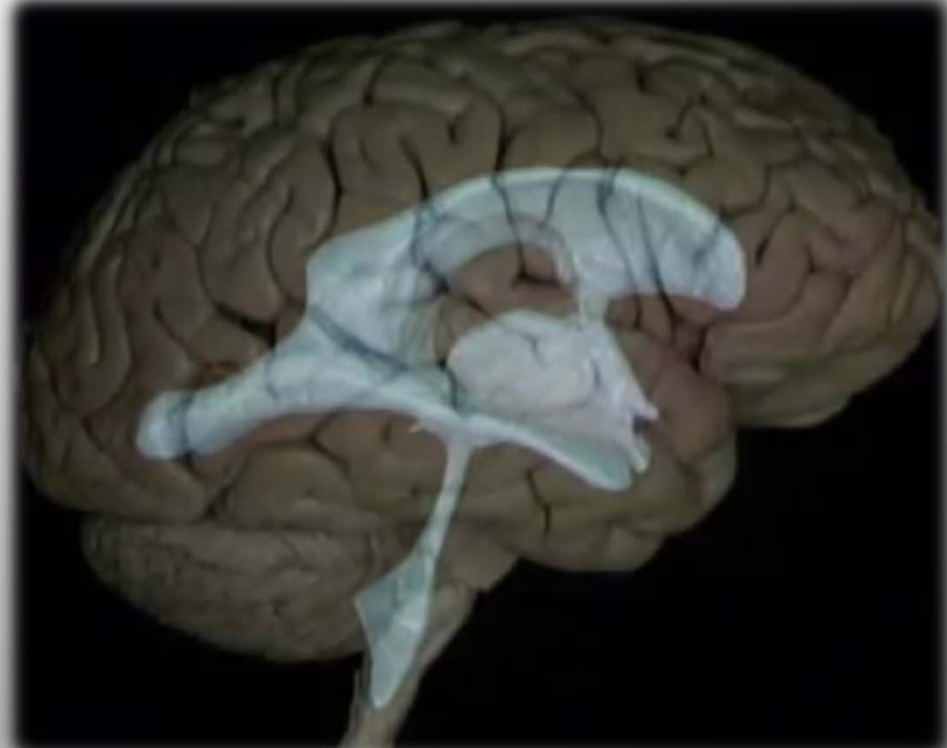


# TUMORES EXTRAPARENQUIMATOSOS CEREBRALES Y TUMORES INTRAVENTRICULARES



Mario Prenafeta - [mprenafeta@tauli.cat](mailto:mprenafeta@tauli.cat)

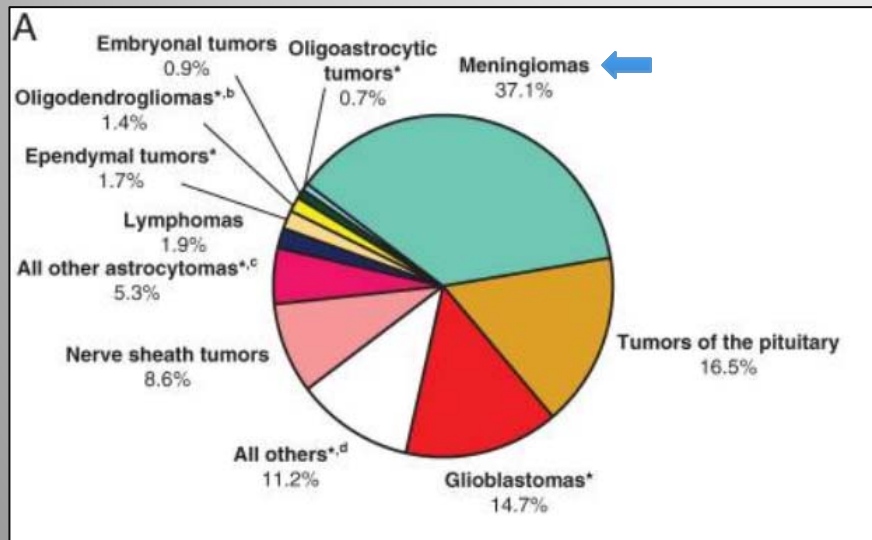
UDIAT- Hospital CS Parc Taulí  
Universitat Autònoma de Barcelona



