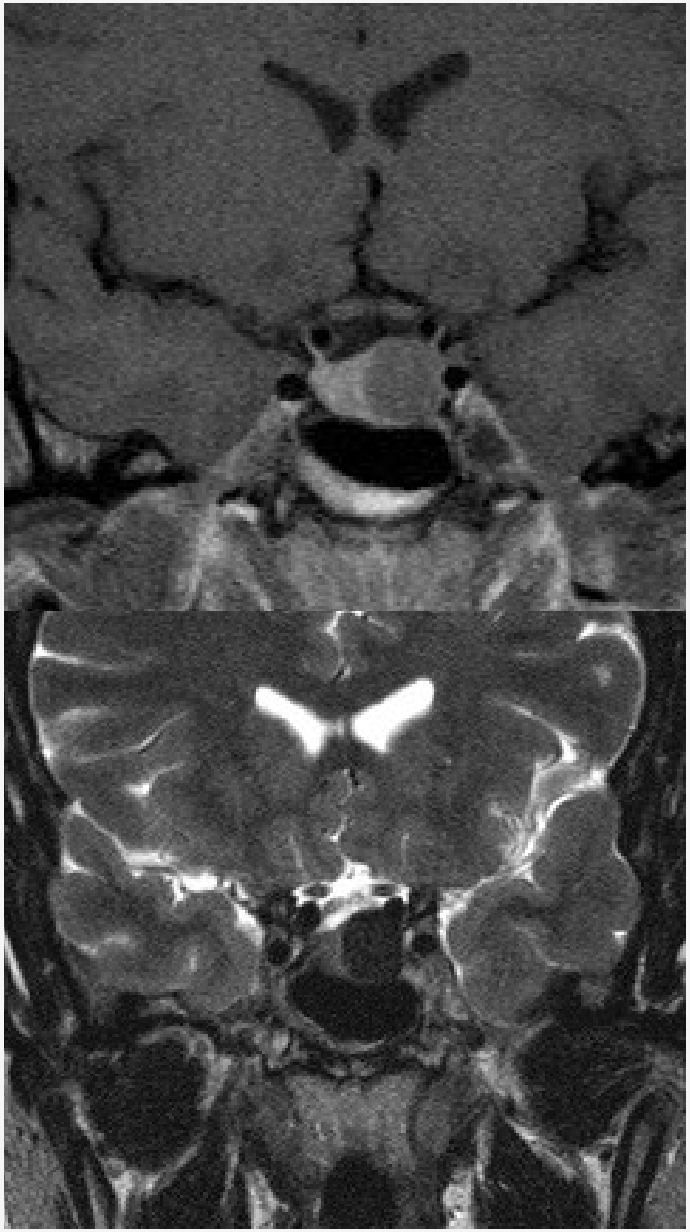
Adénome infero sellaire médian et paramédian gauche de 2 mm

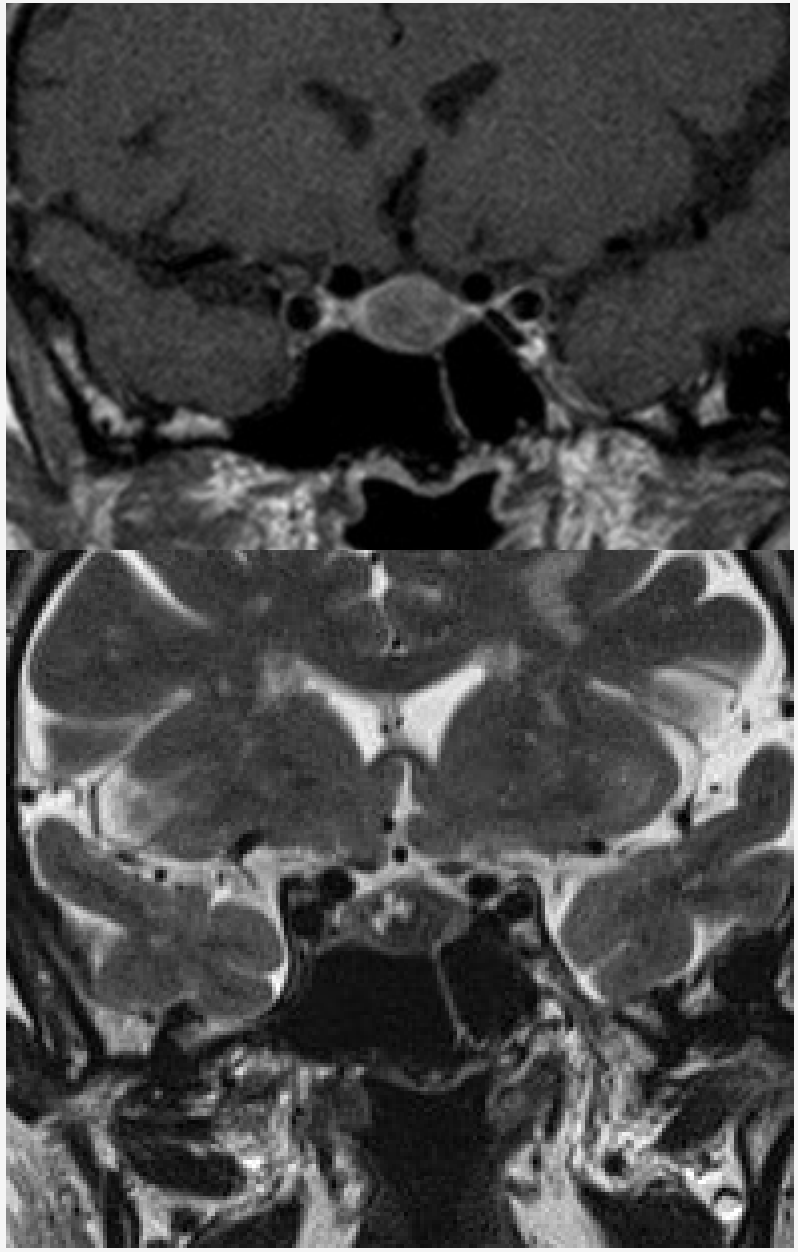


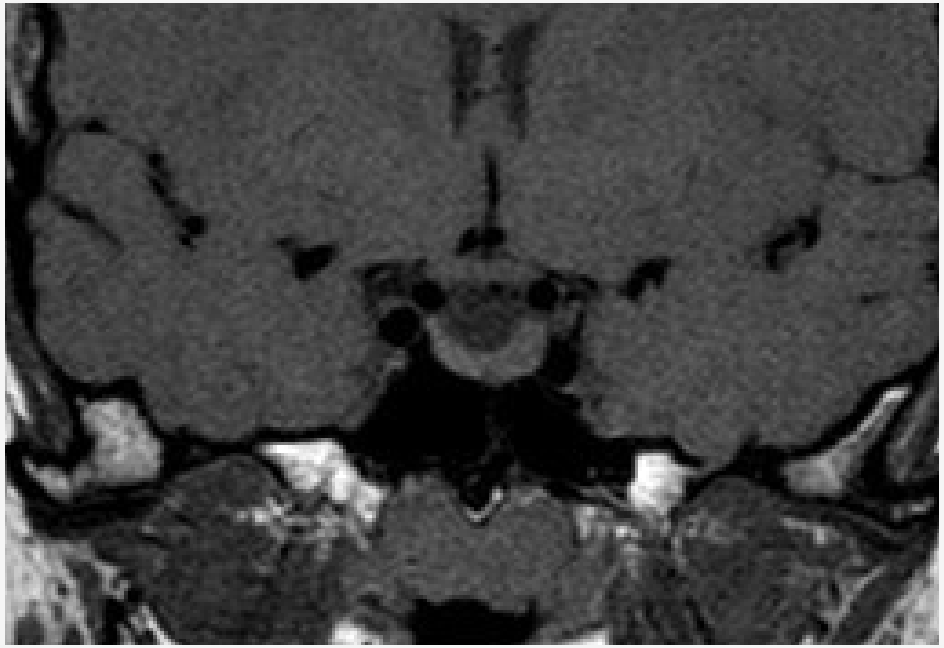


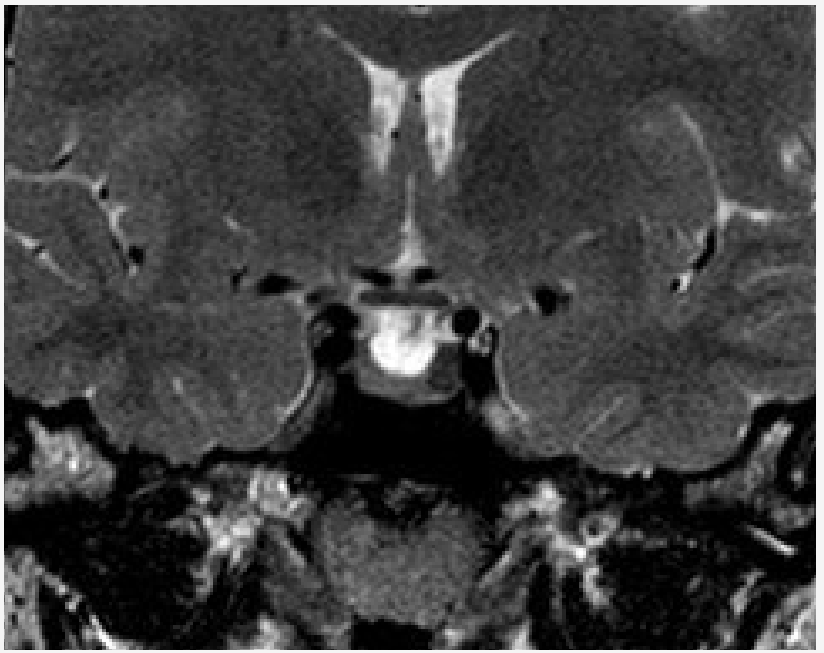
ADÉNOME SOMATOTROPE
ACROMÉGALIE

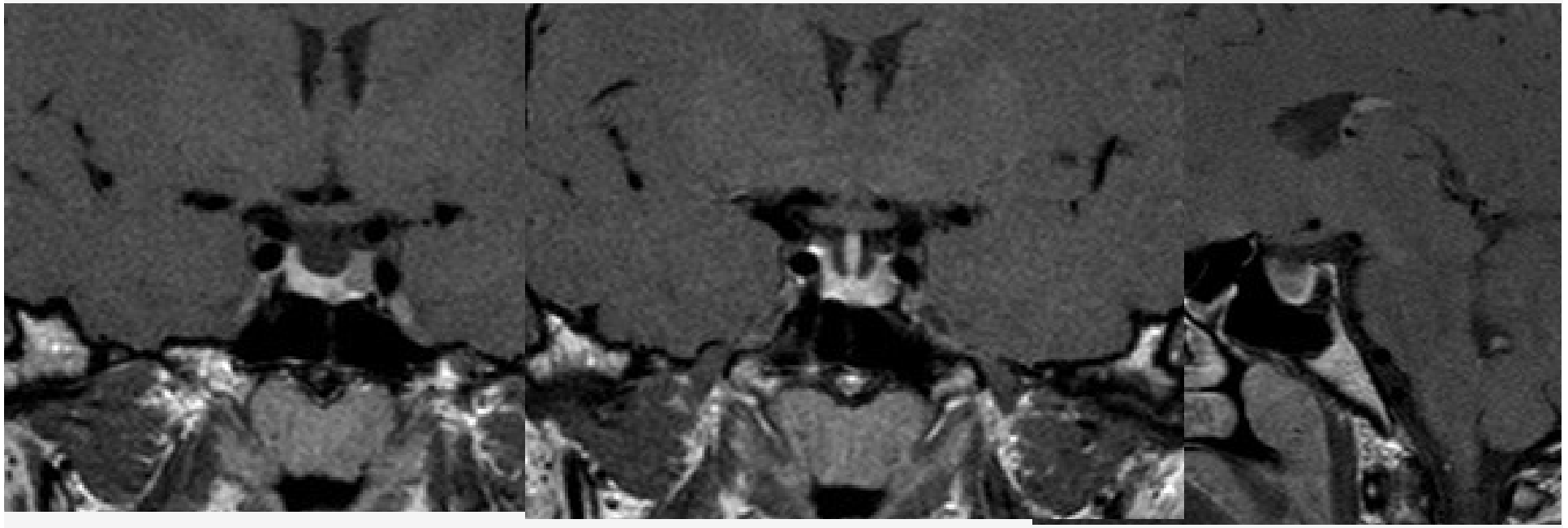
Acromégalie











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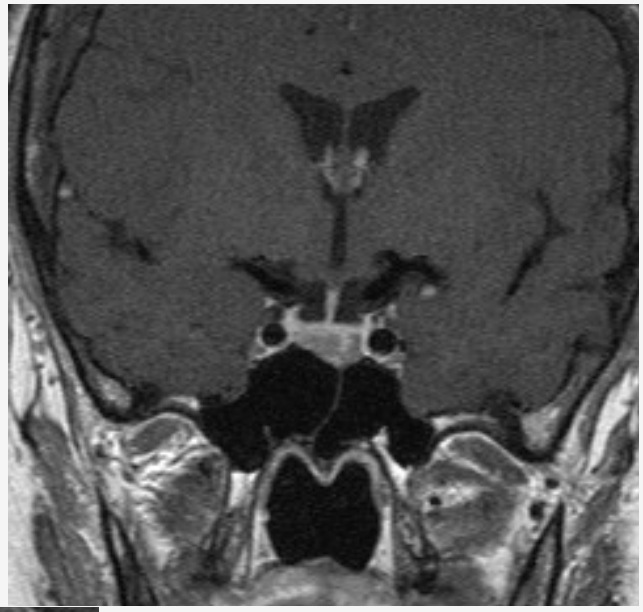
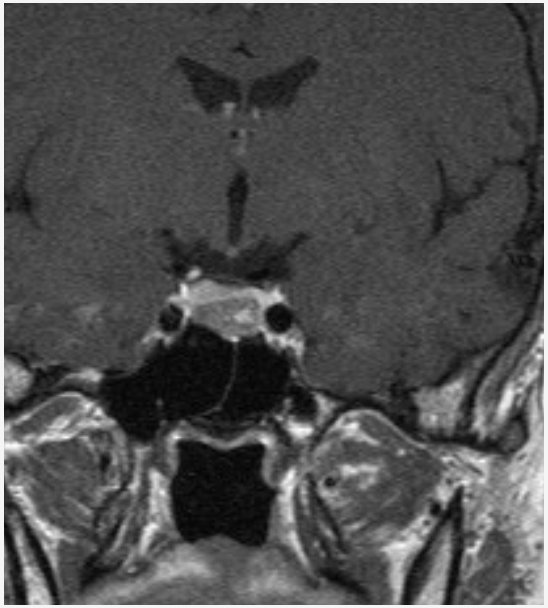
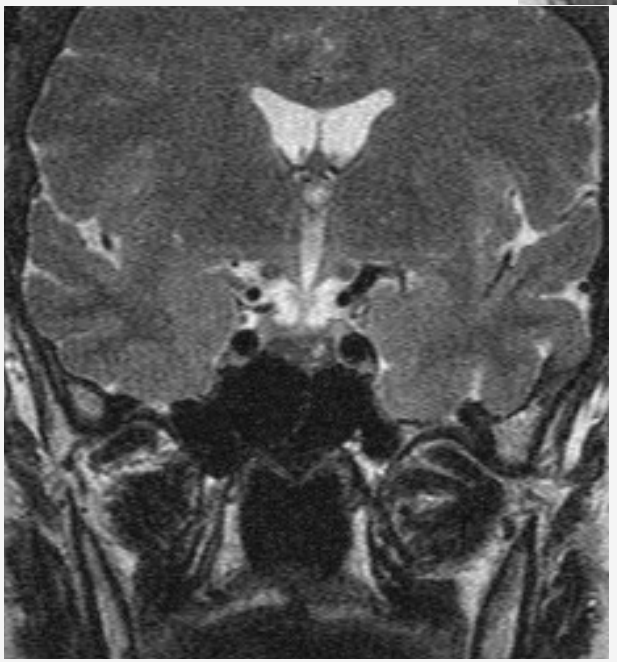
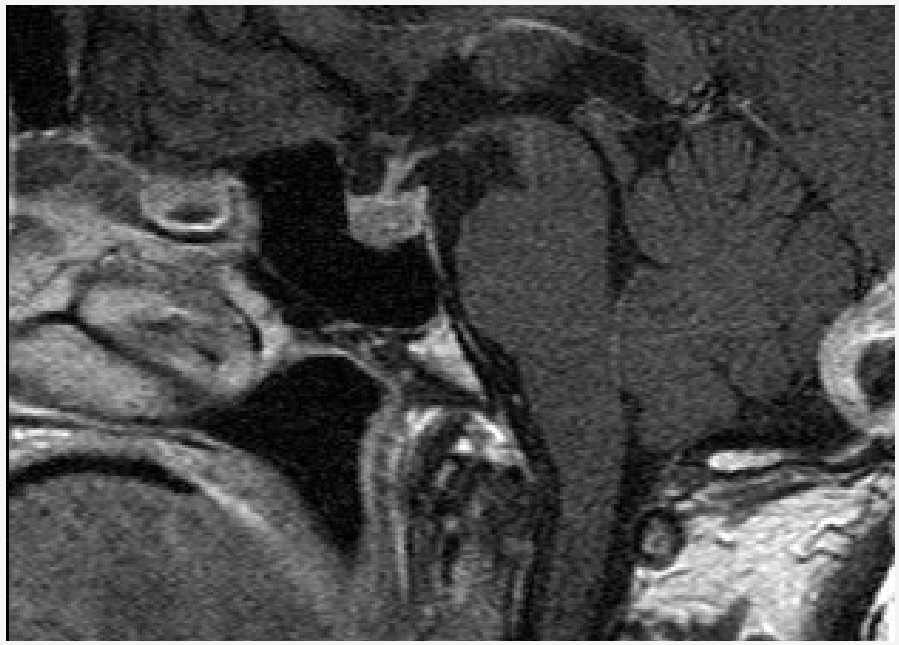
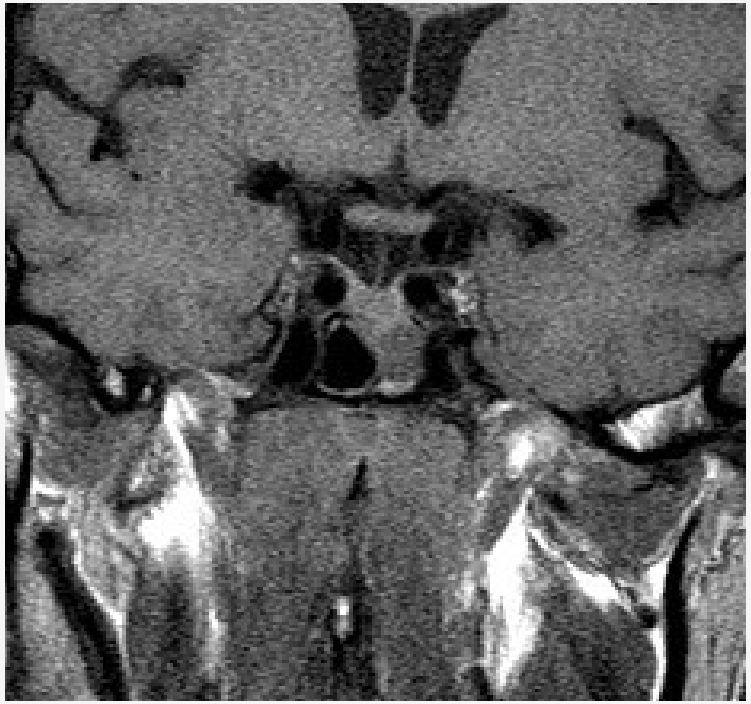
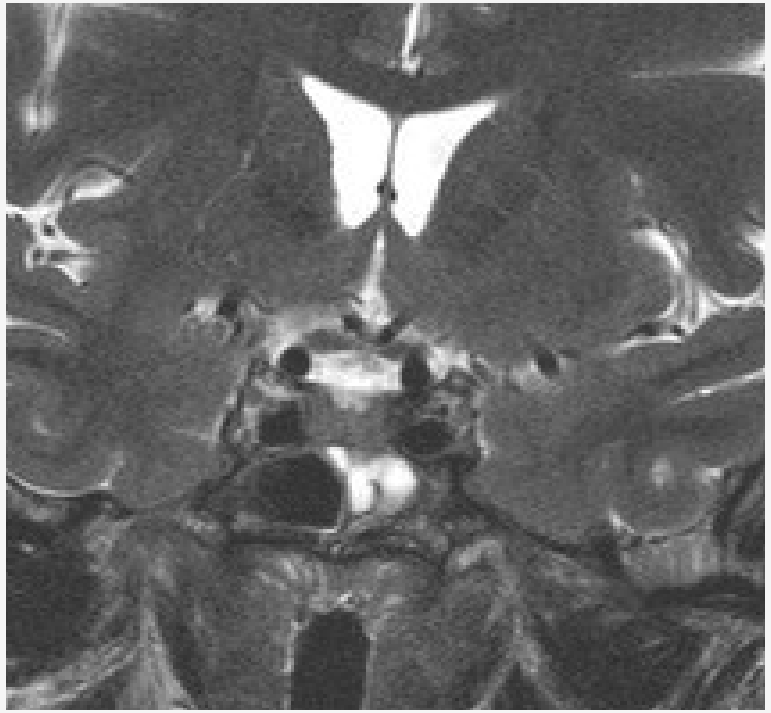


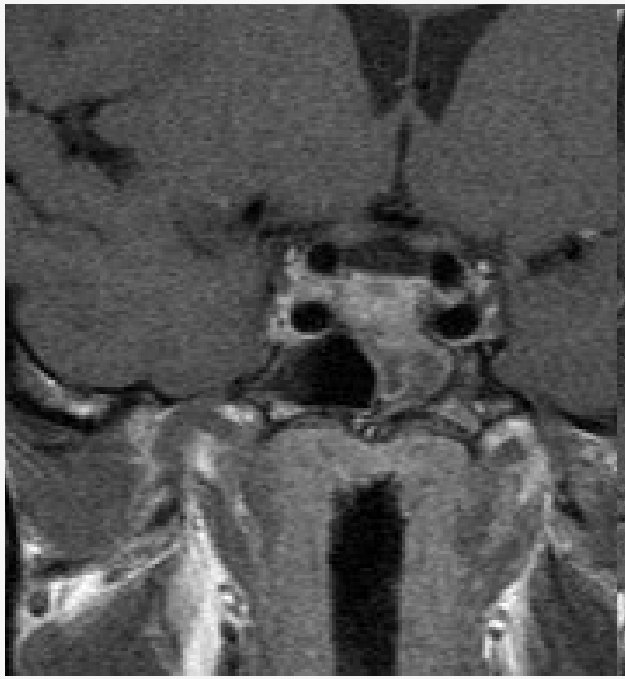


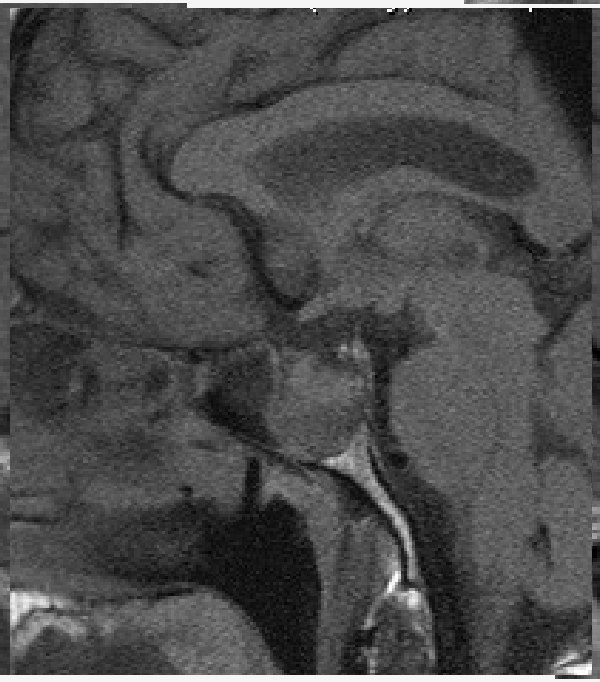


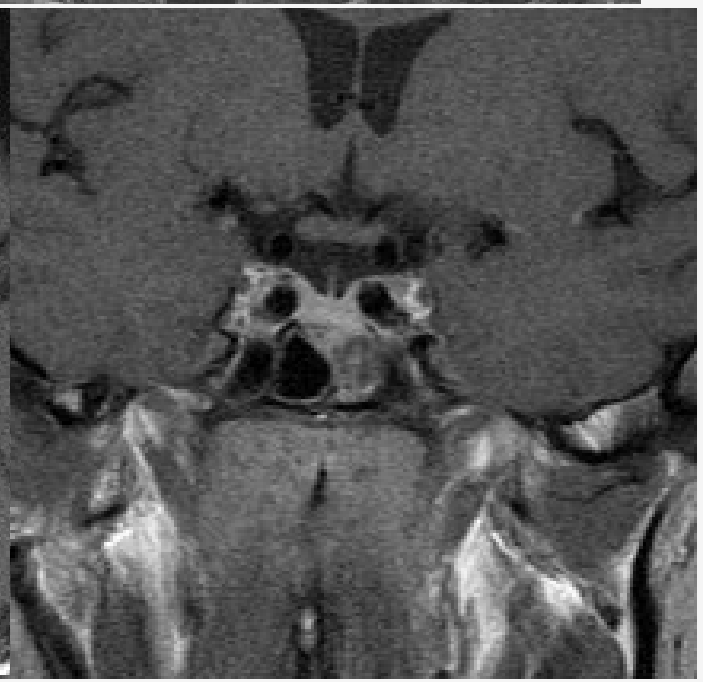


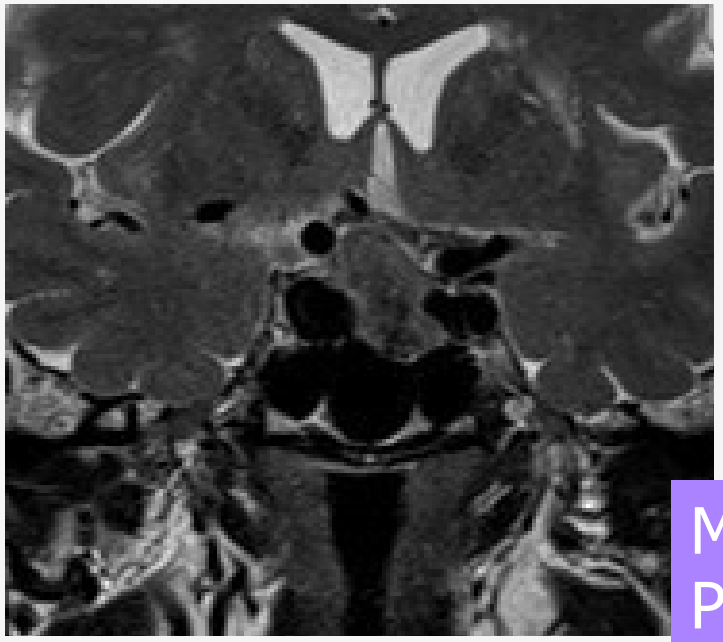


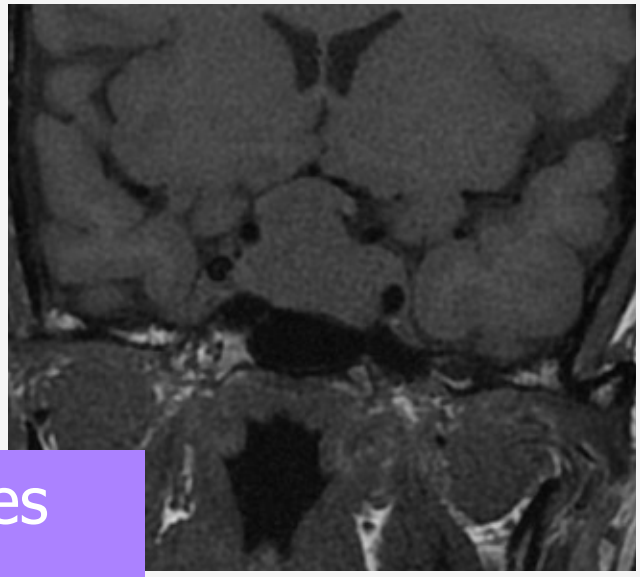




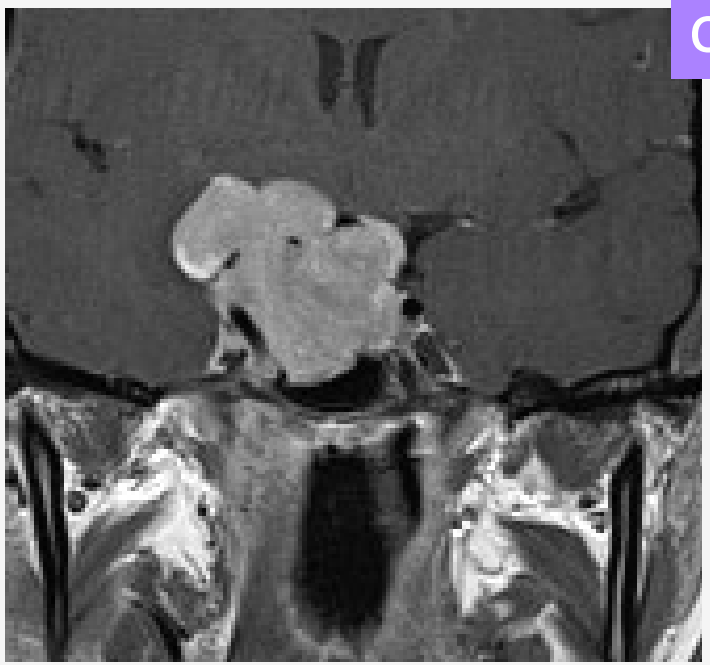


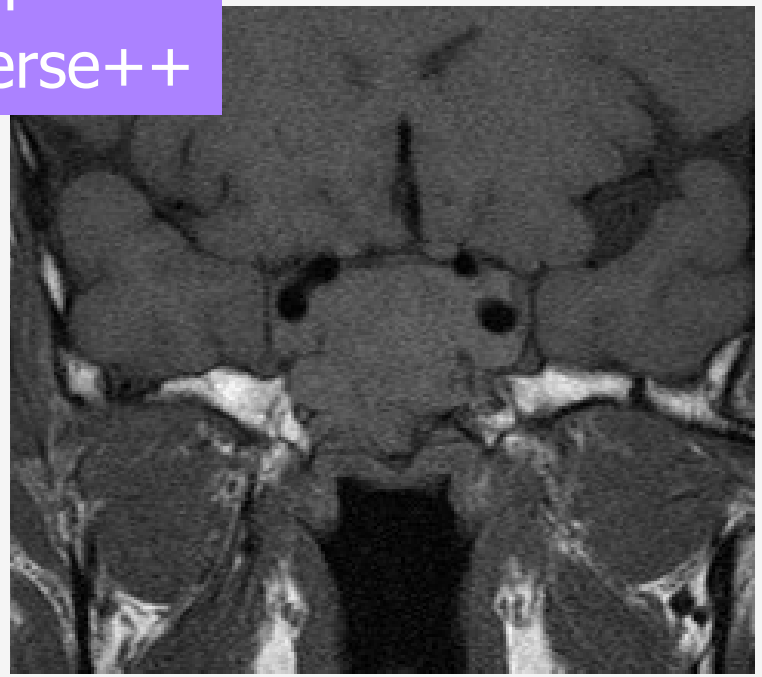






Macroadénomes
Présentation
clinique diverse++





En résumé

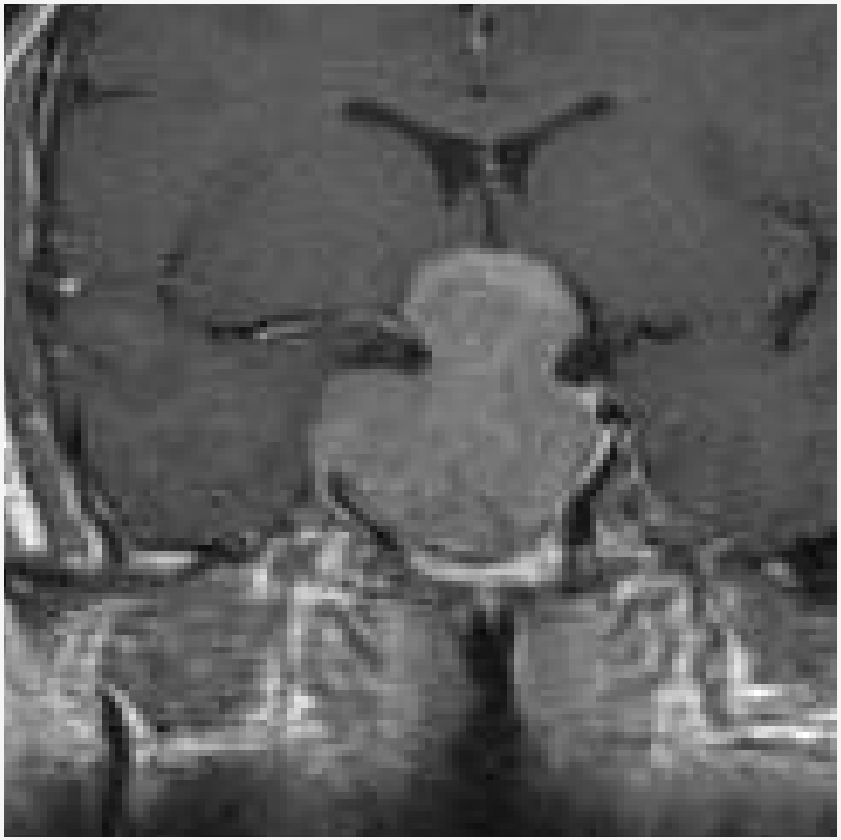
- Pour le prolactinome volume proportionnel à la sécrétion tumorale
- Aspect et localisation en fonction du type sécrétoire

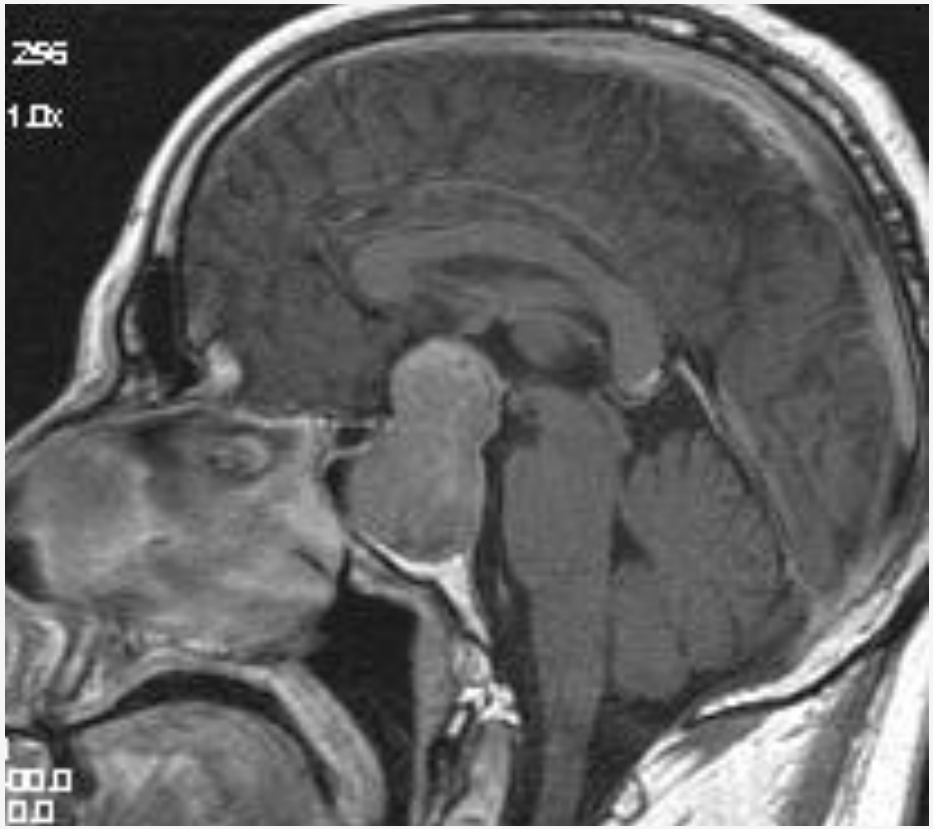
	Prolactine	GH	ACTH
siège	Latéral	Antérieur et latéral	Antérieur médian et plan
extension	Suprasellaire	Inferosellaire	
Signal T2	Hypersignal	hyposignal	

D'après le poster JFR 2011 R Richard « Tous en selle sur l'hypophyse »

Bilan d’extension

Macroadénome gonadotrope
Insuffisance antéhypophysaire



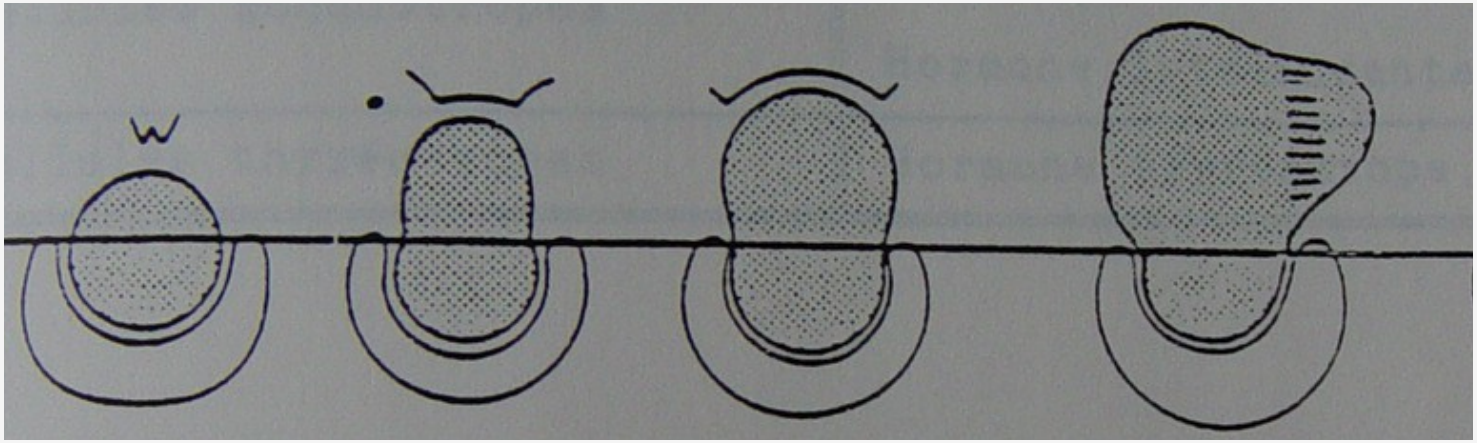


Extension supra sellaire : Bouchon de champagne

caverneuse, inférieure sphénoïdale

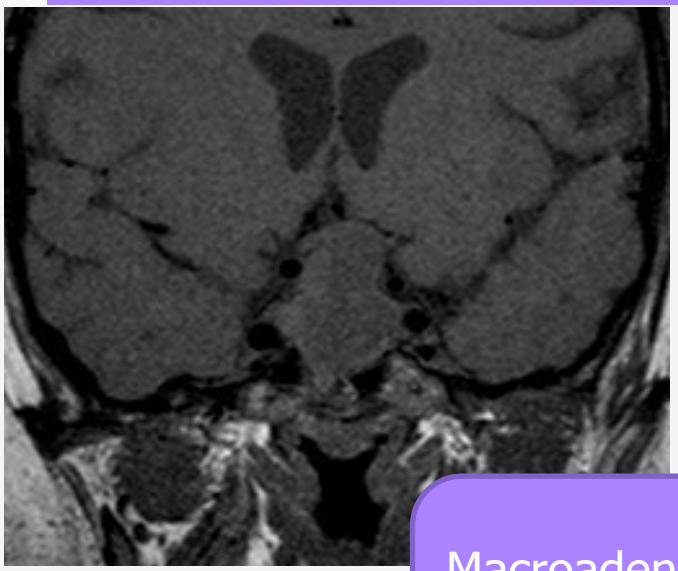
Extension suprasellaire
Hardy - Wilson

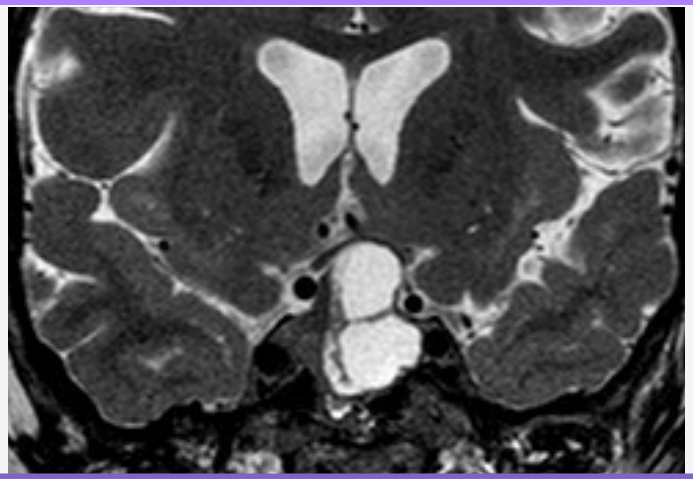
A B C D



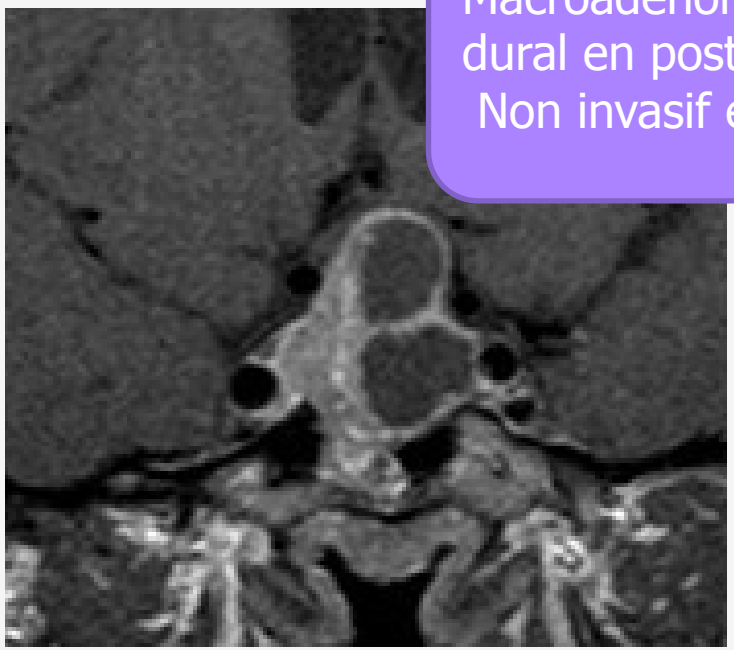
Asymétrique

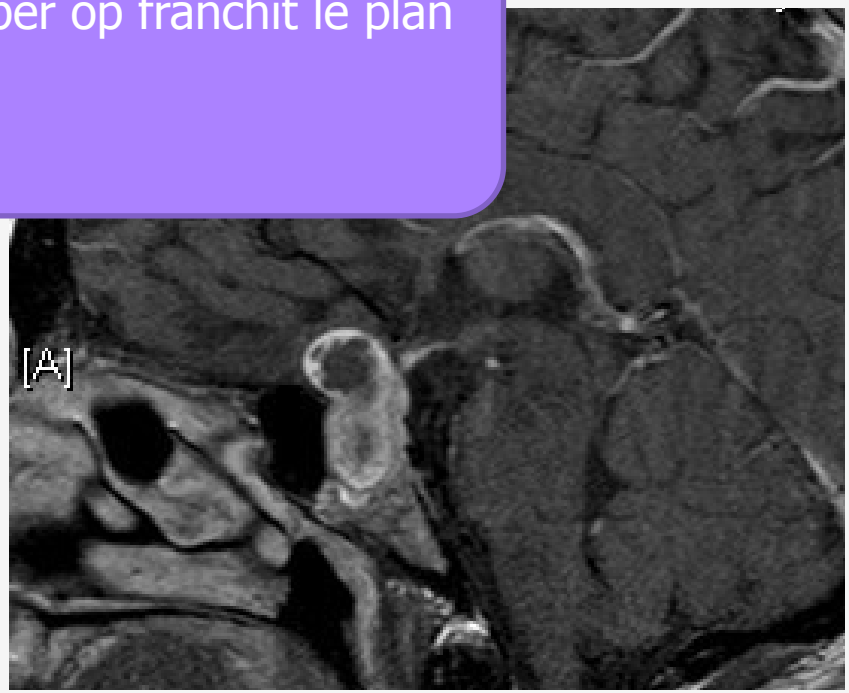
Extension basse



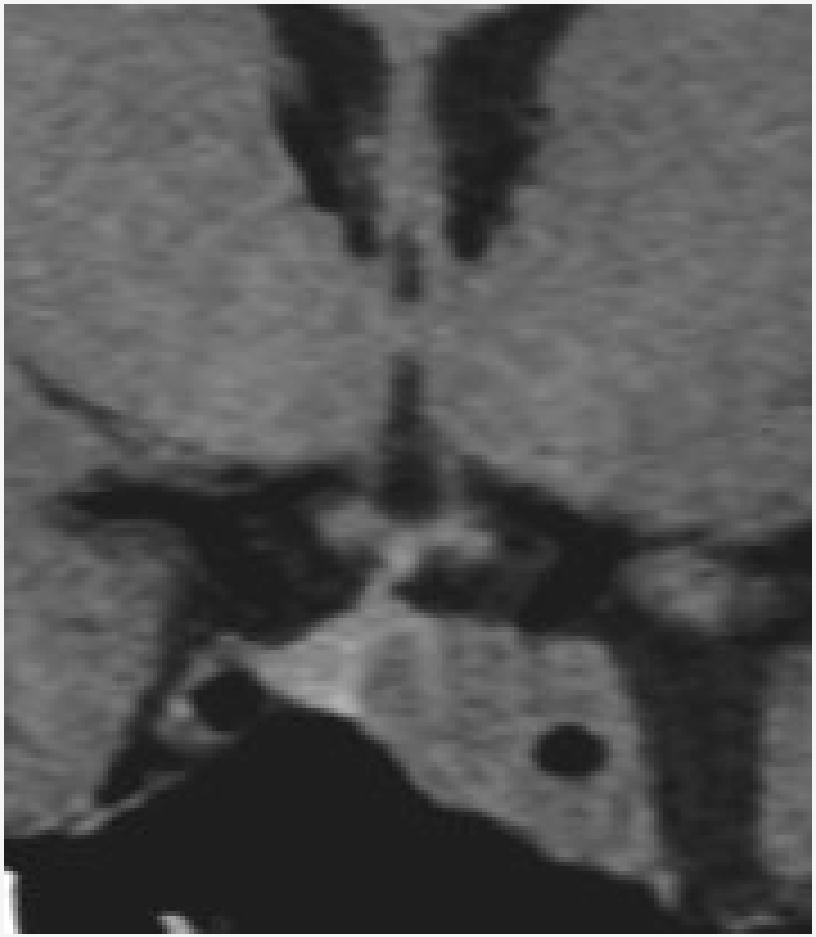


Macroadenome invasif en per op franchit le plan dural en postéro inf
Non invasif en anapath