# TUMORES EXTRAPARENQUIMATOSOS



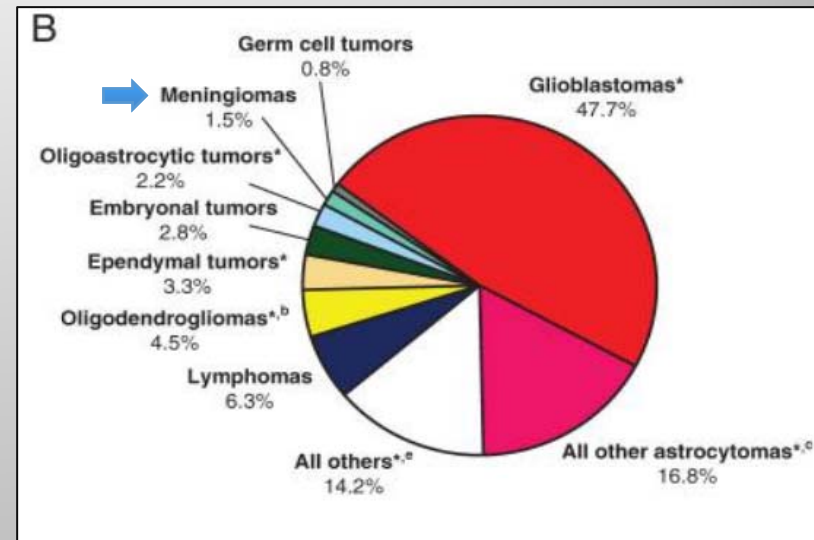
# EPIDEMIOLOGÍA



## MENINGIOMA

Grupo histológico más frecuente

**37.1%**

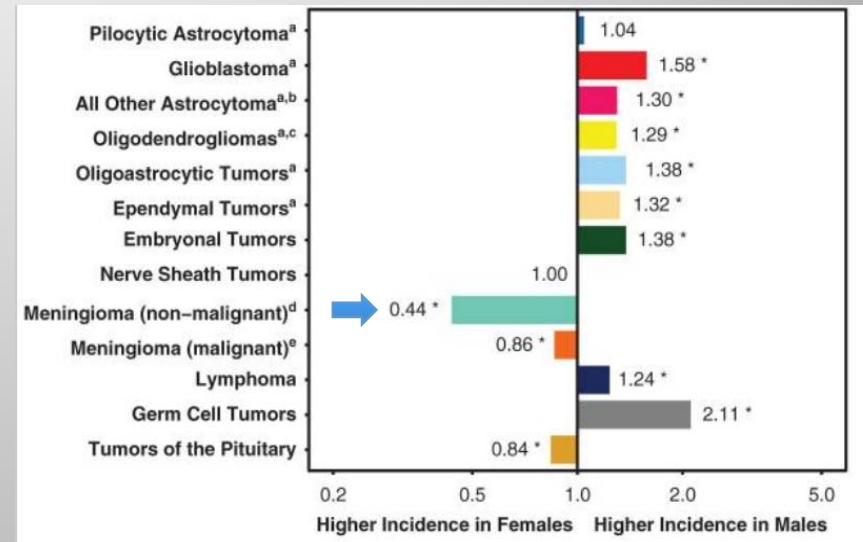
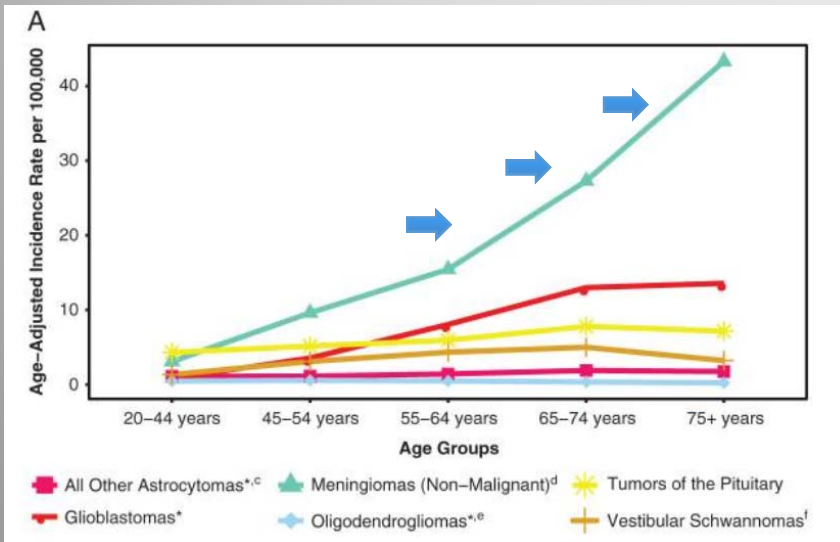


## MENINGIOMA

Tumor No Maligno más frecuente

**1.5%**

# EPIDEMIOLOGÍA



## MENINGIOMA

**Incidencia aumenta con la edad**  
**Edad media Dx: 65años**

## MENINGIOMA

**Incidencia mayor en mujeres**  
**Ratio 2-3:1 (9:1 espinales)**

# FACTORES DE RIESGO



## RADIACIONES IONIZANTES \*

RADIACIÓN TERAPÉUTICA SNC O CABEZA Y CUELLO  
EXPOSICIÓN INCIDENTAL: TINEA CAPITIS, RX DENTAL...

## FACTORES GENÉTICOS

NEUROFIBROMATOSIS TIPO II: MUTACIÓN CR 22 (GEN NF2)  
SCHWANNOMATOSIS (MENINGIOMA FAMILIAR)

## FACTORES HORMONALES

SEXO FEMENINO- MUJER POSTPUBERAL  
2/3: RECEPTORES PROGESTERONA . CÁNCER MAMA

## OTROS

OBESIDAD. TCE ?? TELÉFONO??

# CLASIFICACIÓN

## T. MENINGOTELIALES

MENINGIOMA TÍPICO

WHO I

MENINGIOMA ATÍPICO

WHO II

MENINGIOMA ANAPLÁSICO

WHO III