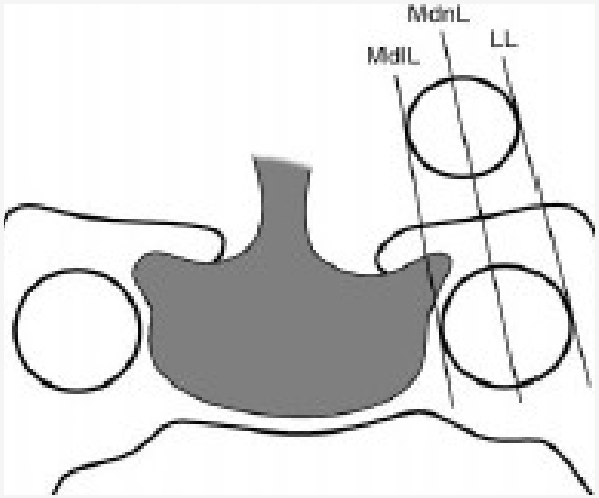


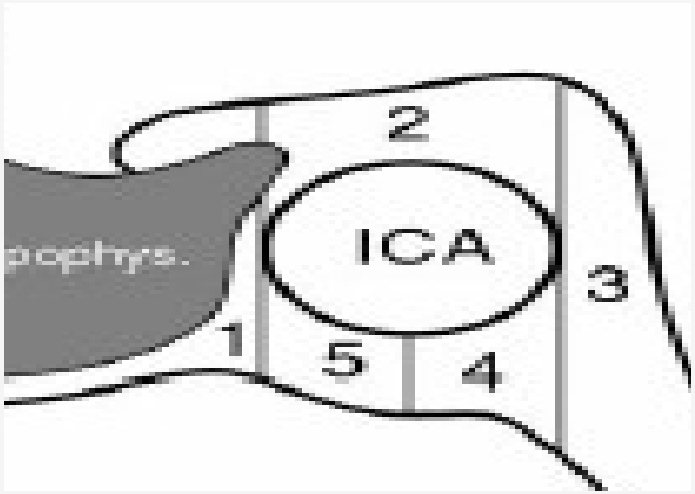
Extension caverneuse - Les signes évidents

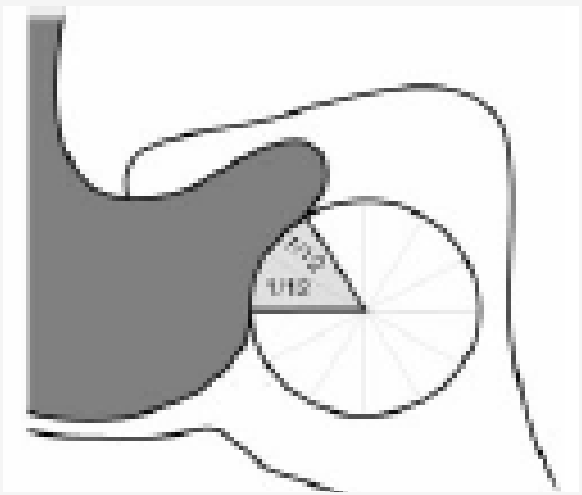


- Bombement de la paroi latérale externe du sinus
- Asymétrie de taille des sinus
- Englobement de la carotide intracaverneuse

Armes pour analyser l’ extension caverneuse







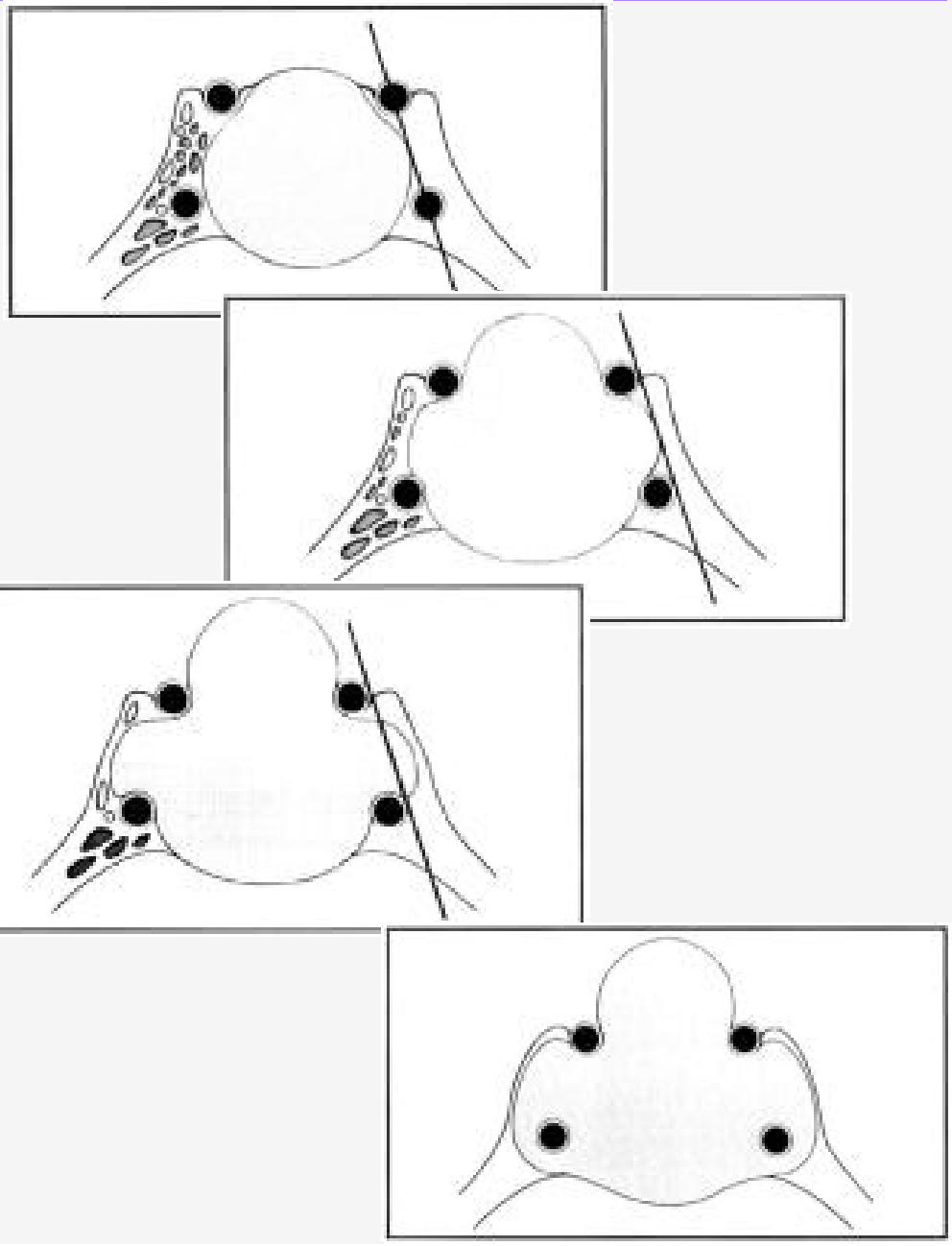
Lignes bicarotidiennes - Grades de Knosp 1993

- Grade 0
- Grade I : passe la tangente interne

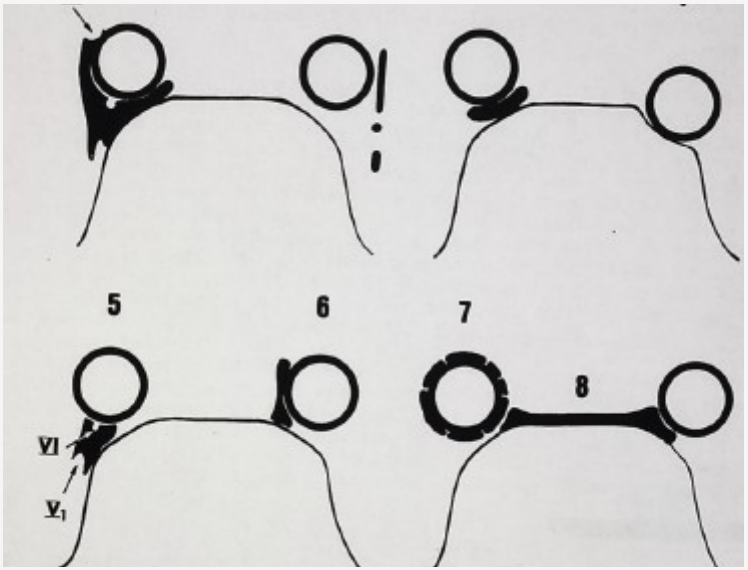
  Pas d'envahissement

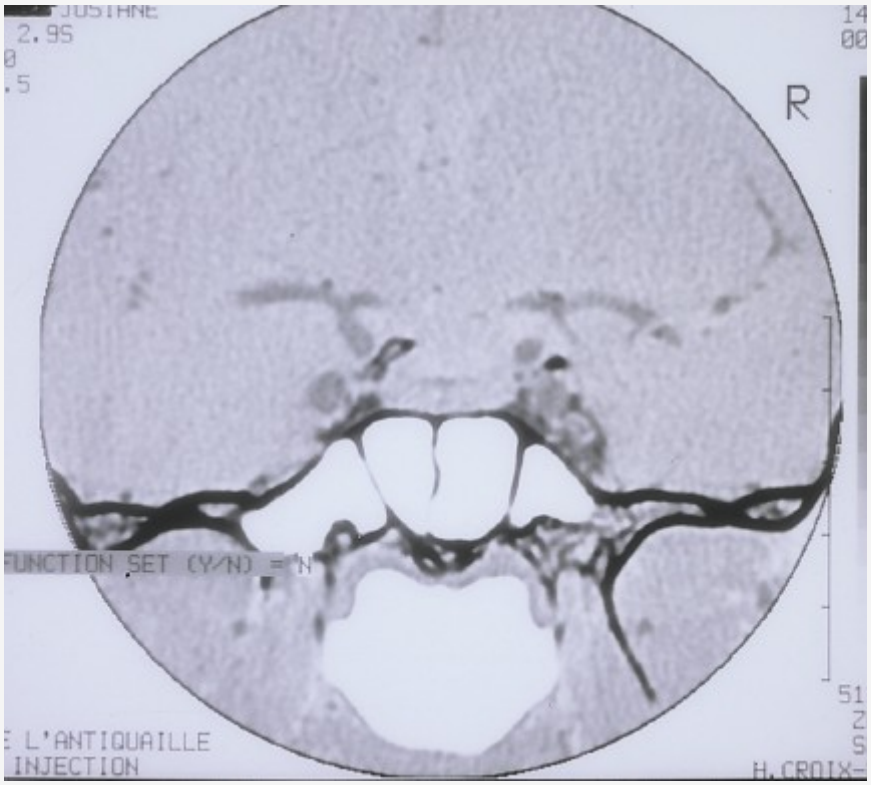
- Grade II : passe la tangente médiane
- Grade III : passe la tangente latérale
- Grade IV : englobe totalement la carotide

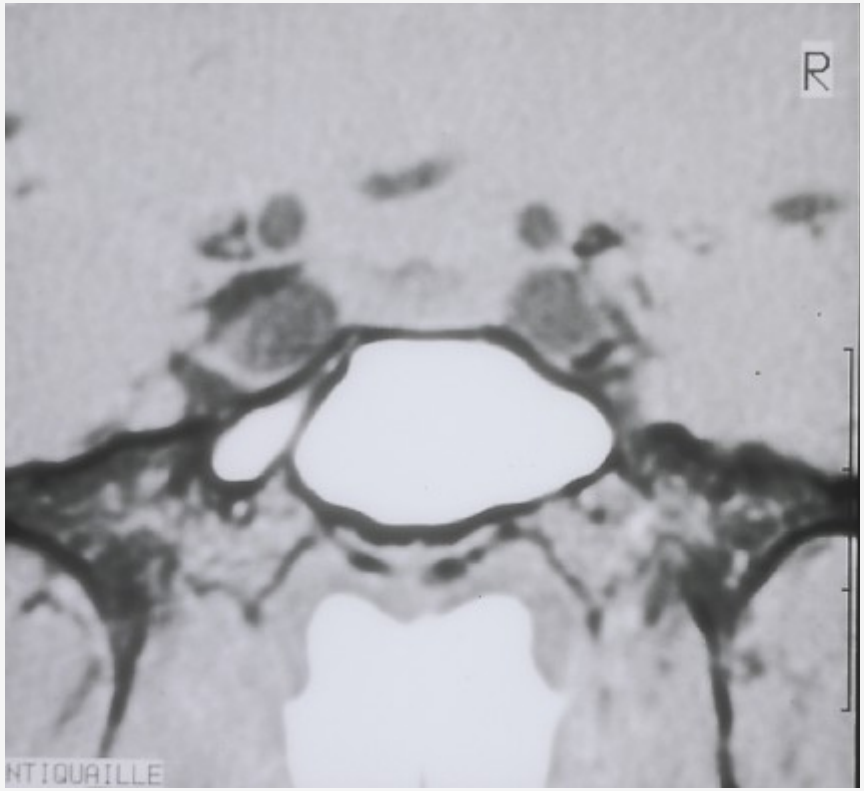
sinus toujours envahi



Critères CT Bonneville
Description des veines du sinus
Importance de la veine de la gouttière carotidienne







Critères les plus utiles pour affirmer ou non l'envahissement du sinus caverneux par un adénome hypophysaire

Cottier J.P. Destrieux C. Brunereau L Bretonneau Radiology 2000 – (J Radiol 1998)

A: Invasion du sinus caverneux		**critères prédictifs positifs** PPV (%)
Pourcentage de recouvrement de la carotide interne ≥ 67%		(8/12) 100
Oblitération du groupe veineux de la gouttière carotidienne		95
Dépassement de la ligne inter carotidienne latérale par la tumeur	(grade III)	85

B: Absence d'invasion du sinus caverneux		**critères prédictifs négatifs** NPV (%)
Interposition de parenchyme hypophysaire normal entre la CI et l'adénome		100
Visibilité des veines internes du sinus caverneux		100
Pourcentage de recouvrement de la carotide interne < 25%		(3/12) 100
La tumeur ne passe pas la ligne intercarotidienne interne	(Grade 0)	100
La tumeur ne passe pas la ligne bicarotidienne moyenne		98
Visibilité du compartiment veineux supérieur		96
La tumeur ne passe pas la ligne bicarotidienne latérale		95
Absence d'asymétrie des sinus caverneux		93

STÉPHANIE M 37 ANS

CÉPHALÉES PERI ORBITAIRES ET ACOUPHÈNES DEPUIS 2 ANS

DIAGNOSTIC D' ACROMÉGALIE

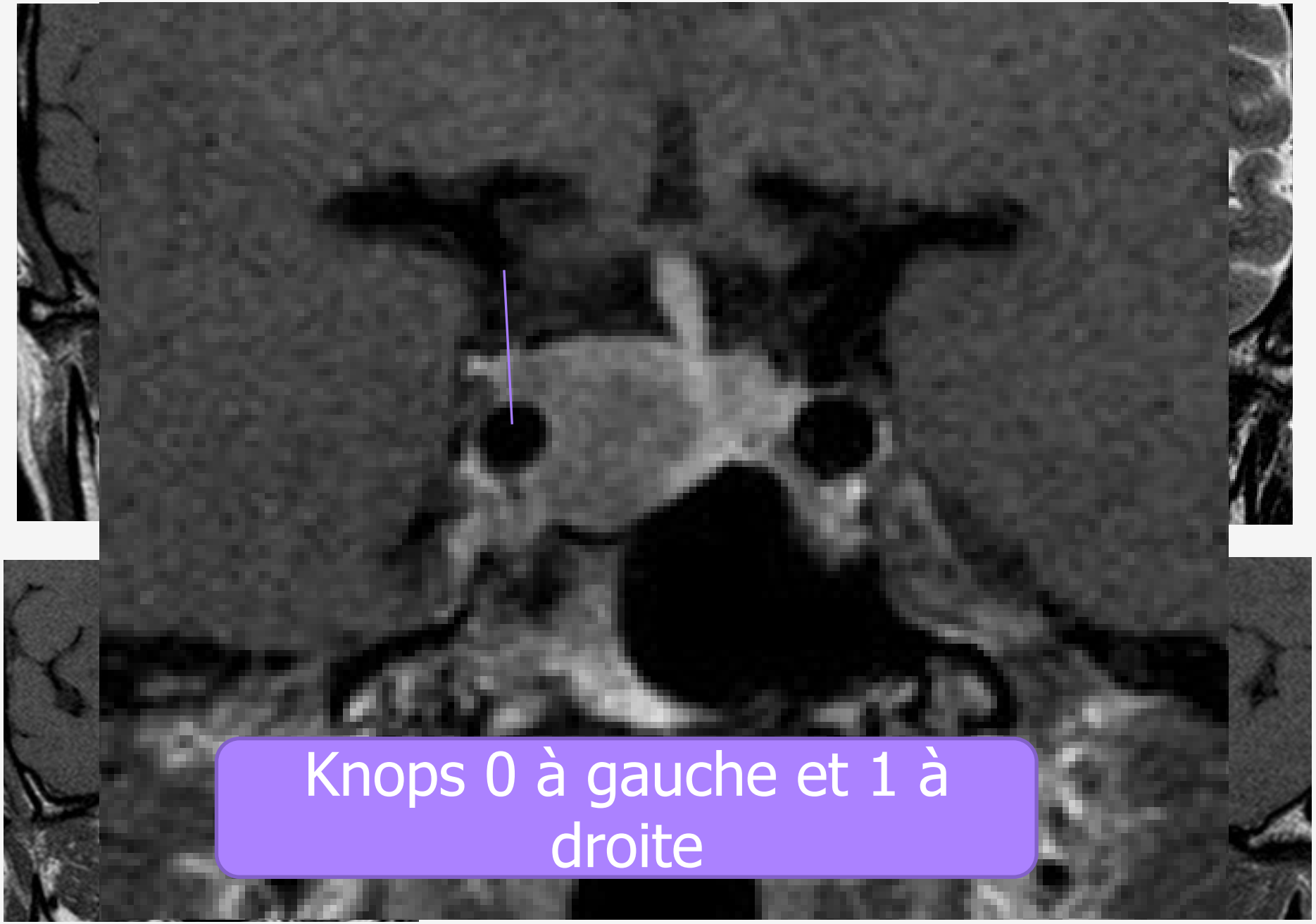
PROLACTINE NORMALE

IGF1 AUGMENTÉE À 600 µG/L

GH SOUS HGPO NON FREINÉE

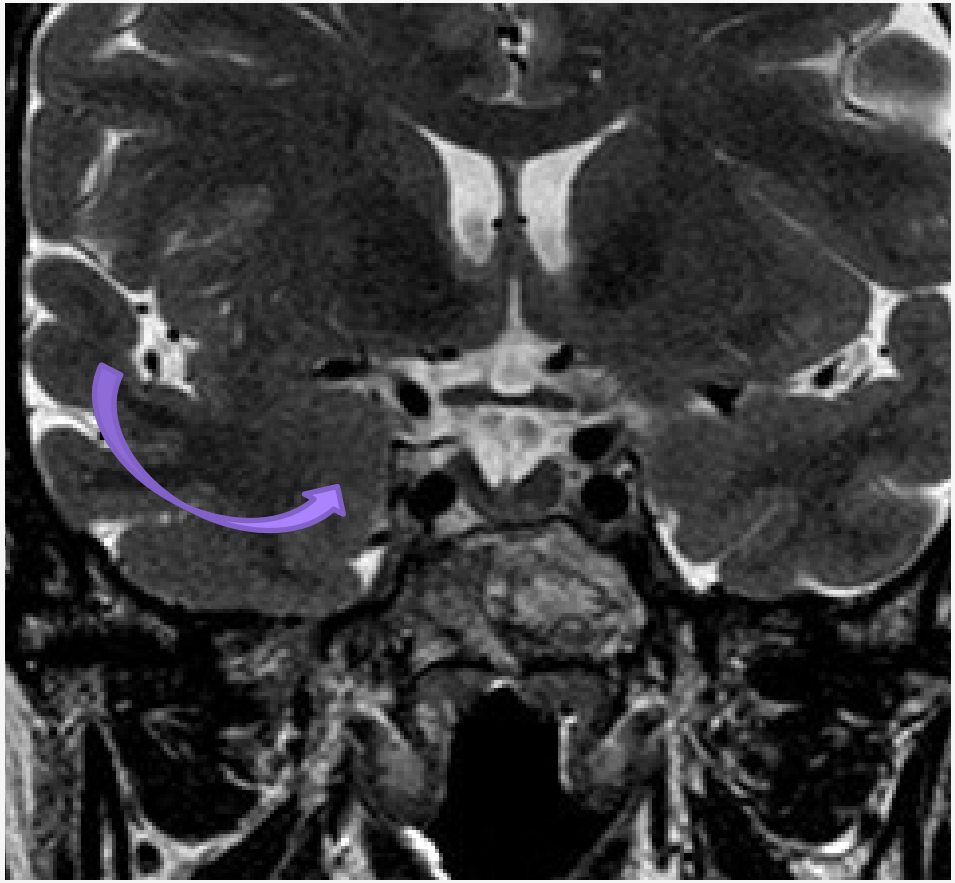
LES AUTRES SECTEURS SONT NORMAUX.

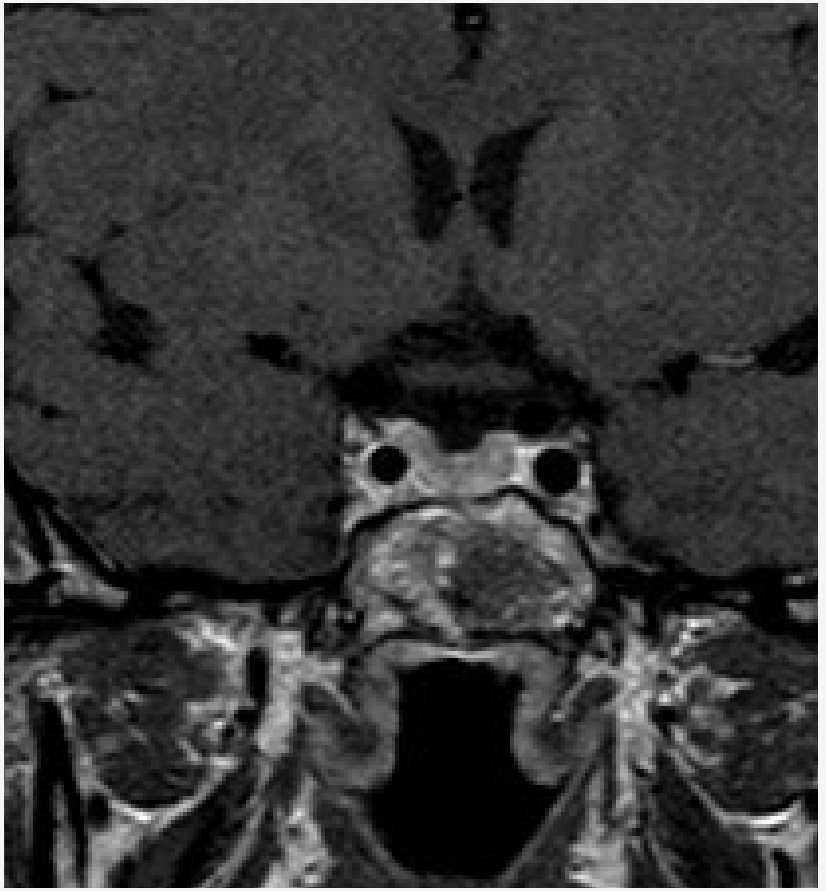
CHAMP VISUEL NORMAL.