## OTROS RELACIONADOS

HEMANGIOBLASTOMA

WHO I

## T. MESENQUIMATOSOS

LIPOMA/LIPOSARCOMA

CONDROMA/CONDROSARCOMA

OSTEOMA/OSTEOSARCOMA

HEMANGIOMA

HEMANGIOPERICITOMA

## T. MELANOCÍTICOS

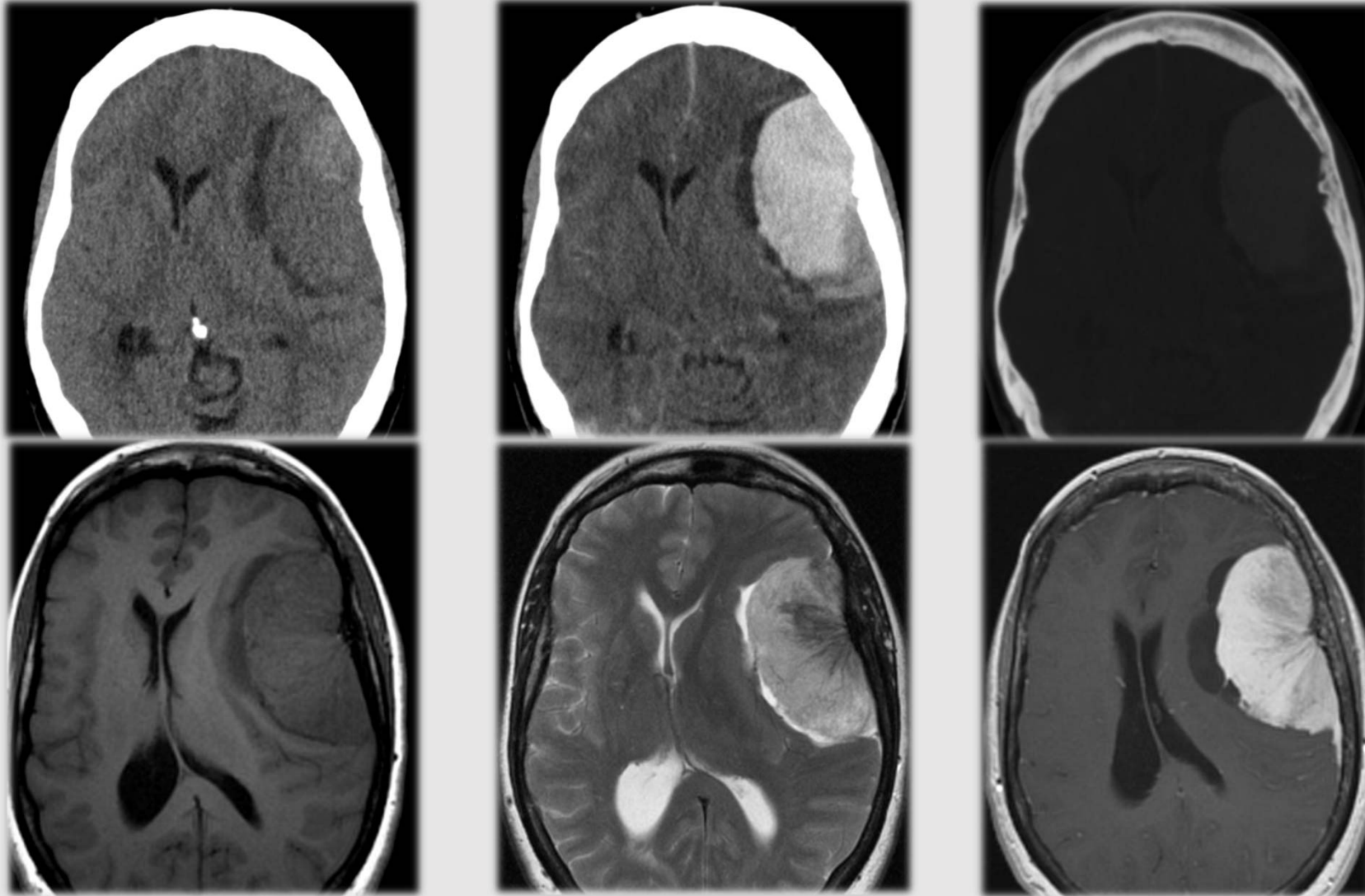
MELANOCITOSIS DIFUSA

MELANOCITOMA

MELANOMA MALIGNO

MELANOMATOSIS MENÍNGEA

**Paciente mujer de 54 años. Historia de 6 meses de evolución de inestabilidad, cefalea vespertina y afasia motora**

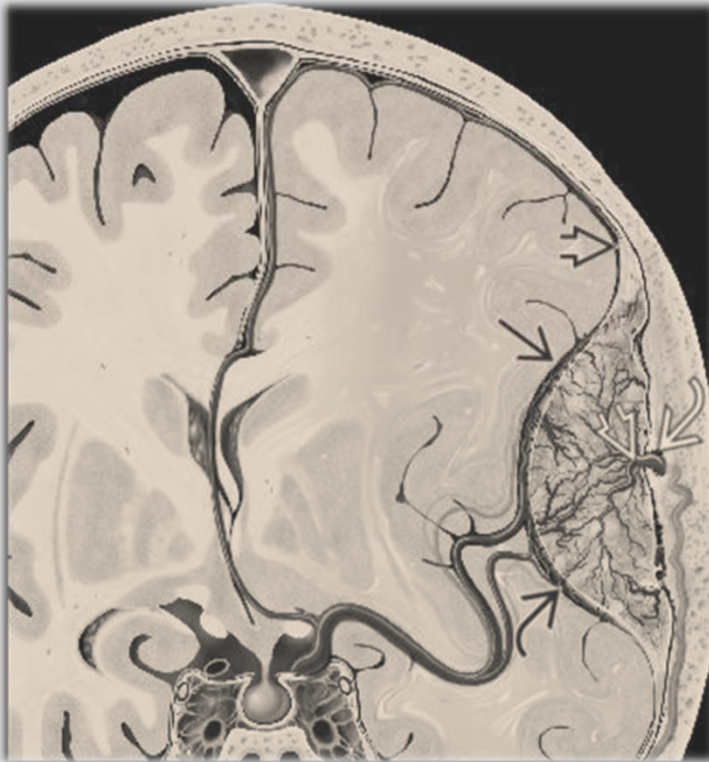


# MENINGIOMA: SEMIOLOGÍA RADIOLÓGICA

**LOCALIZACIÓN**

**EF. LOCALES**

**COMPOSICIÓN**



**VASCULAR**

**CAMBIOS ÓSEOS**

**MIMICS**



# LOCALIZACIÓN

90% **SUPRATENTORIALES**  
10% INFRATENTORIALES

20-34% **CONVEXIDAD CEREBRAL**

18-22% **PARASAGITAL (5% HOZ)**

17-25% **CRESTA ESFENOIDAL-FCM**

10% **FRONTOBASAL**