Knops 0 à gauche et 1 à droite

Adénome somato prolactinique nécrotico hémorragique pas d' extension caverneuse

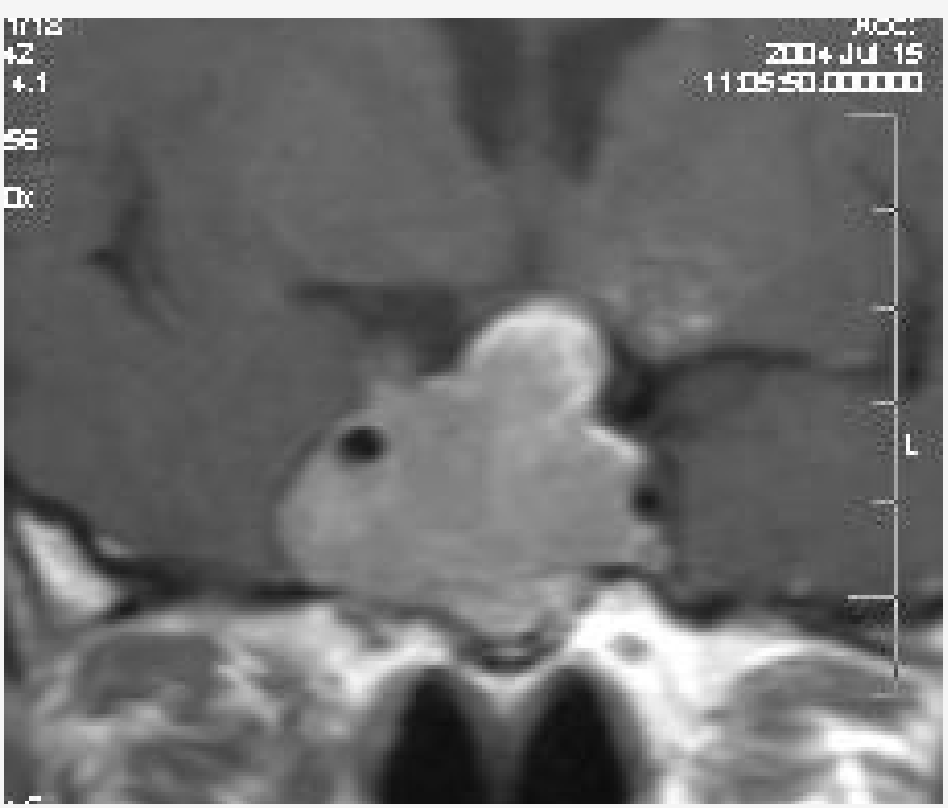
- Aspect post opératoire Guérison biologique à 1 an

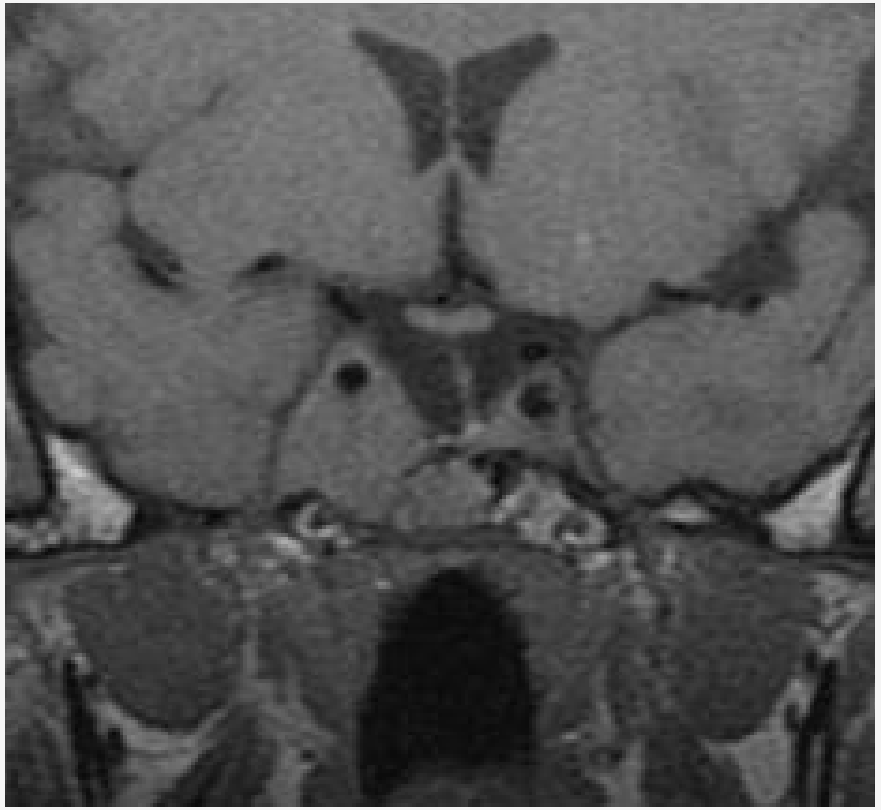




Aspects post opératoires

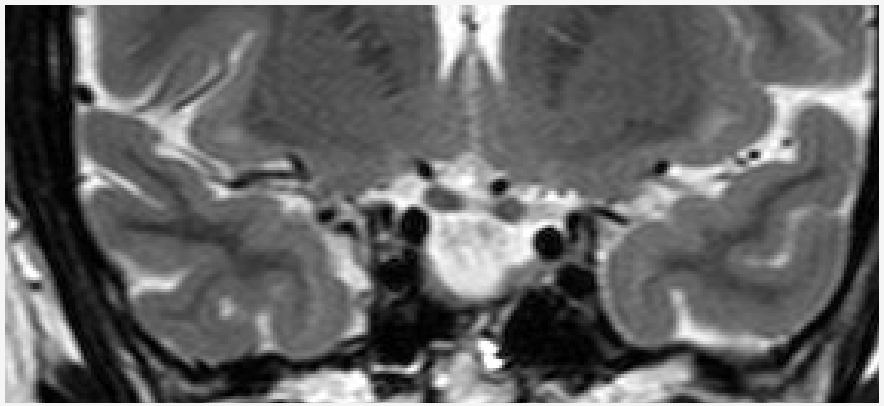
Macroadénome non sécrétant



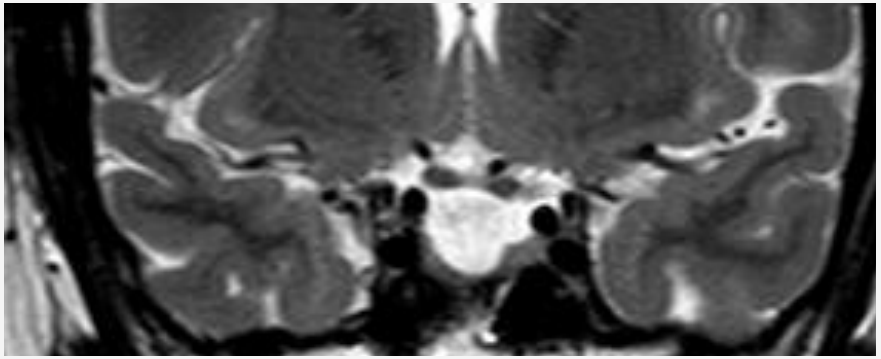


Extension dans le sinus caverneux sous carotidienne

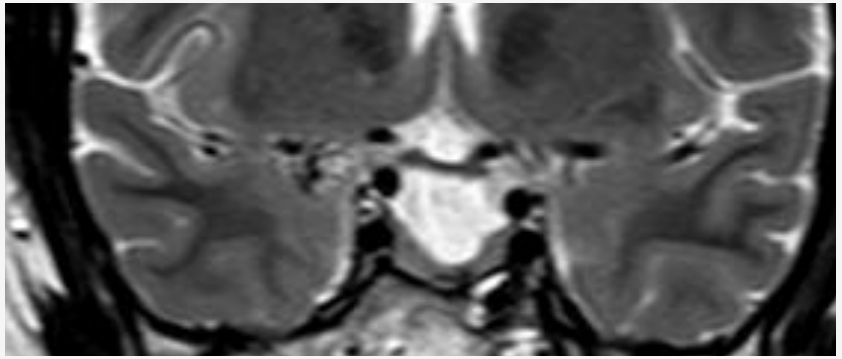
Macroadénome gonadotrope non fonctionnel exérèse sub totale à Grenoble en 2005



2006

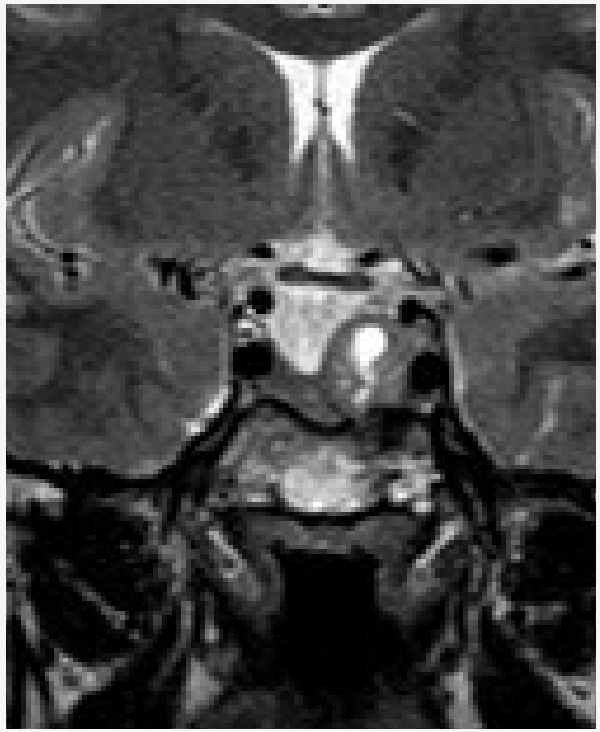


2007



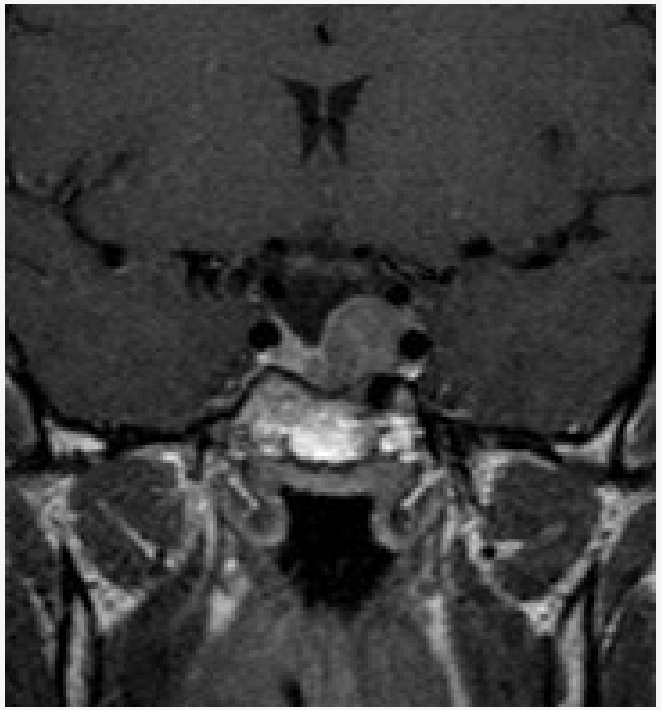
2008

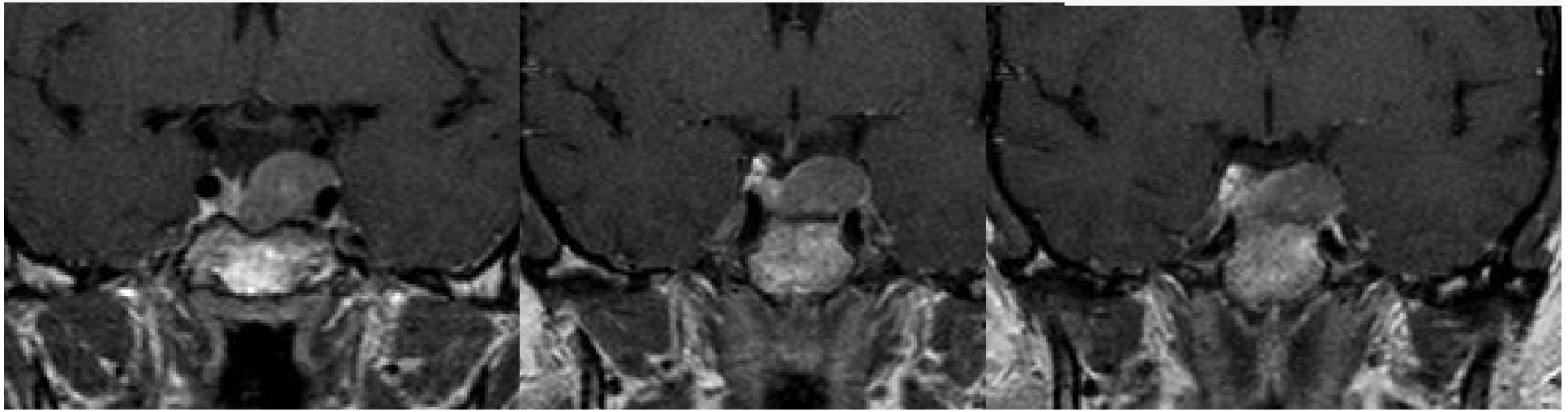
Macroadénome gonadotrope non fonctionnel imagerie 2011

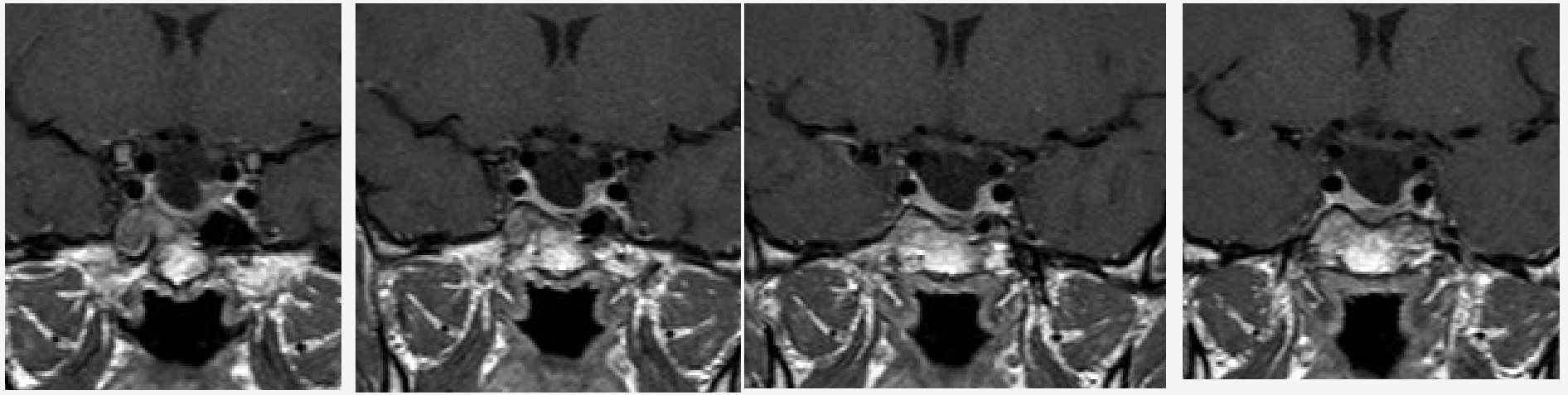


Knops 4

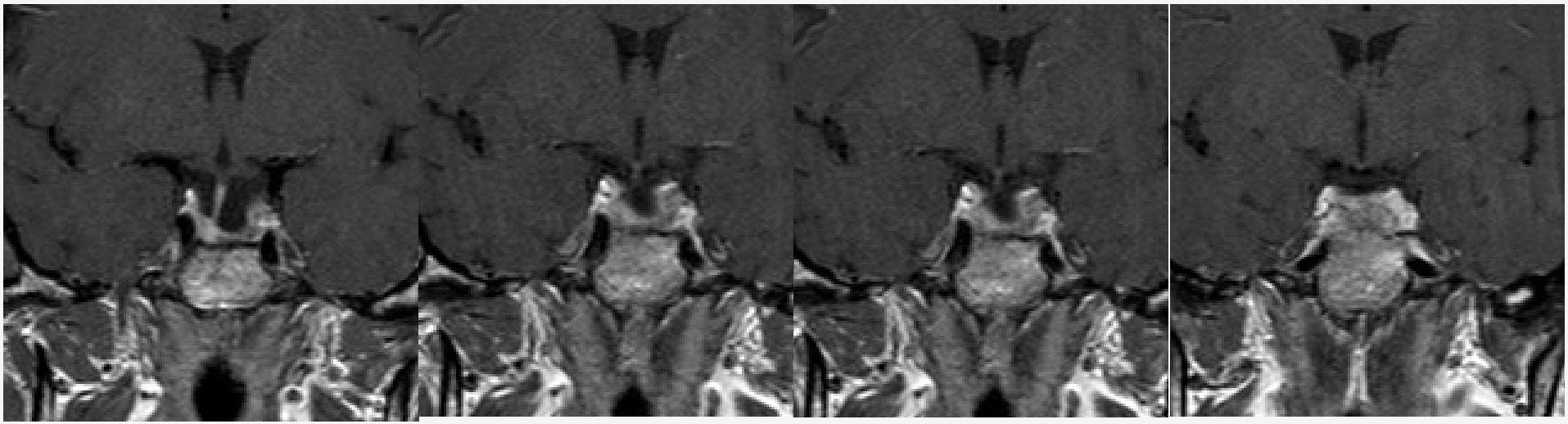
on décide de ne pas tenter une exérèse radicale afin d'éviter toute plaie vasculaire au niveau du sinus caverneux





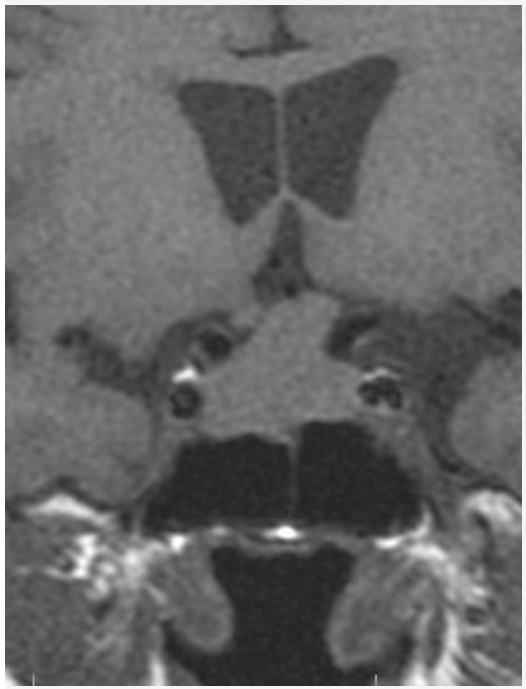


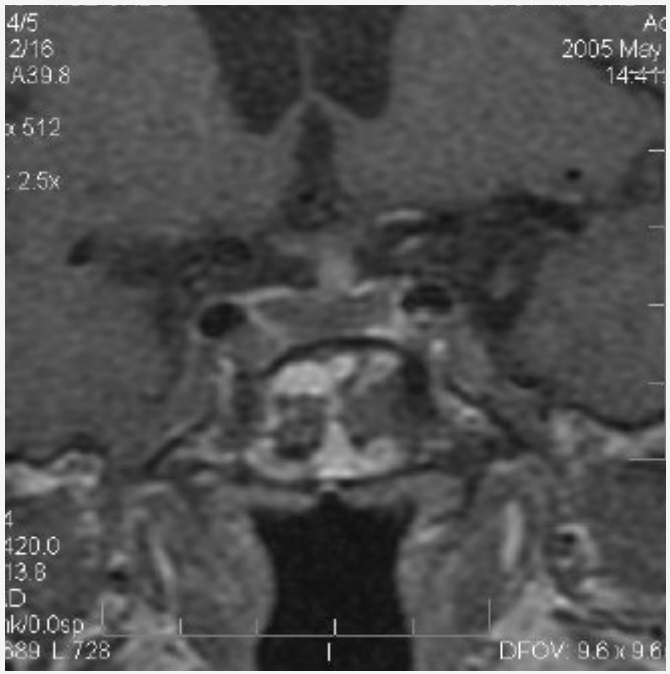
Avt
RXT

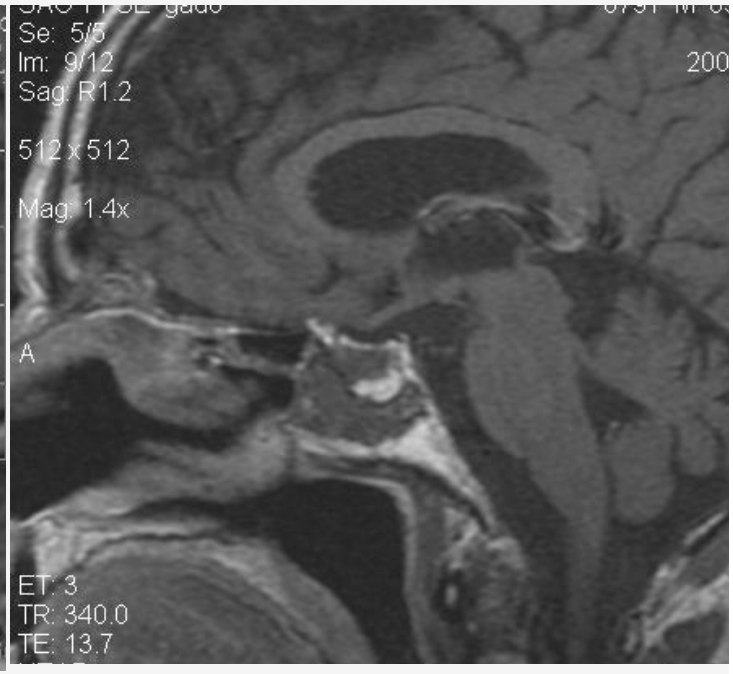


Macroadénome gonadotrope non sécrétant opéré

Packing



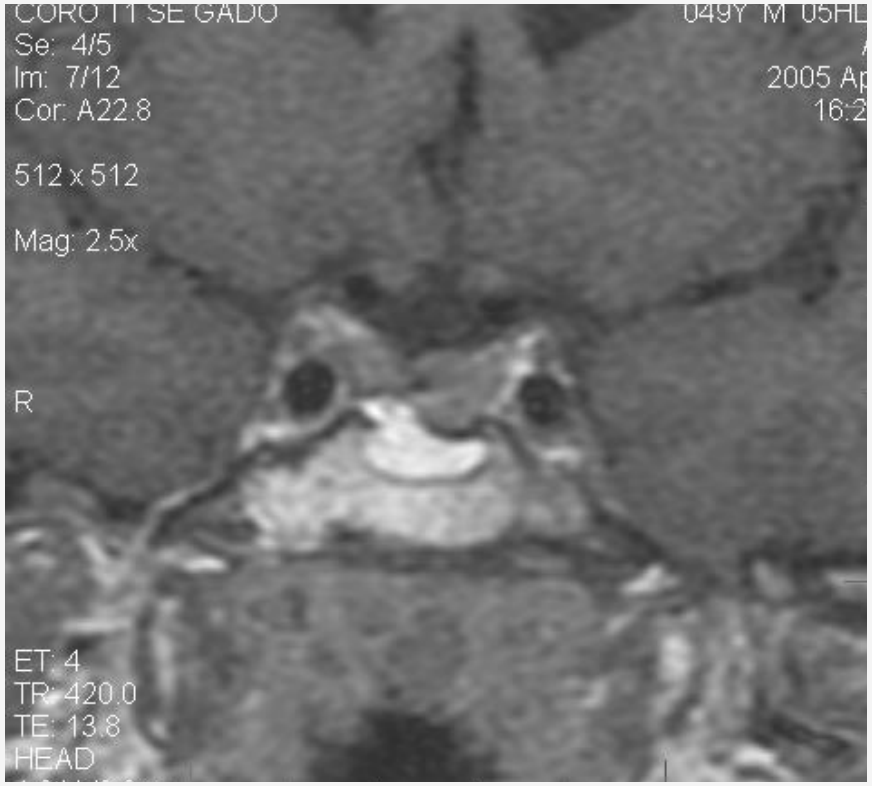


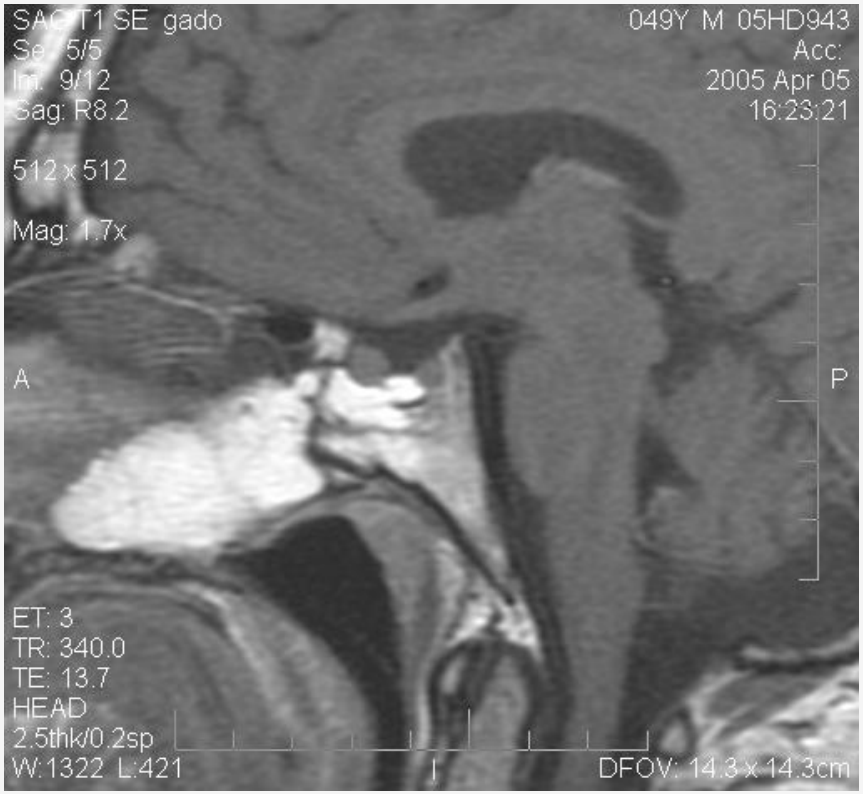


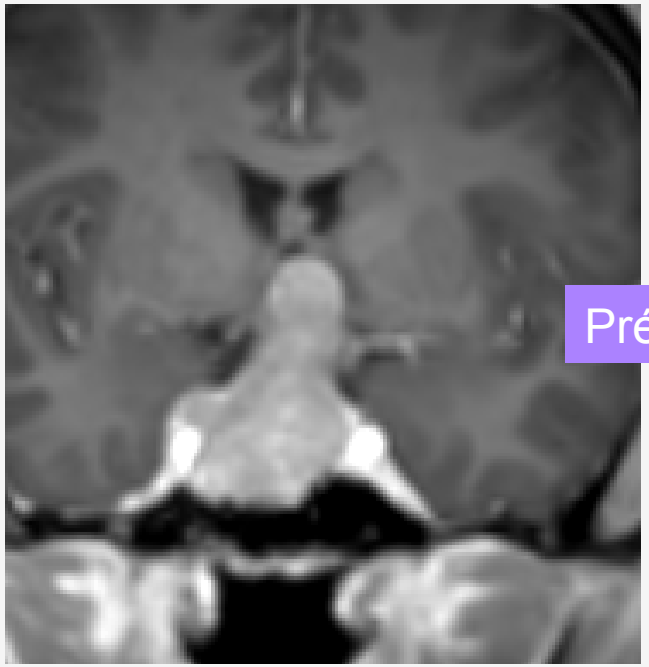
Pré opératoire

Post operatoire

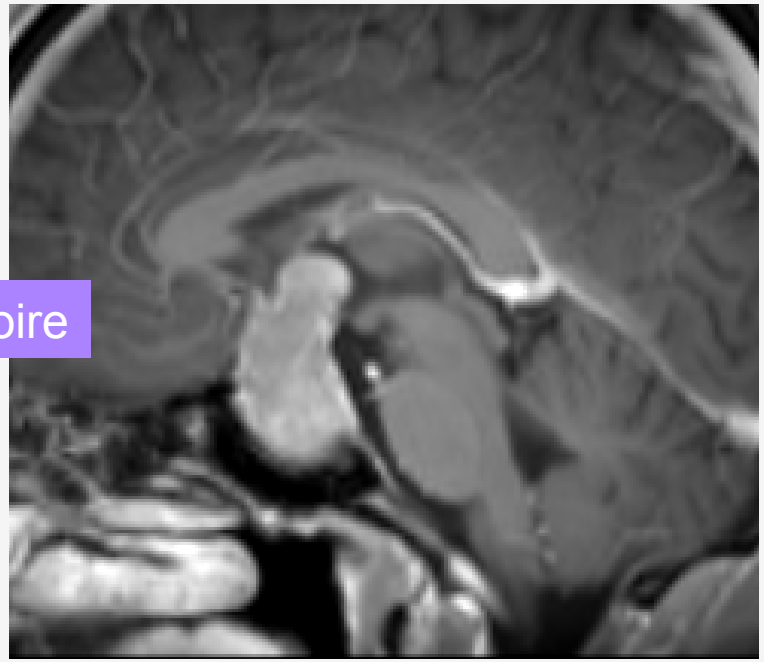
Macroadénome non sécrétant graisse



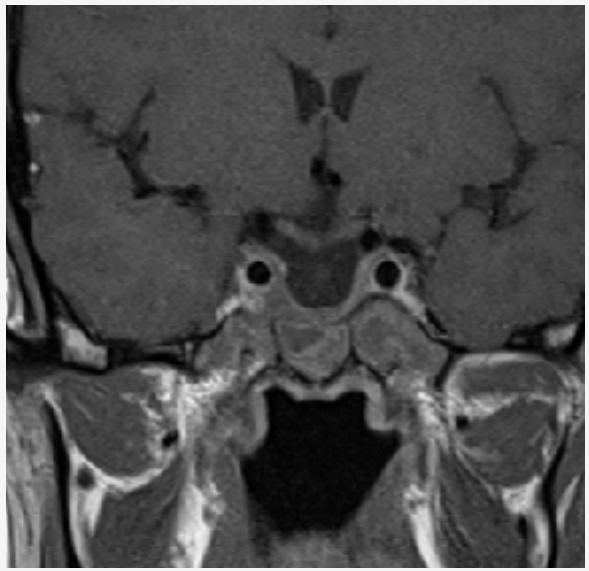


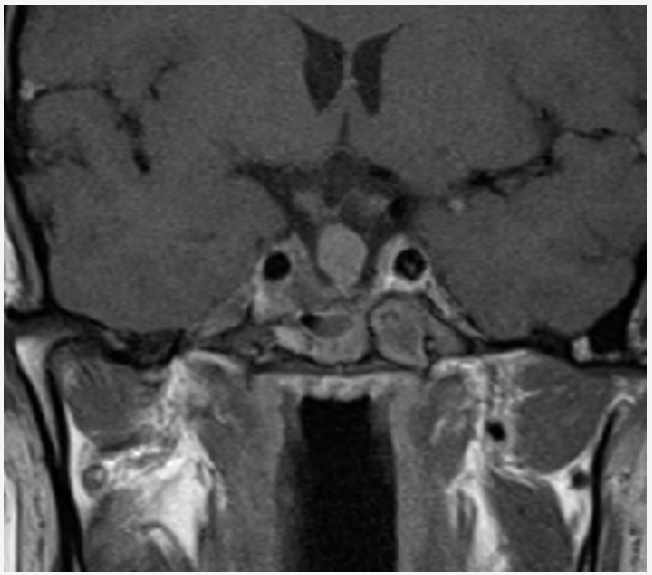


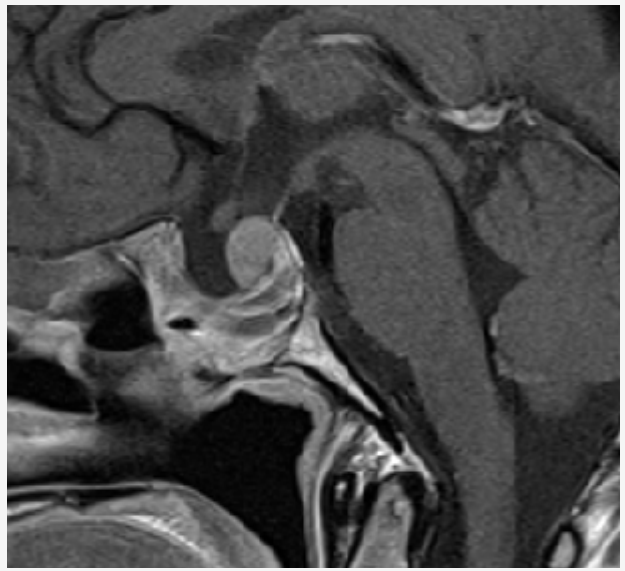
Pré opératoire



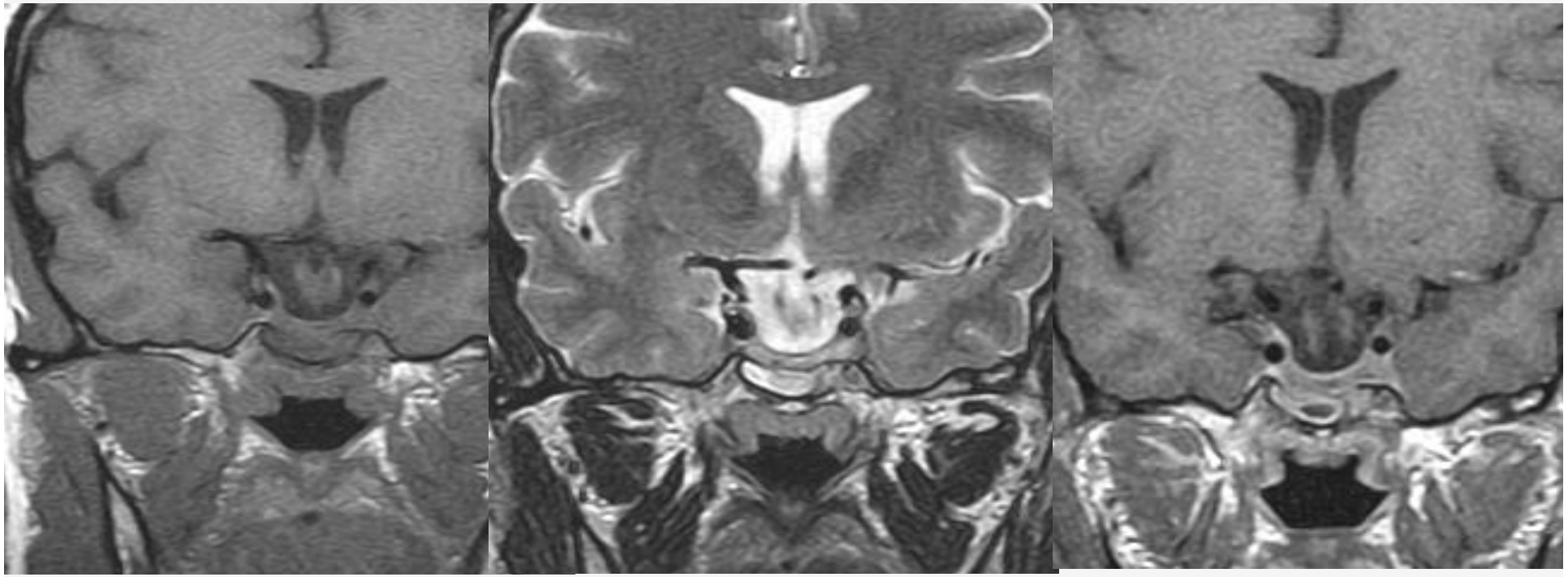
Post opératoire





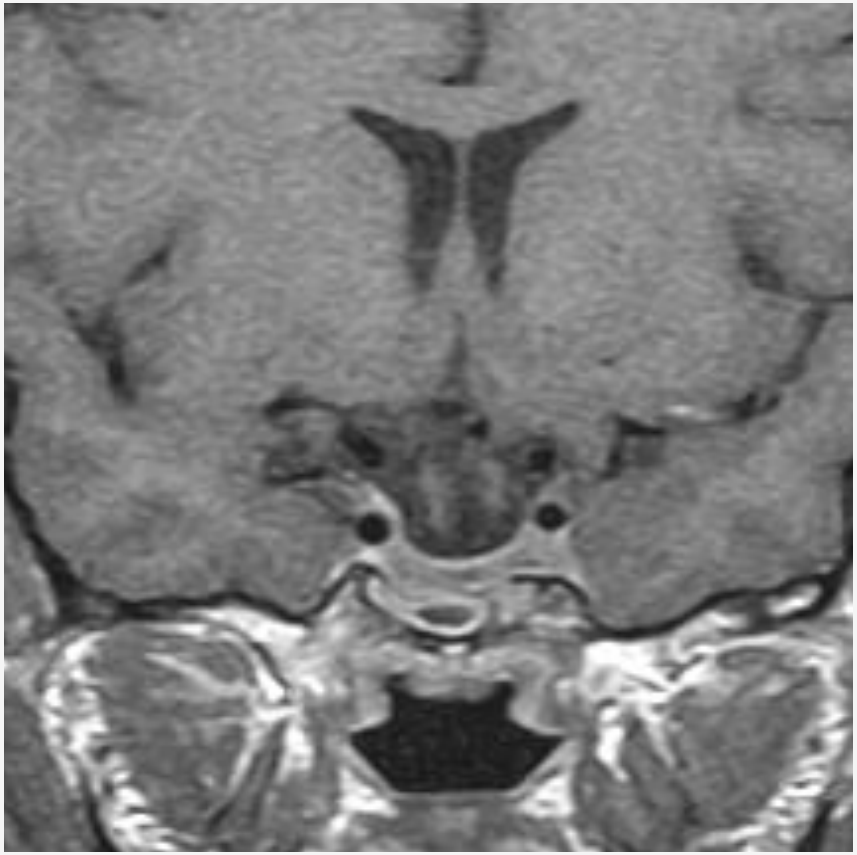


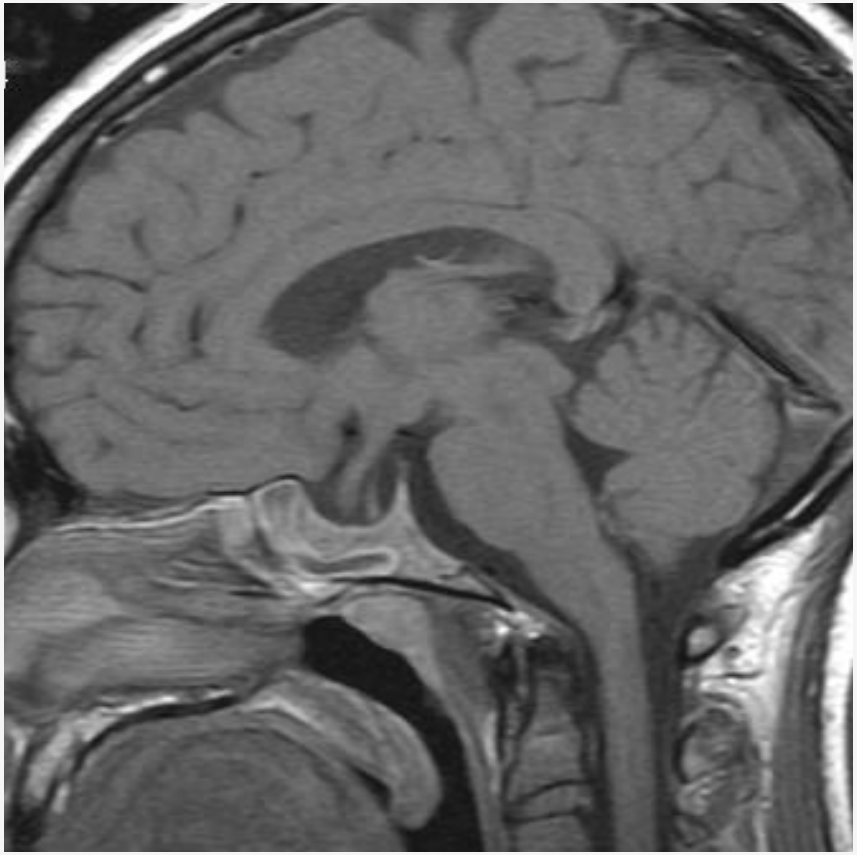
Macroadénome à prolactine opéré
Troubles visuels



Ptose voies optiques

Sinusite sphénoïdale, plancher visible en T2

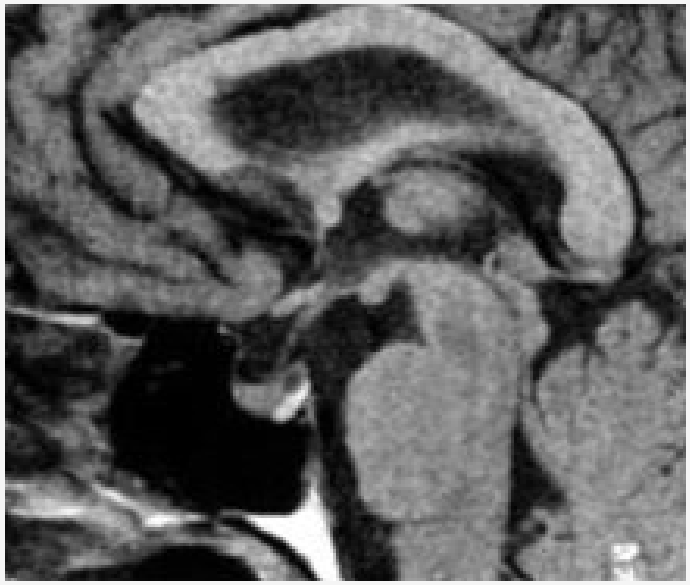


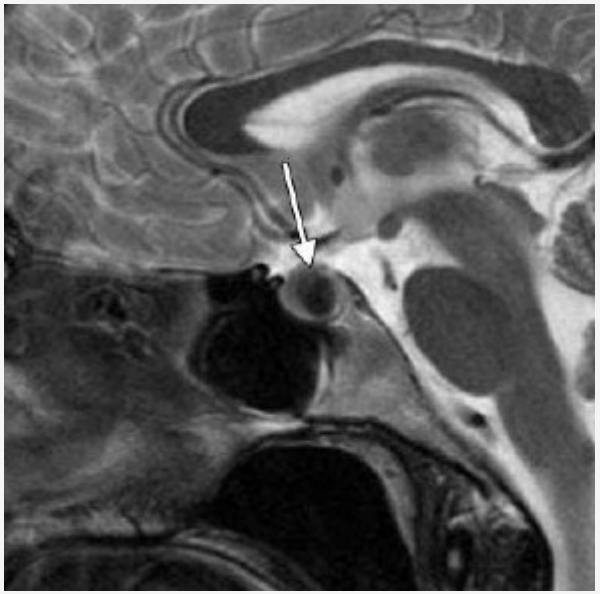


Incidentalomes

- 6 % d'incidentalomes de + de 2 mm sur les series autopsiques adénomes et kystes de Rathke

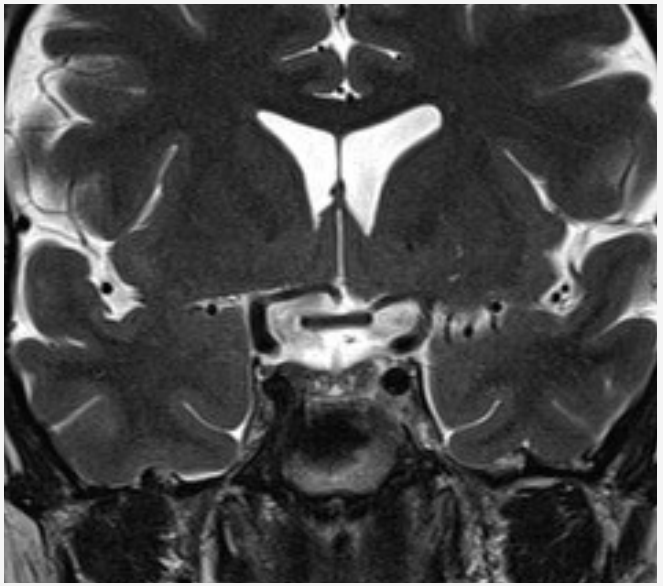
Incidental pituitary lesions in 1000 unselected autopsy specimens Akira Teramoto Radiology 1994; 193, 161-164

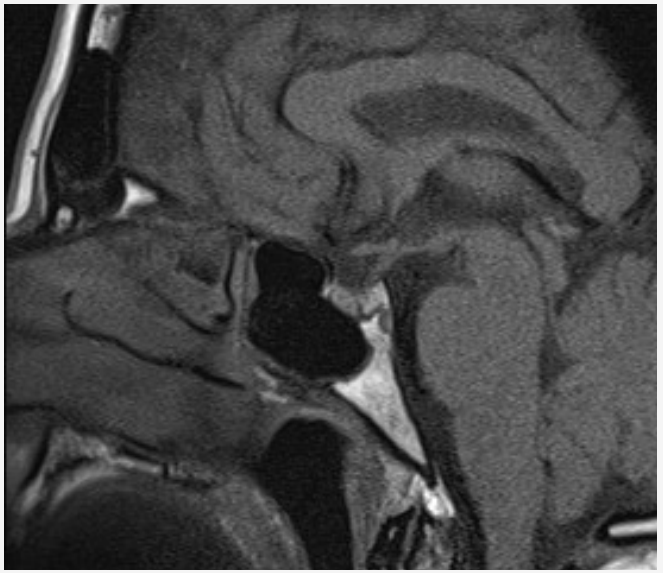




Pars intermedia

- Fente résiduelle épithélium de type respiratoire produit du mucus
- Kyste de la poche de Rathke





Kyste de Rathke

- Fréquent Intra +/- suprasellaire

ligne médiane ++

Bien limité

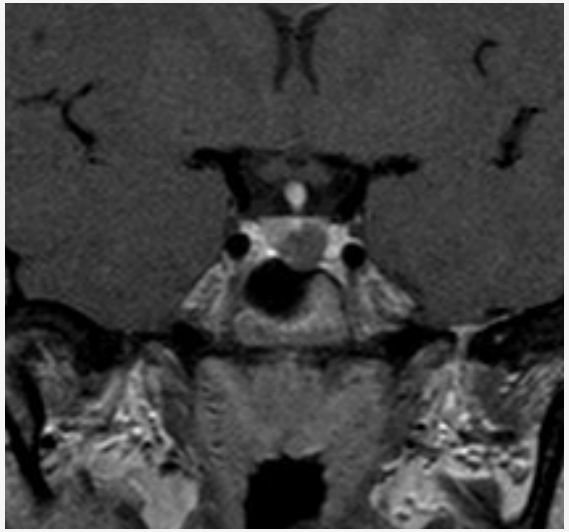
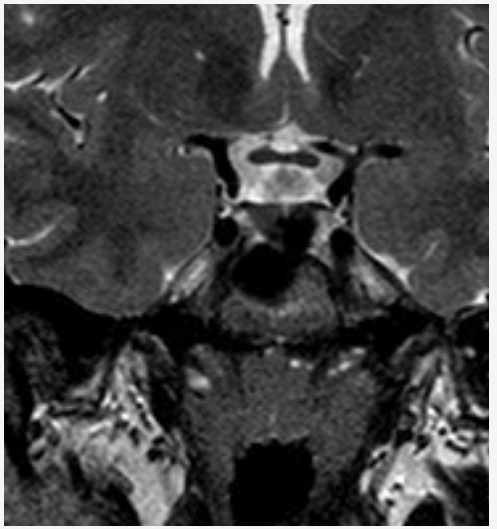
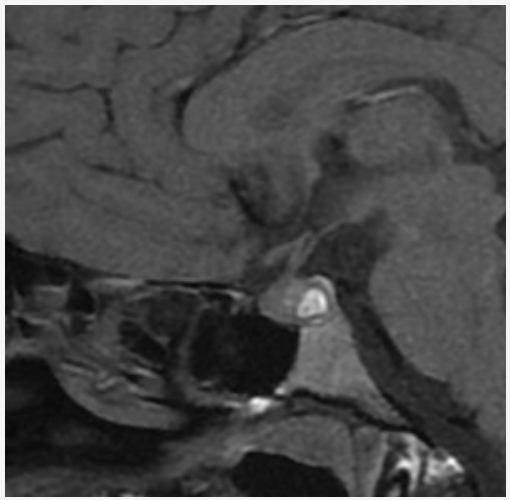
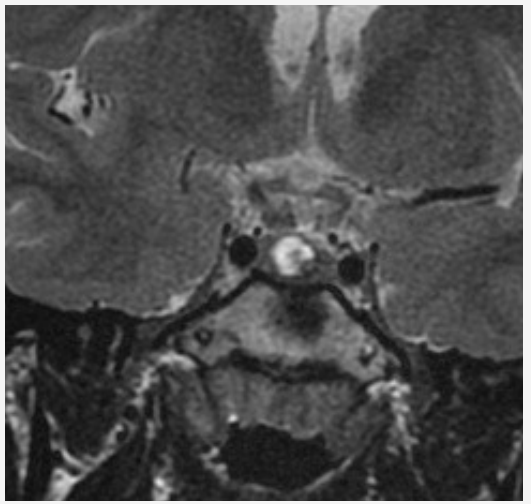
Signal homogène très variable en T1 et T2