9-15% **FOSA POSTERIOR**

APC/2-4% TENTORIO/5% CONVEXIDAD/<1%CLIVUS

2-5% **INTRAVENTRICULAR**

<1% **ECTÓPICA (ÓSEO, SENOS PARANASALES, ÓRBITA, )**

ORIGEN: **CLs ARACNOIDALES (CAP)**

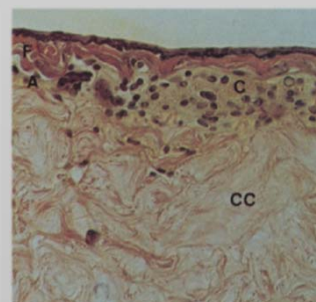
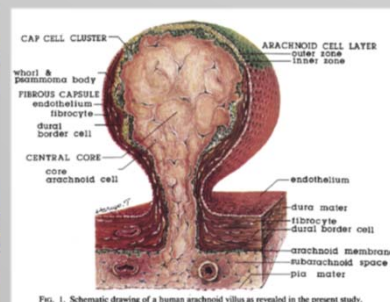
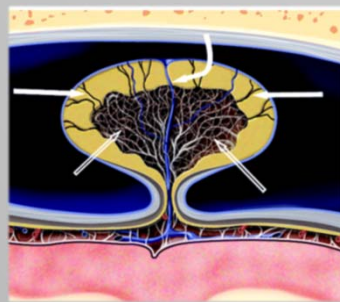
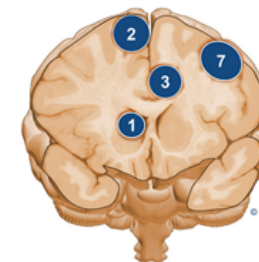


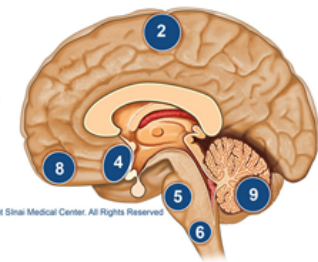
FIG. 1. Schematic drawing of a human arachnoid villus as revealed in the present study.

## Common Location (Types) of Meningiomas

Coronal Section of the Brain



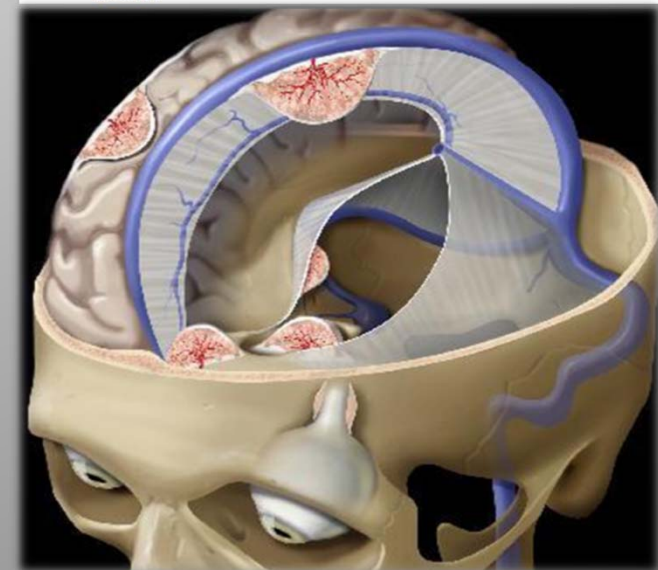
Sagittal Section of the Brain



© 2011 Mount Sinai Medical Center. All Rights Reserved

Meningiomas are often described by their location within the brain. The most common are:

- |                     |                     |
|---------------------|---------------------|
| 1. Intraventricular | 6. Foramen Magnum   |
| 2. Parasagittal     | 7. Convexity        |
| 3. Falcine          | 8. Olfactory Groove |
| 4. Suprasellar      | 9. Cerebellar       |
| 5. Clivus           |                     |



M.Buetow et al. Typical, Atypical, and Misleading Features in Meningioma. Radiographics 1991; 11:1087-1106

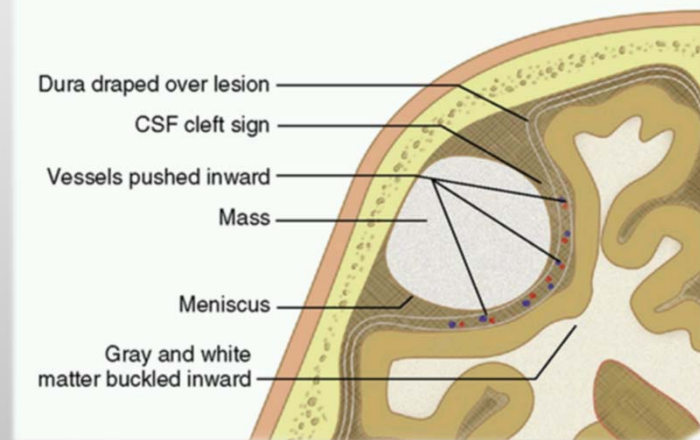
Kida et al. A light and electron microscopic and immunohistochemical study of human arachnoid villi. J. Neurosurgery 1988



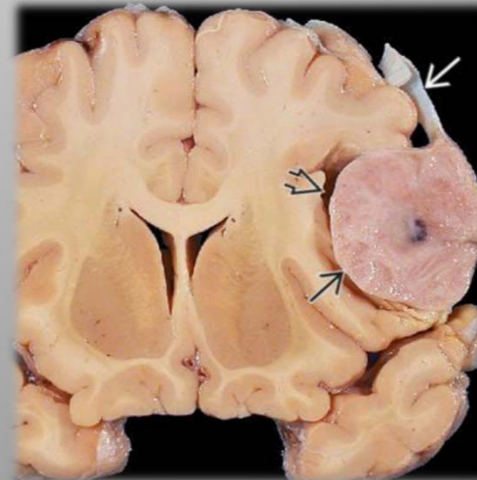
# EFFECTOS LOCALES

## INTRAXIAL VS EXTRAAXIAL

1. Desplazamiento unión córtico-subcortical
2. Desplazamiento vasos piales
3. Cleft LCR: Ensanchamiento espacio SA
4. Amplia base superficie dural
5. Cambios óseos calota craneal



From Grossman RI, Yousem DM [eds]. *Neuroradiology Requisites*. St. Louis, Mosby, 2004, p 275.



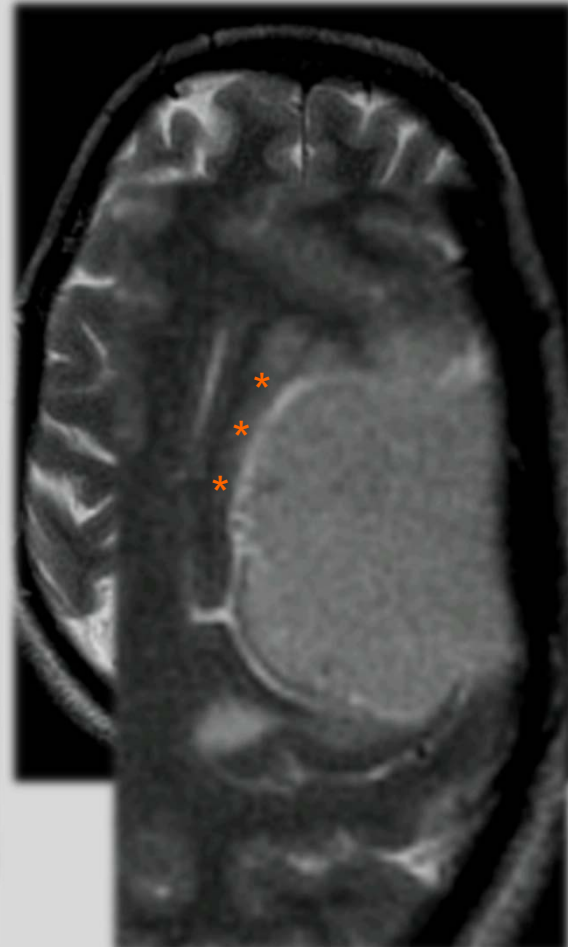
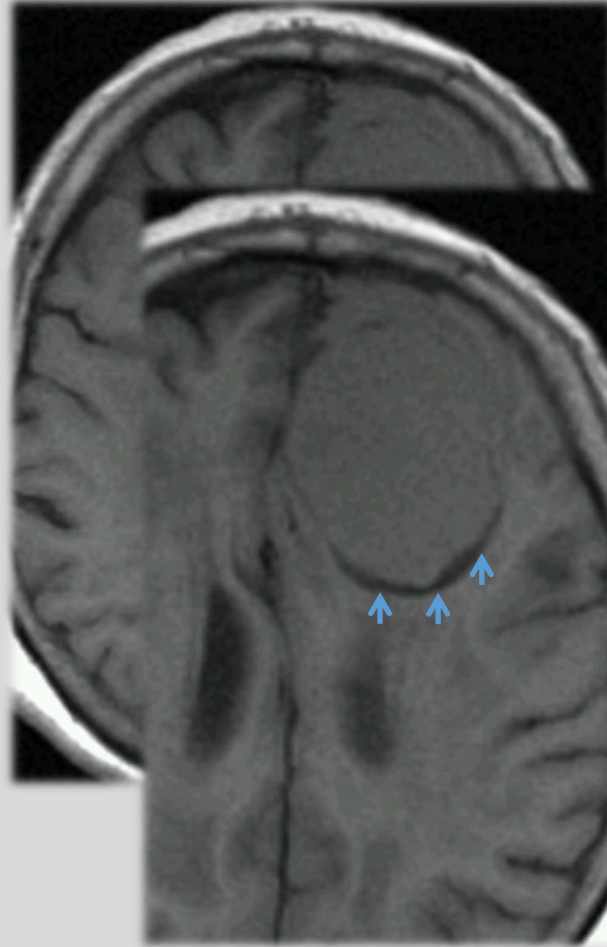
Osborn's brain. Tumors of the meninges.

## HALLAZGOS NEUROIMAGEN

1. Lesión de base-implantación dural
2. Desplazamiento unión córtico-subcortical
3. Desplazamiento vasos piales
4. Cleft: Ensanchamiento espacio SA

## DEFINITIVO LESIÓN EXTRAAXIAL

1. DURAMADRE
2. CLEFT LCR
3. CLEFT VASCULAR
4. CÓRTEX CEREBRAL



# EFFECTOS LOCALES

## INTRAXIAL VS EXTRAAXIAL

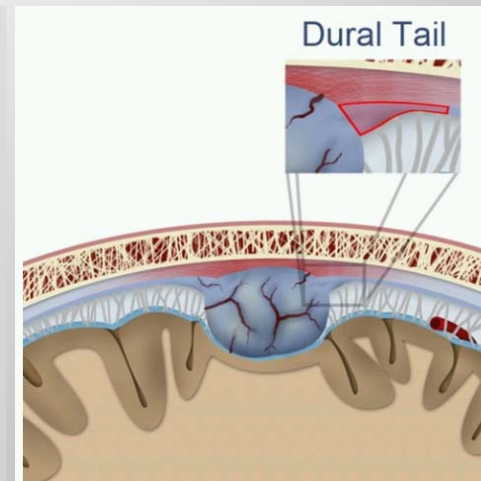
1. Desplazamiento unión córtico-subcortical
2. Desplazamiento vasos piales
3. Cleft: Ensanchamiento espacio SA
4. Amplia base superficie dural
5. Cambios óseos calota craneal