Pas de calcification, pas de prise de contraste

- Cliniquement

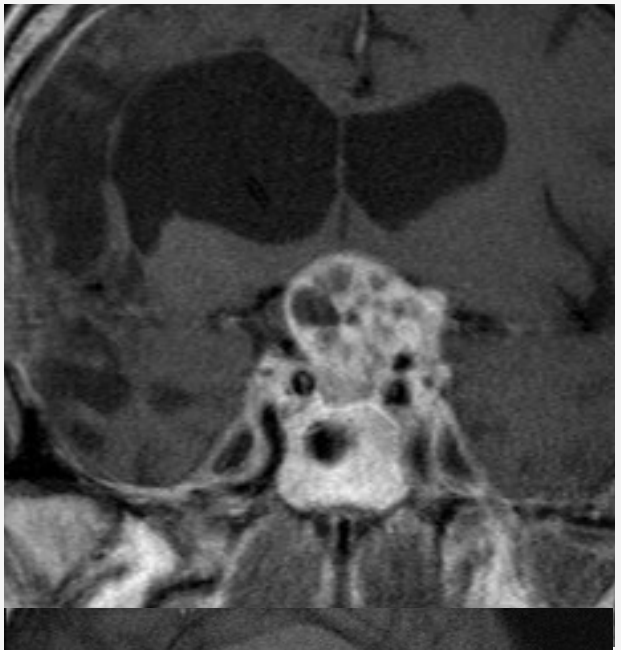
Hyperprolactinemie si compression du système infundibulaire

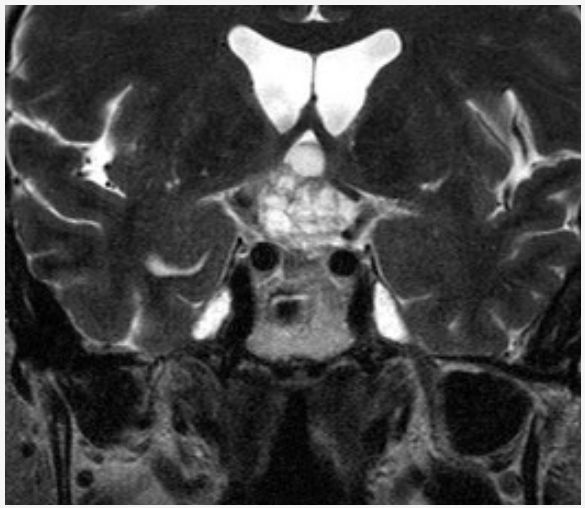
céphalées

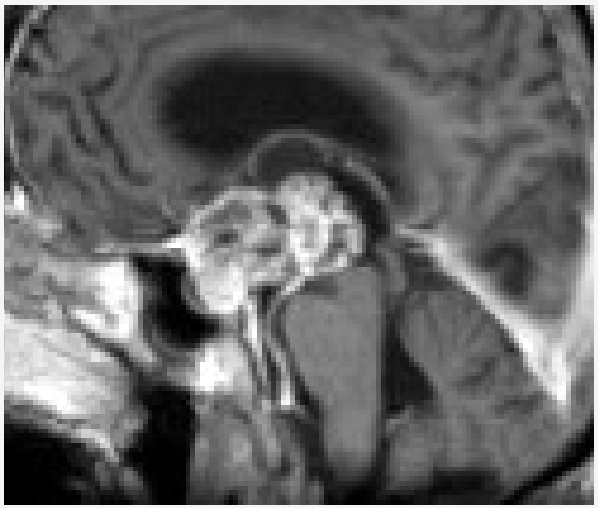





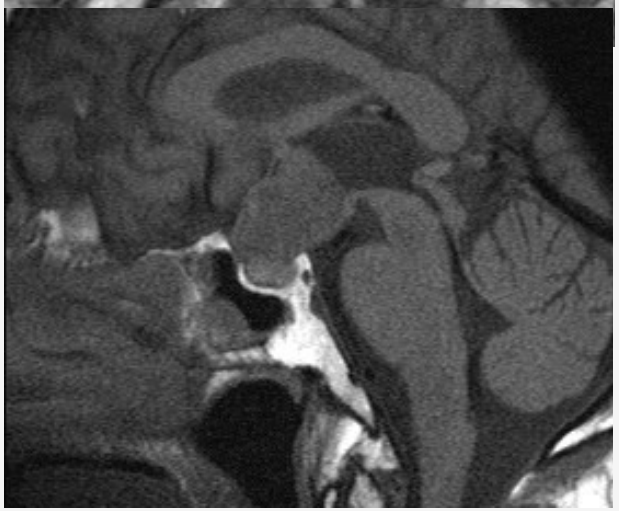
Diagnostic différentiel

- Craniopharyngiome
- Kyste
- Adénome kystique





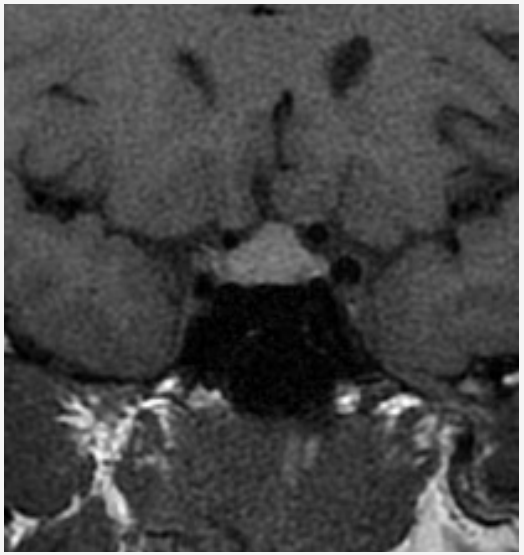


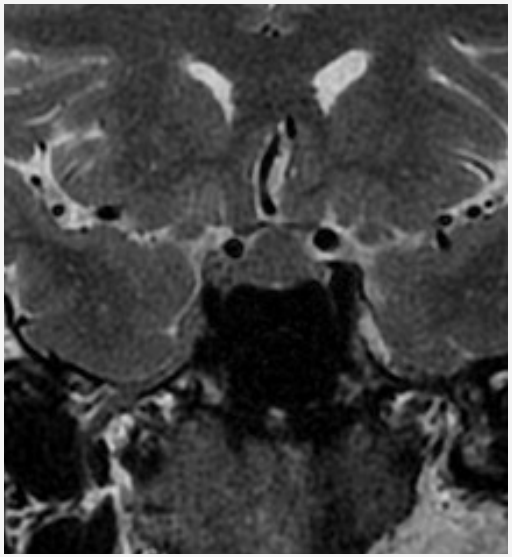


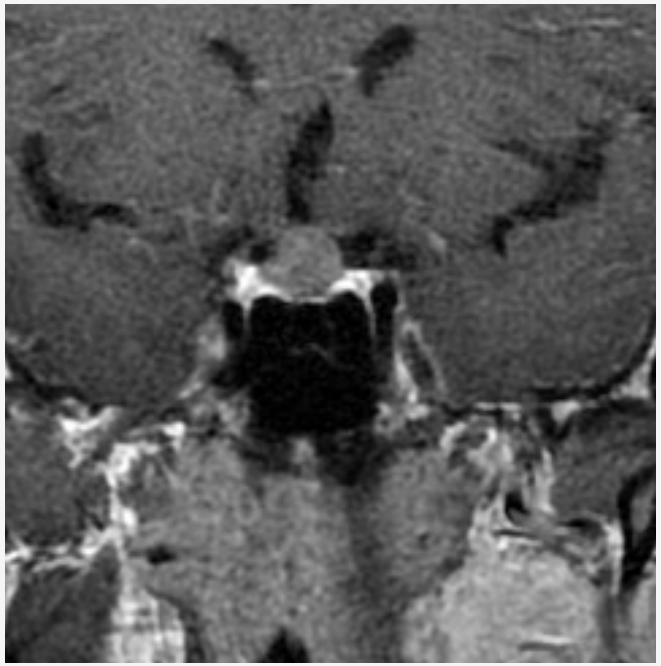
H 51 ans AVP découverte d' une Insuffisance Ante hypophysaire corticotrope

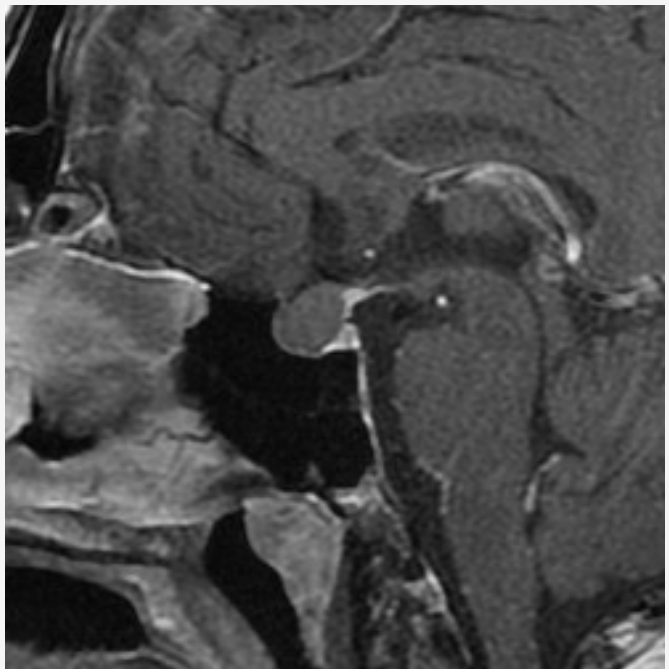
Macro adénome non secrétant.
Opéré car menace le chiasma

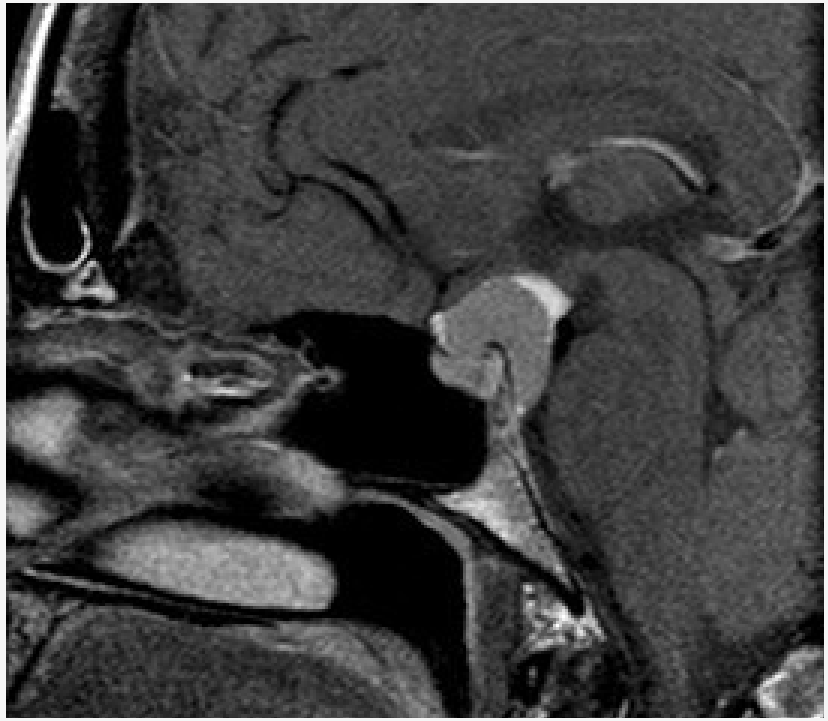
Diagn : kyste muqueux



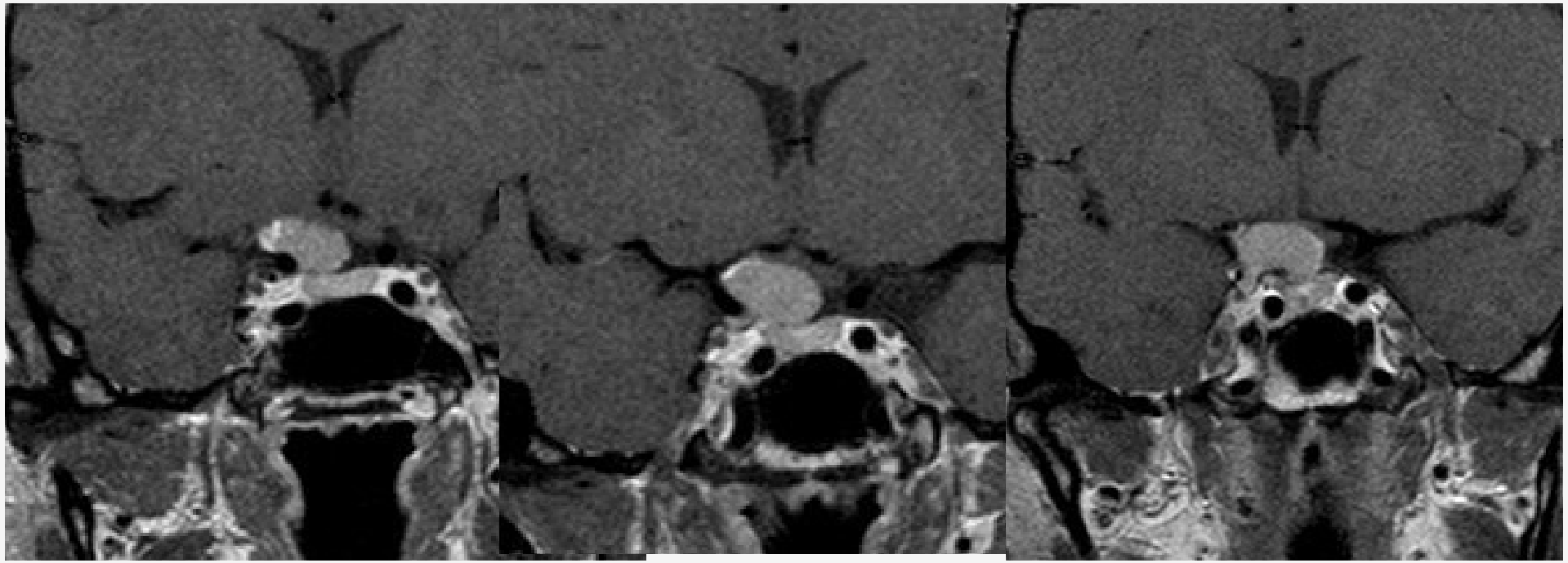


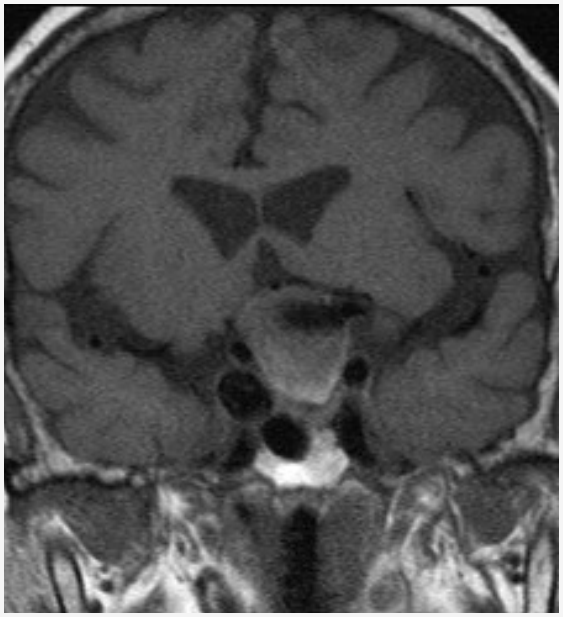


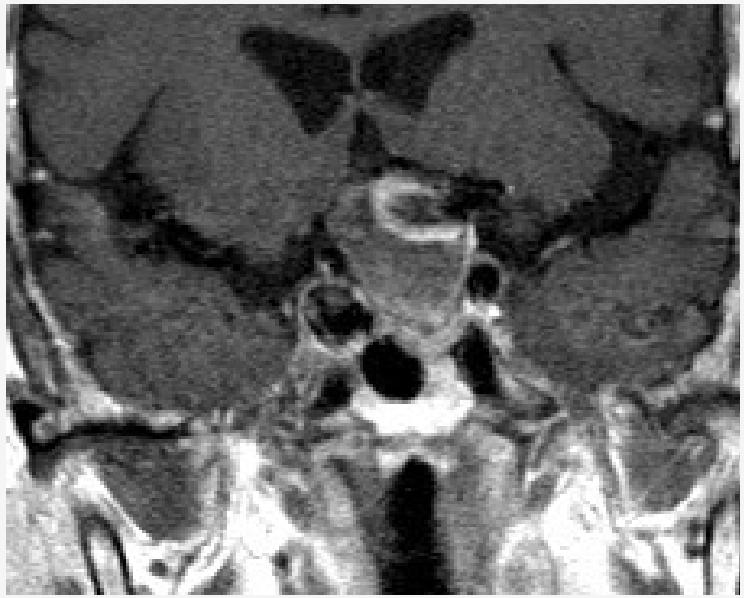


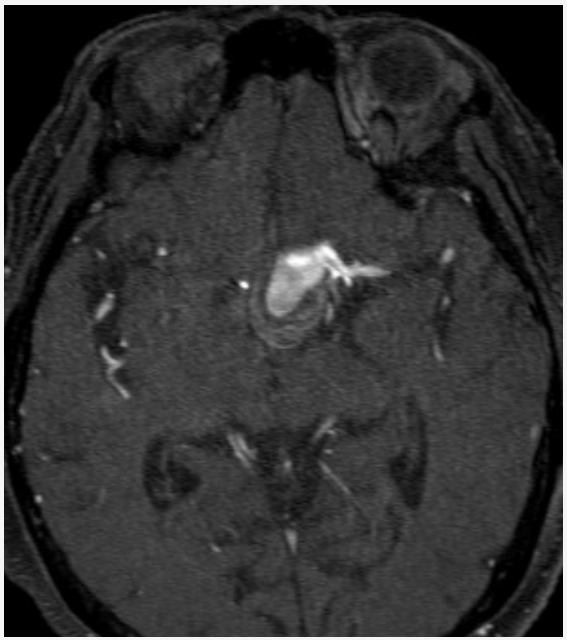


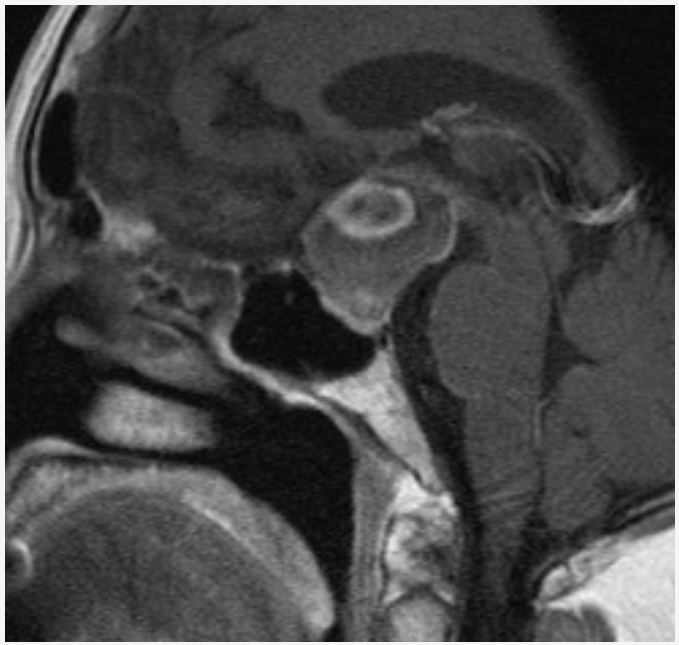
Diagnostic
Différentiel d' un adénome
méningiome

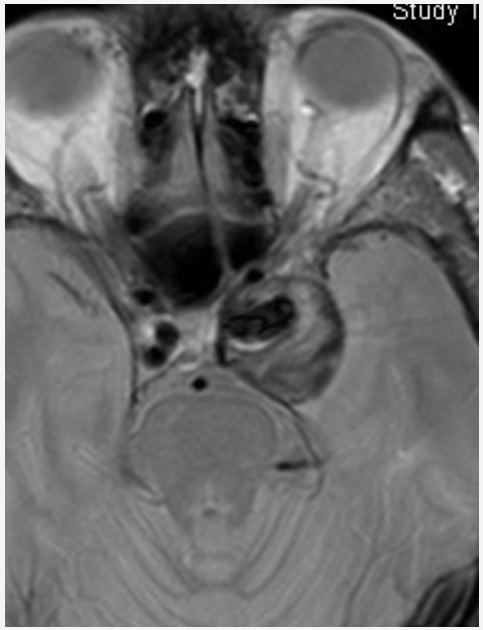




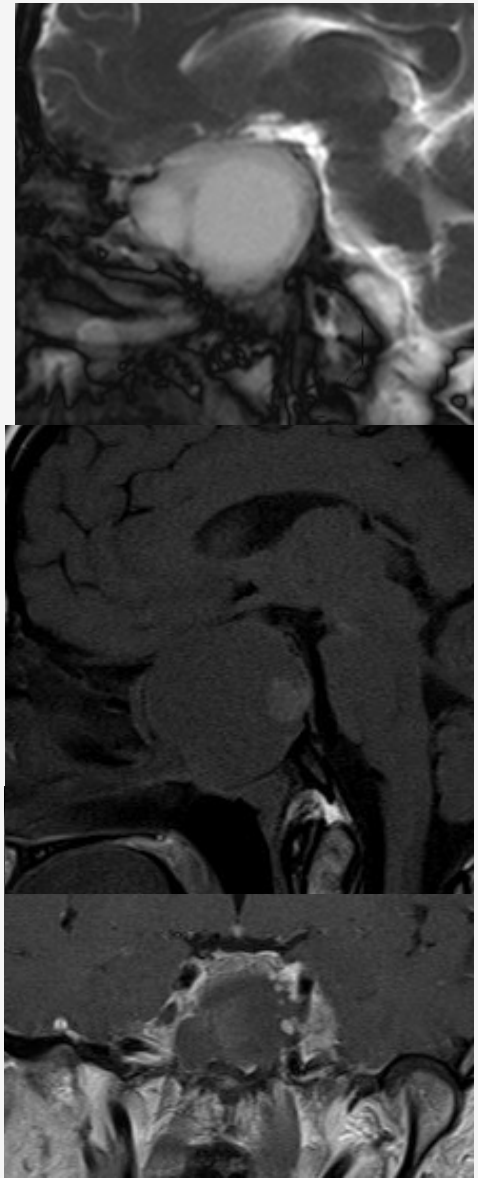


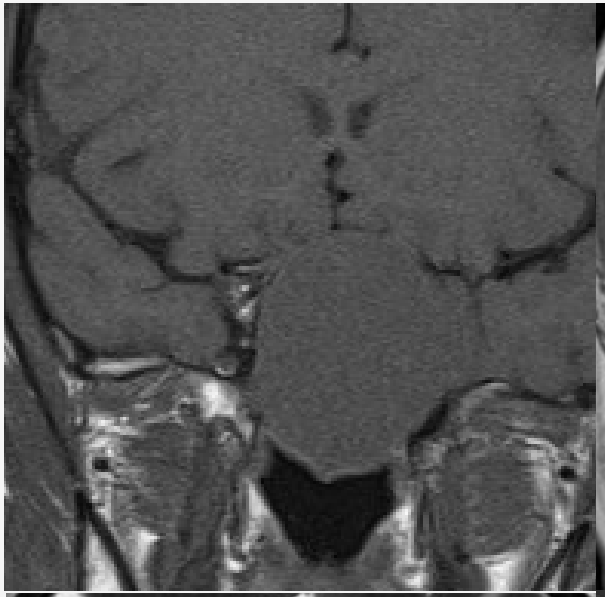


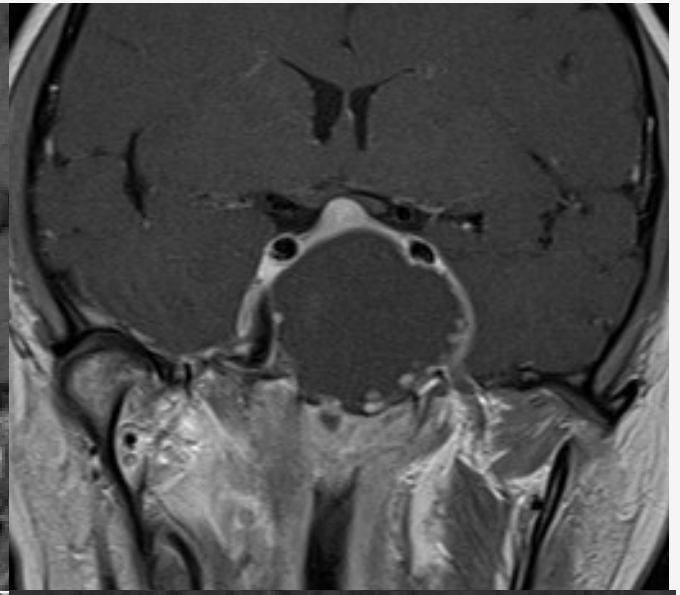


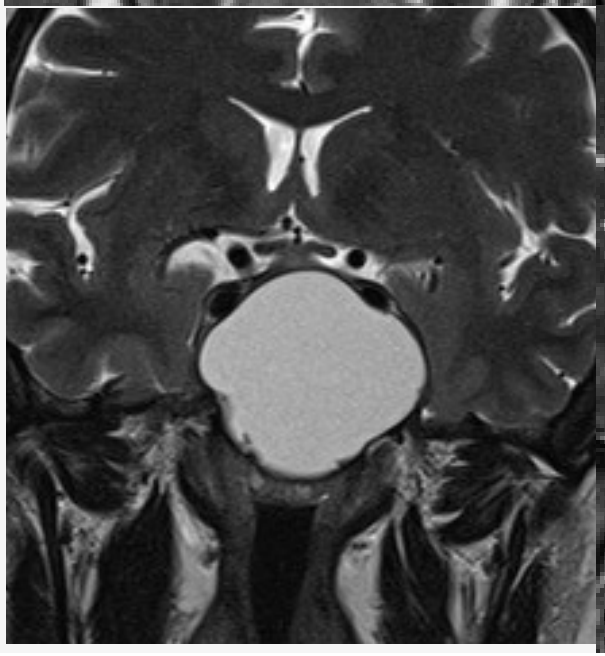

Study

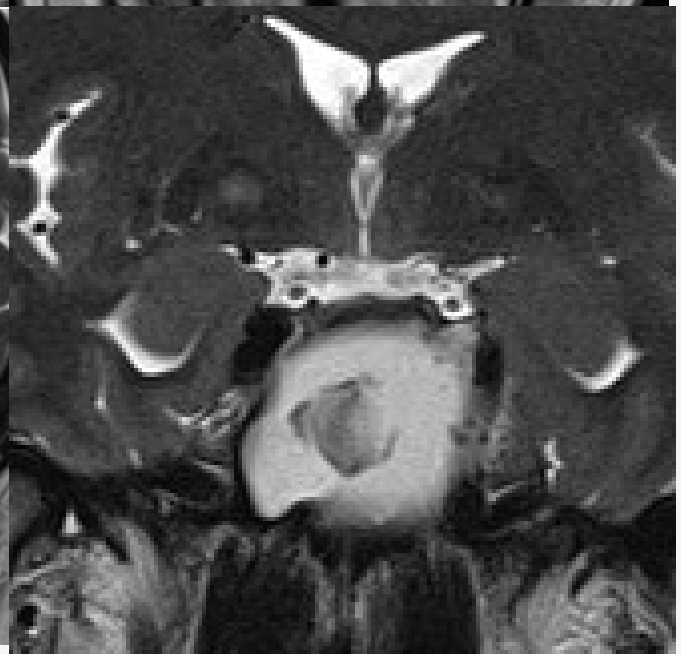
Diplopie céphalées

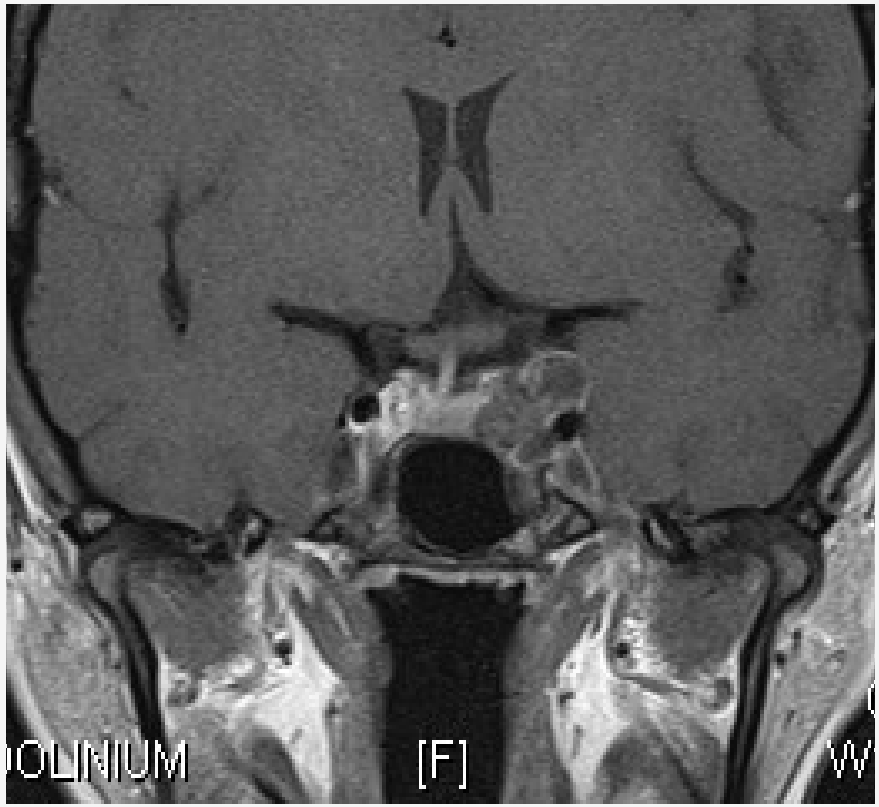


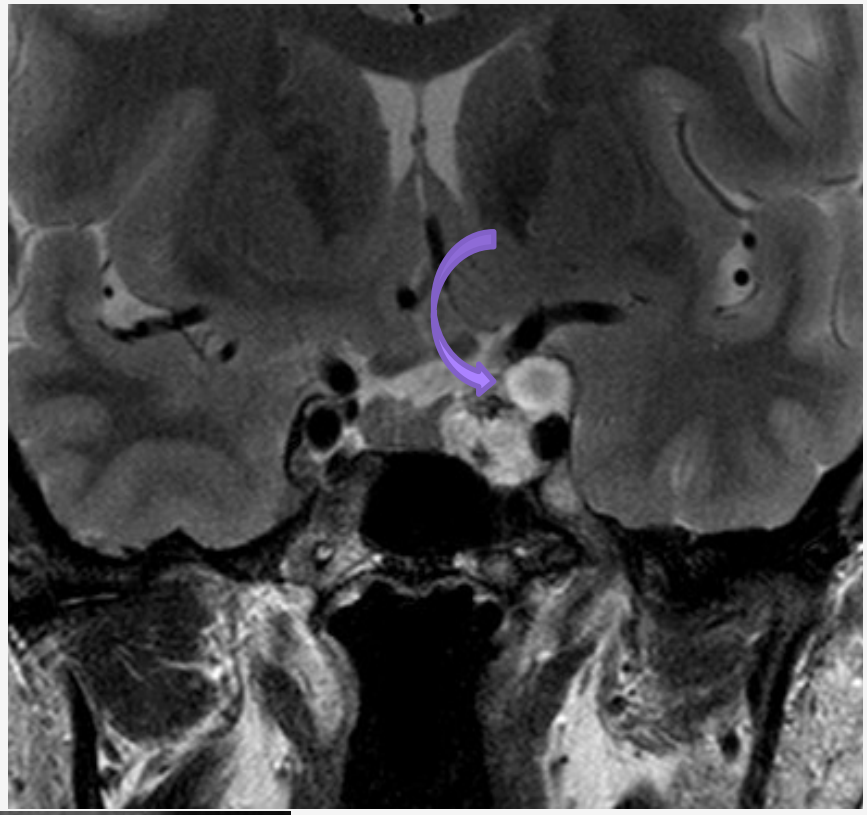


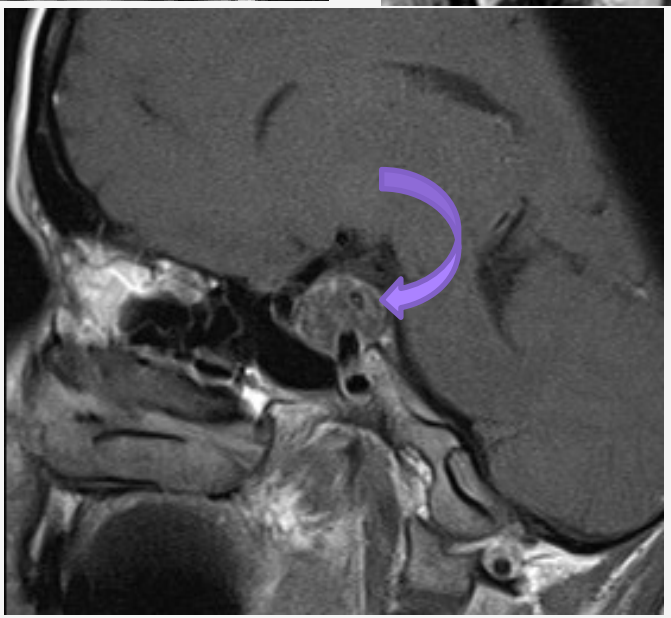






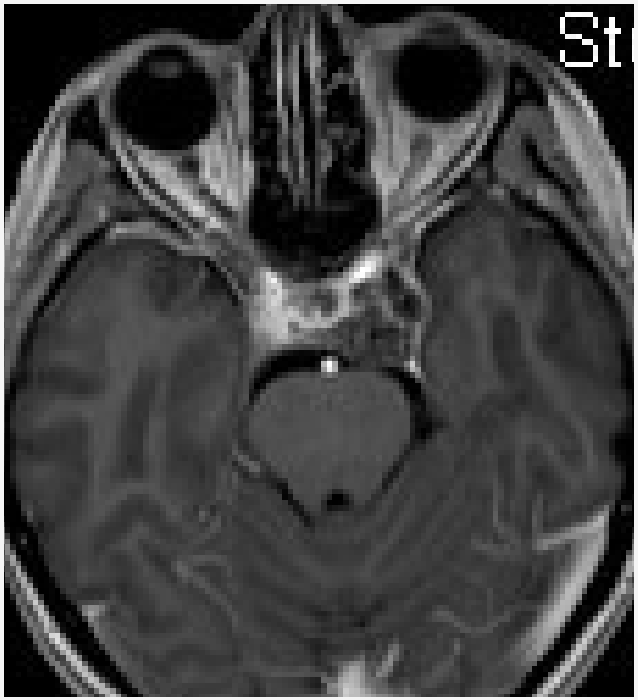


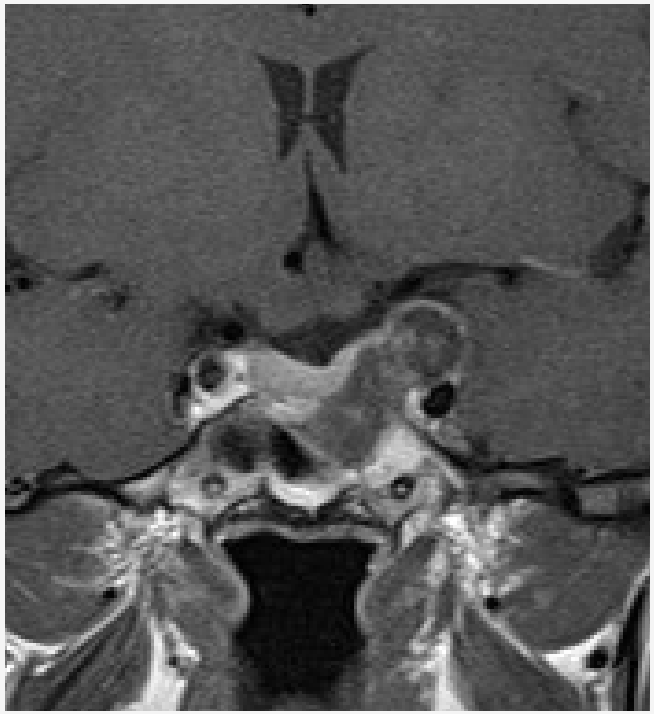




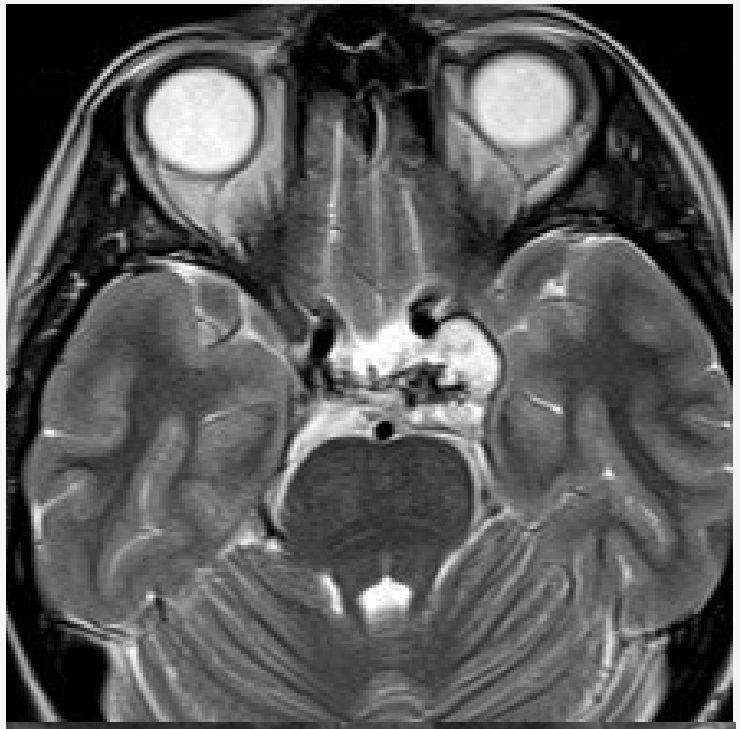
42 ans
TC sans gravité
Diplopie horizontale
Biologie normale

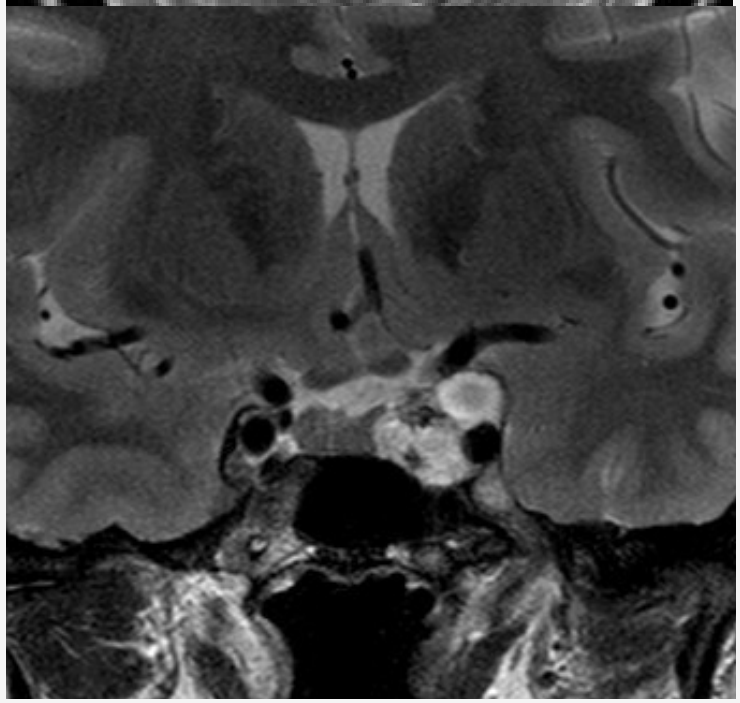
Xie 2010
Chondrosarcome G2
Exérèse incomplète





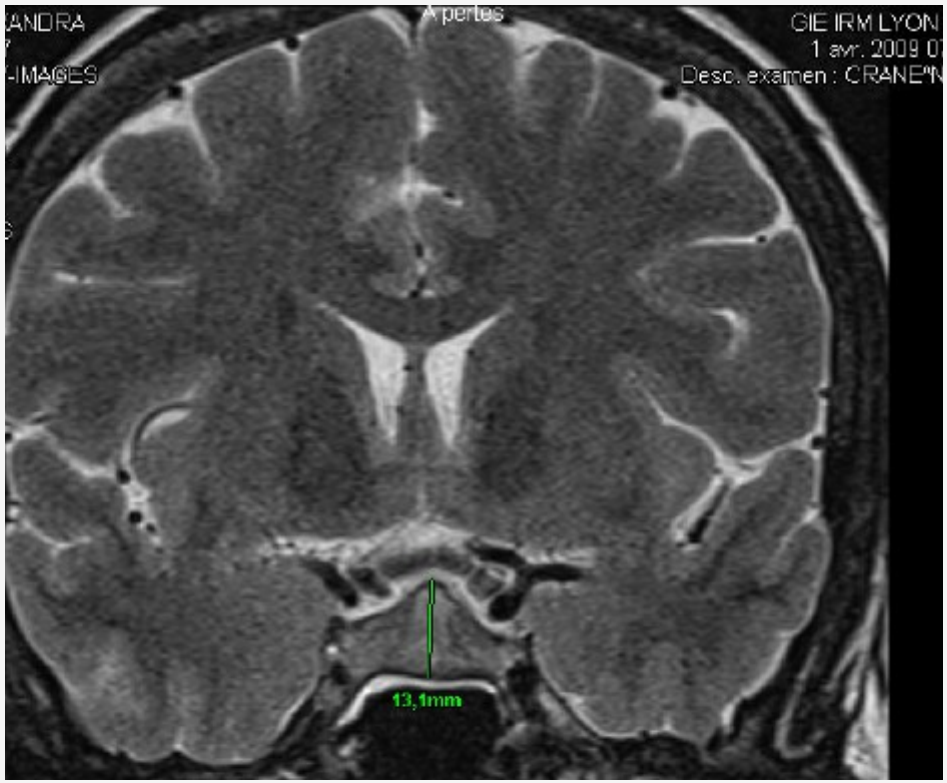
2012

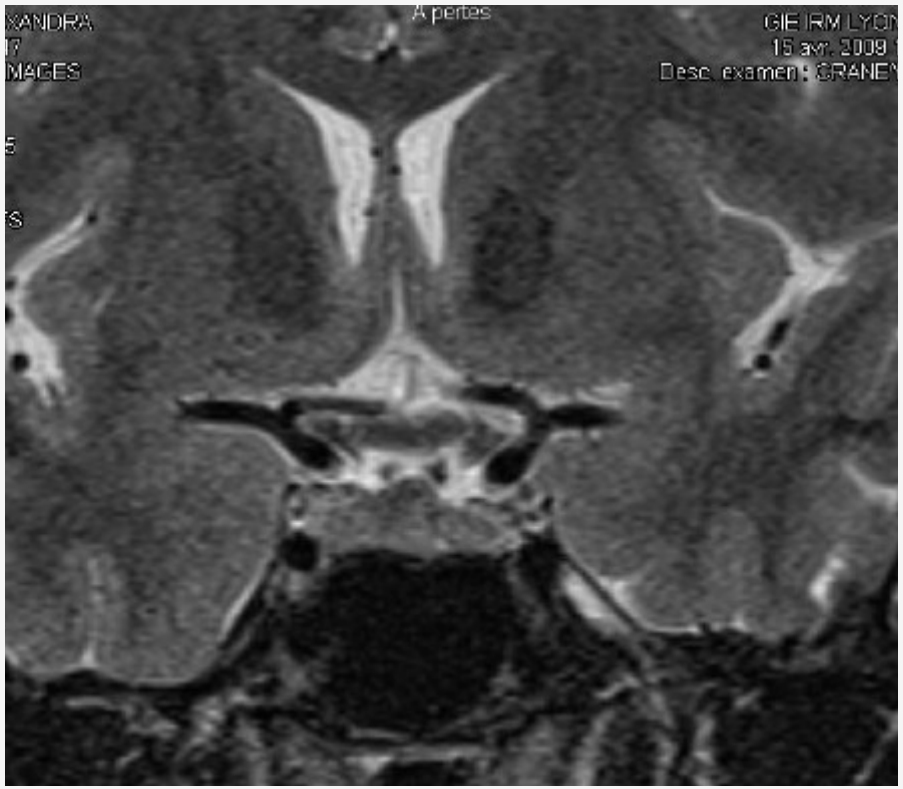




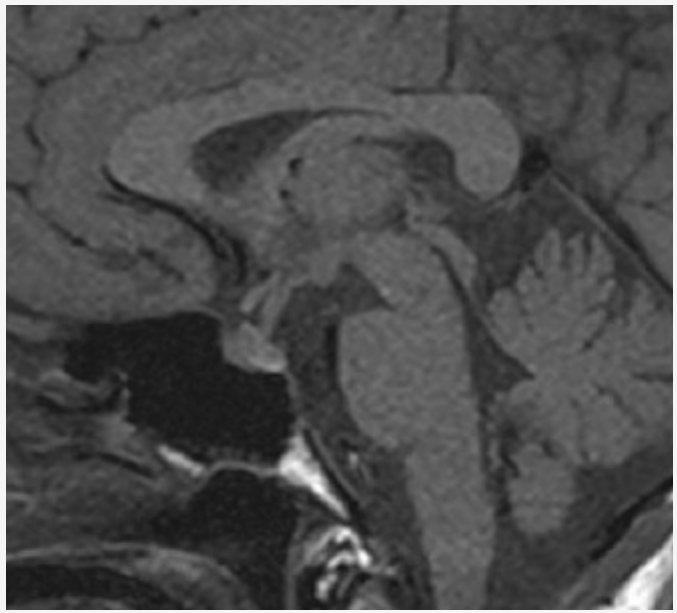
Un cas clinique

- Madame D thrombocytose plaquettaire (450) pas de traitement
- Enceinte 5eme grossesse
- Tableau aigu céphalées, syndrome méningé IRM pour chercher une thrombophlébite



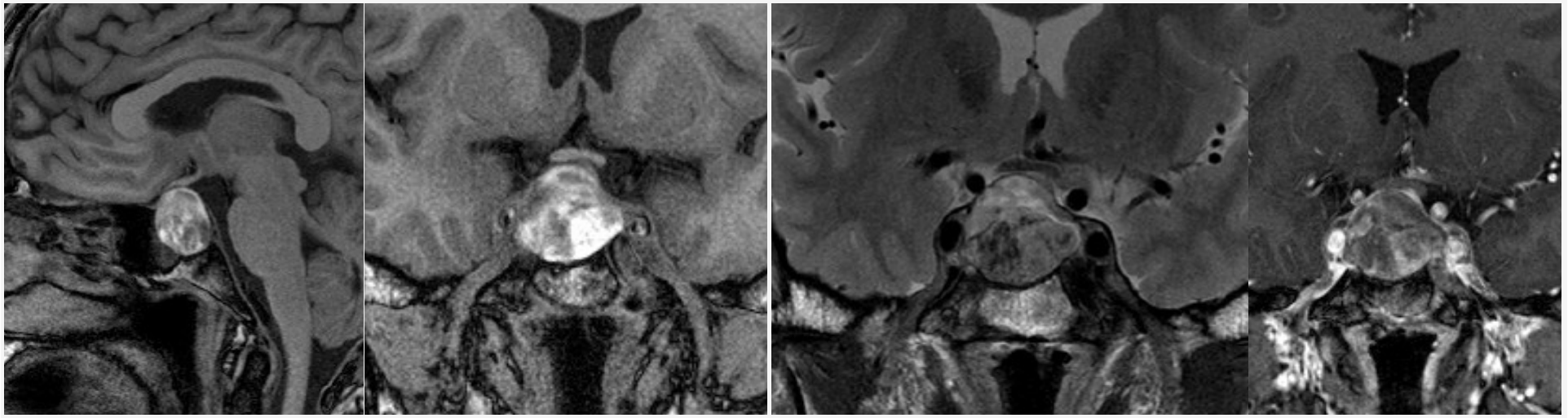


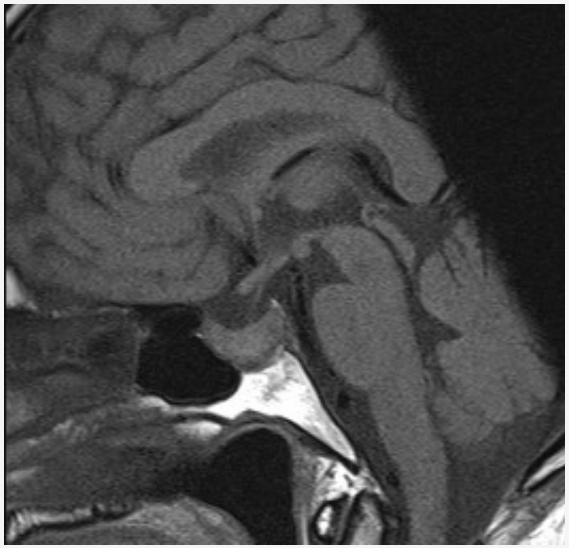
- Accouchement prématuré déclenché
- Diagnostic apoplexie adenomateuse :
  - Aucun adénome connu
  - Bilan endocrinien secondaire déficit somatotrope partiel

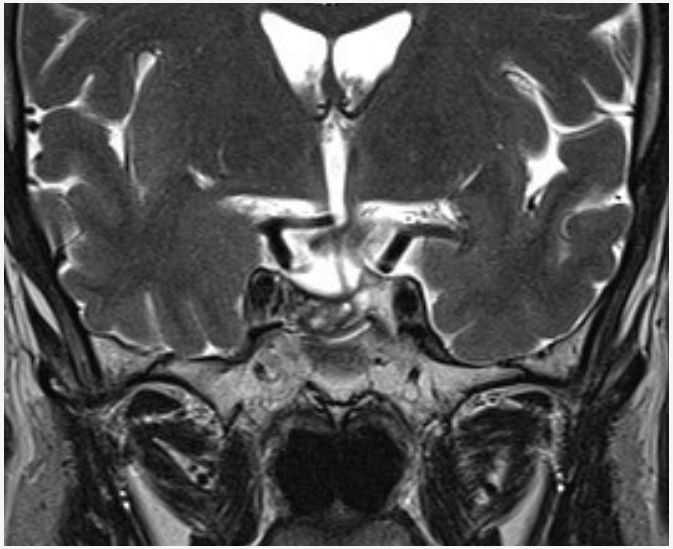


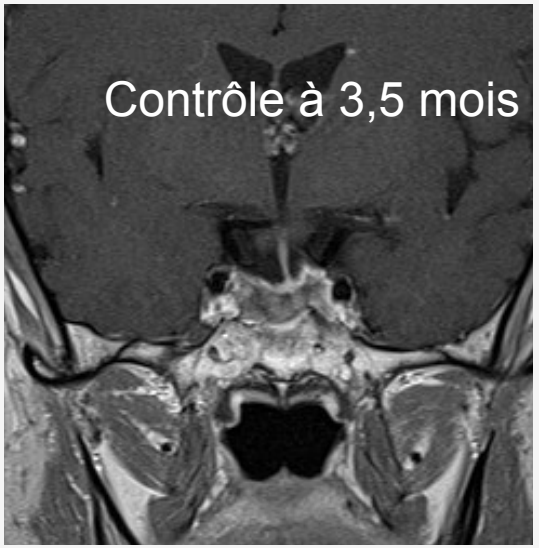
►Diagnostic hypophysite autoimmune :
Déficit antéhypophysaire + masse = 57% pdt grossesse ou post partum

H 61 ans céphalée aigue diplopie biologie normale





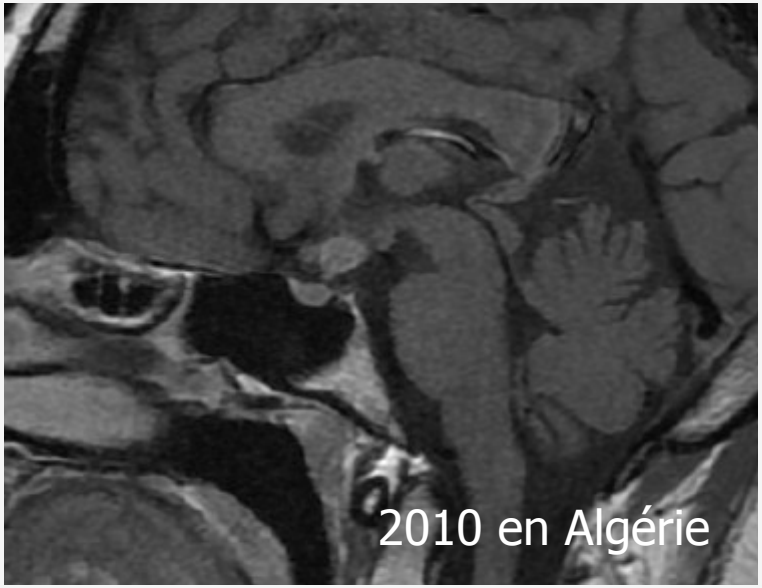


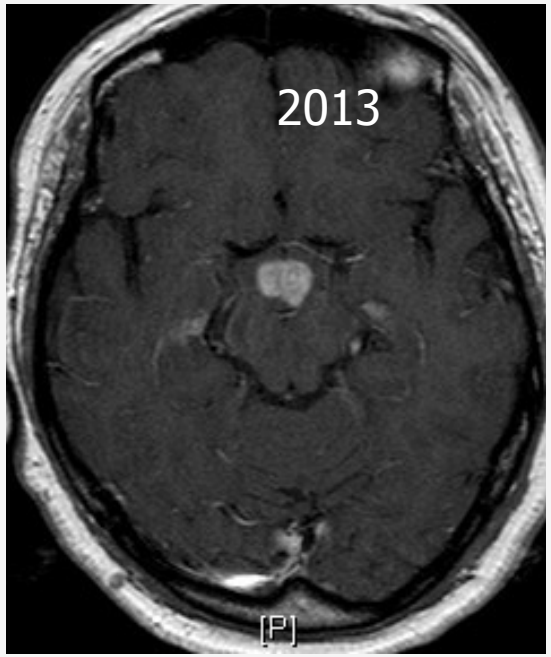


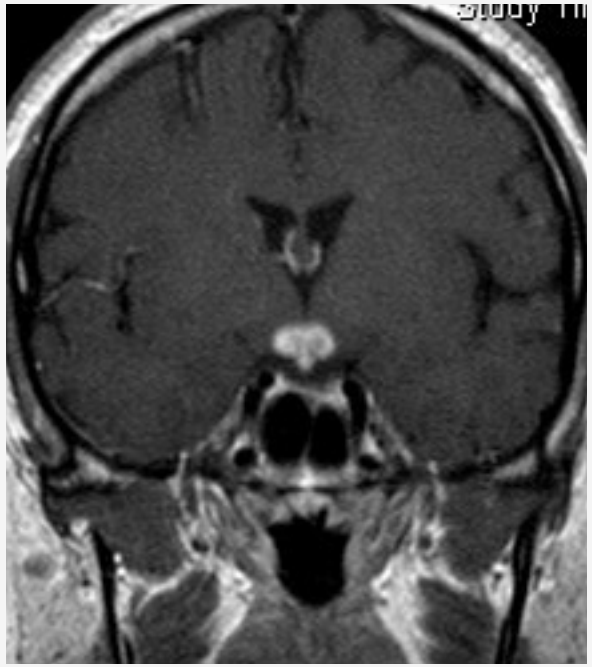
MERCI

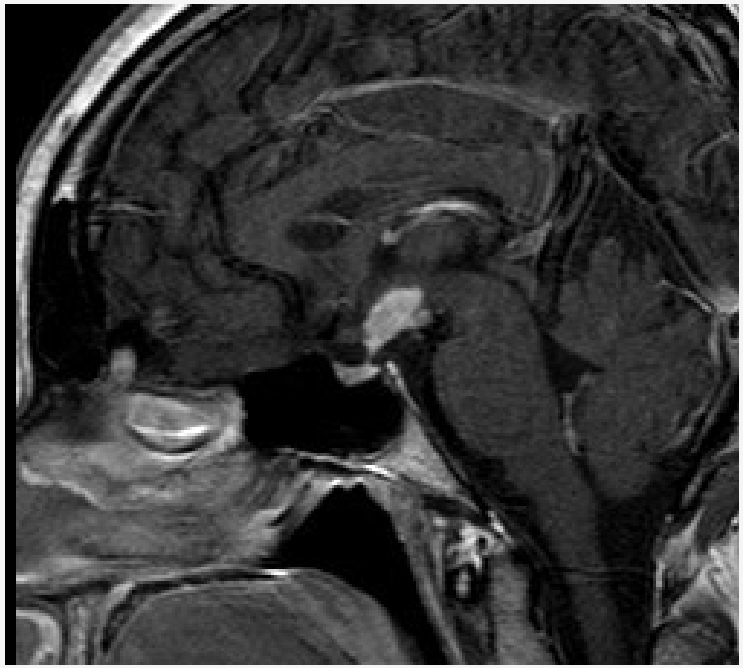
- S B née en 1982
- Diabete insipide
- Hyper pRL
- I gonadotrope

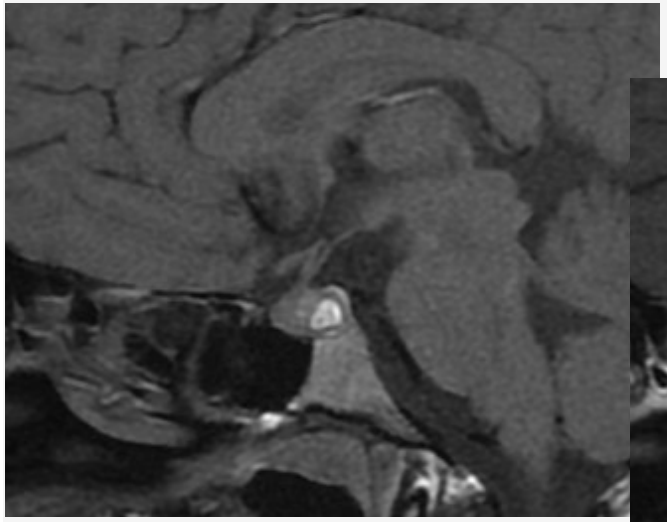
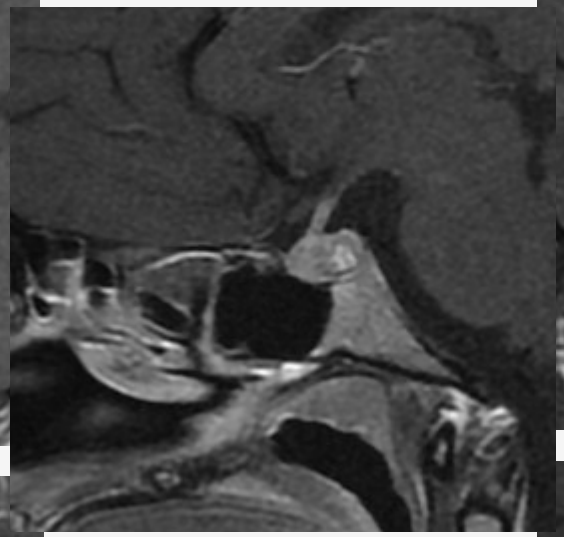
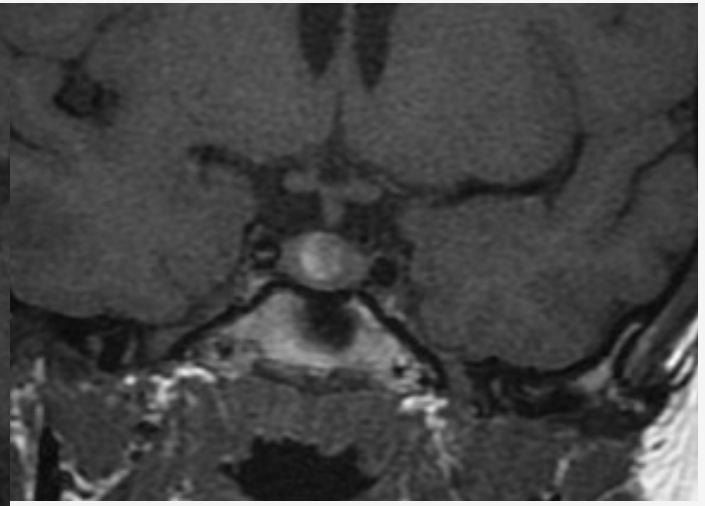
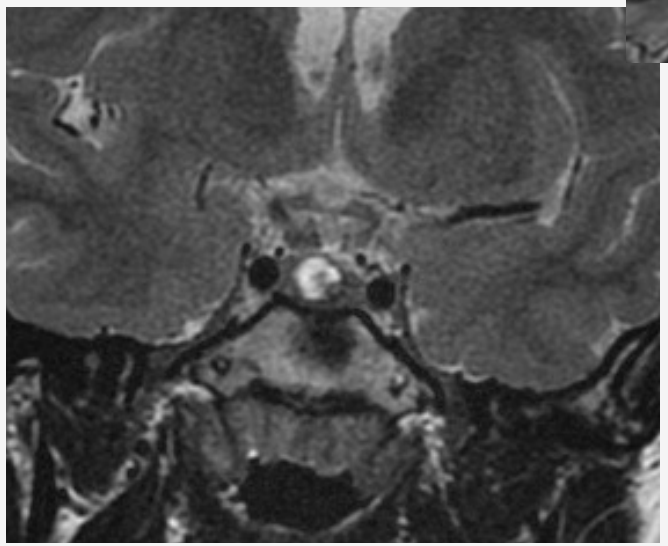
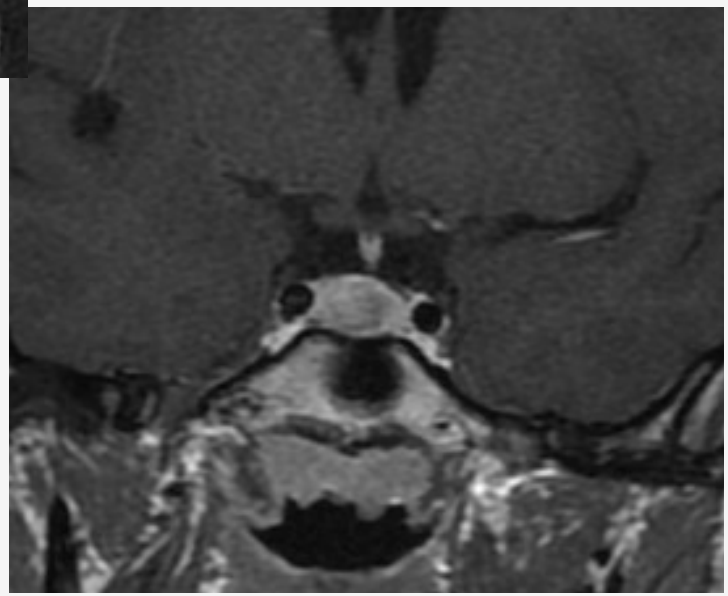
Biopsie ulcération vulvaire = histiocytose langerhansienne



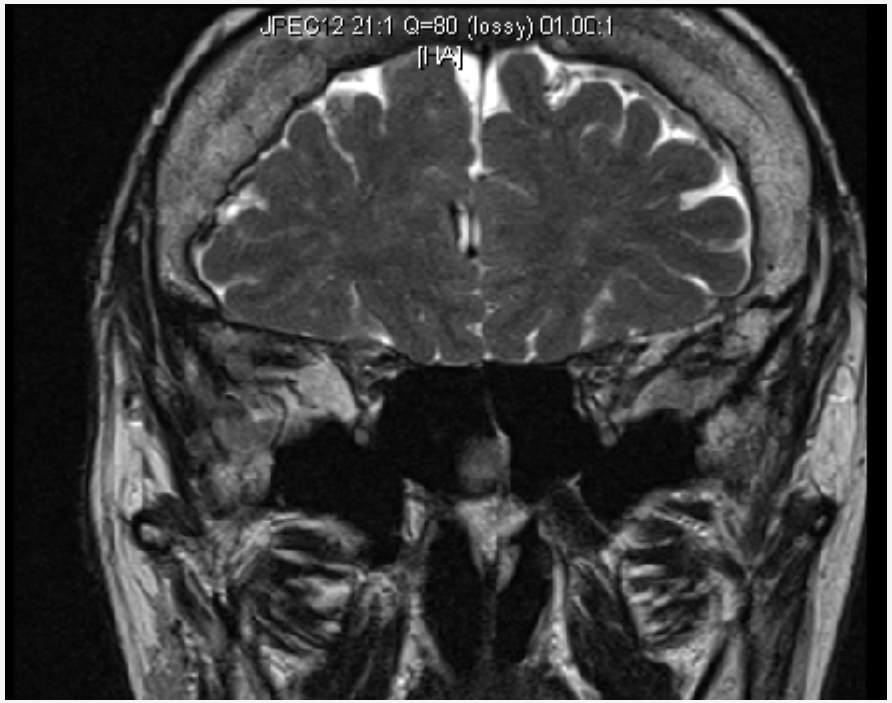




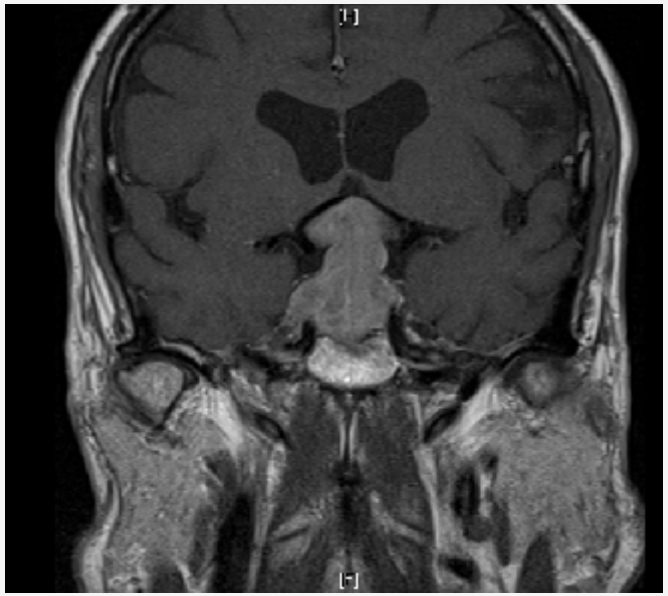


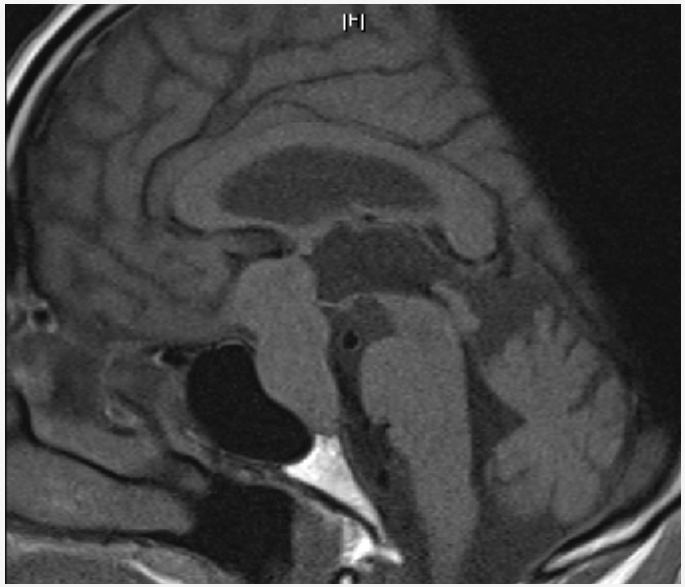






Adénome somatotrope - Acromégalie

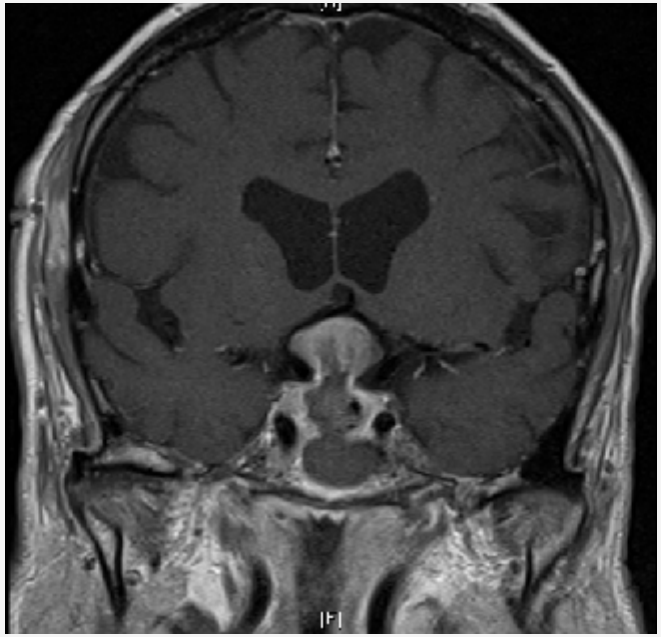


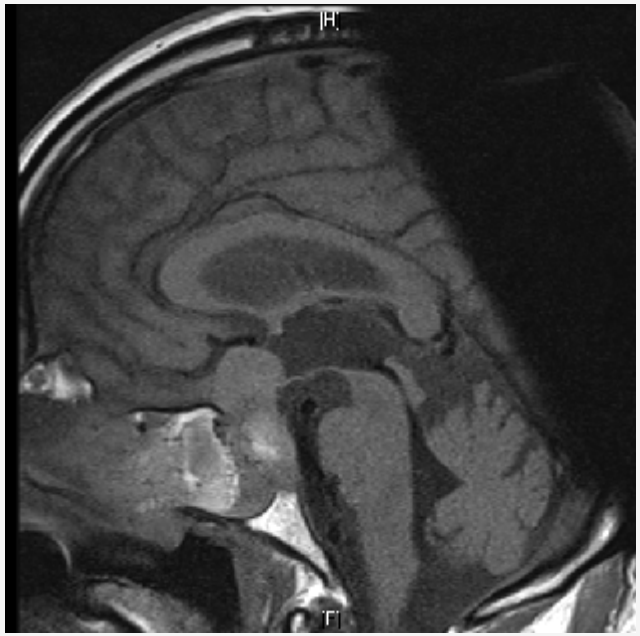
- Elévation GH/IGF1
- Hyperprolactinemie de déconnexion ou adénome à sécrétion mixte
- Hypophysaire isolée ou génétique (McCune Albright, NEM1, complexe de carney)
- Sécrétion ectopique de GH-RH (hyperplasie de l' hypophyse)





Pré-op





Post-op