### SIGNO COLA DURAL (DURAL TAIL)

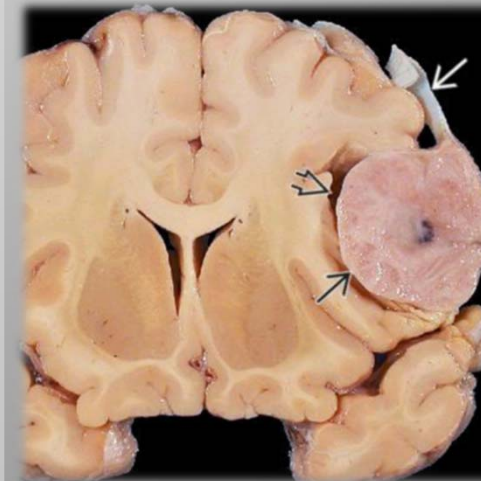
- Engrosamiento dural adyacente a la masa
- Realce curvilíneo focal o extenso
- Mayoría (72%). **No** patognomónico
- Proceso reactivo: Angiogénesis, hiperplasia reactiva, aumento tej. conectivo



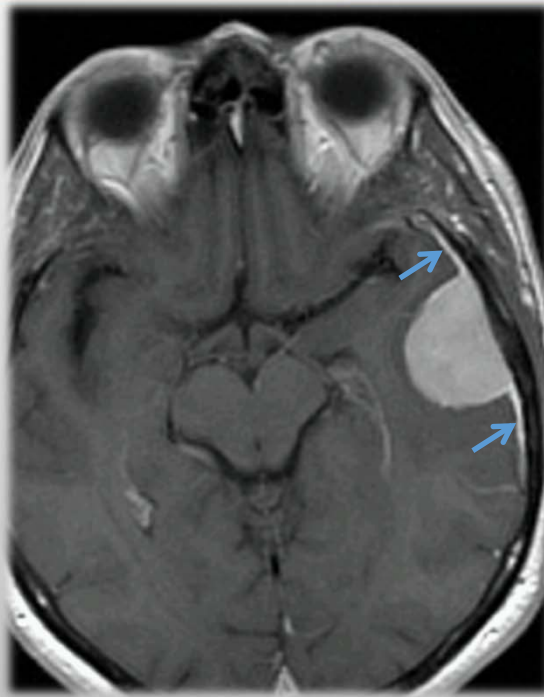
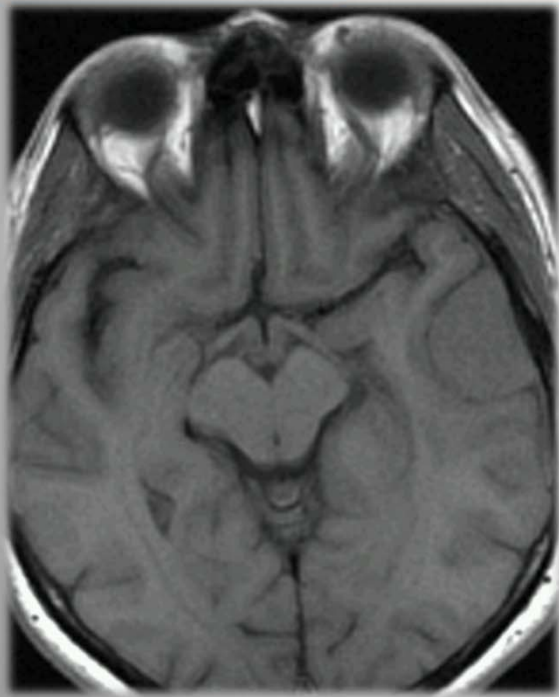
**Invasión tumoral hasta en un 2/3 casos**



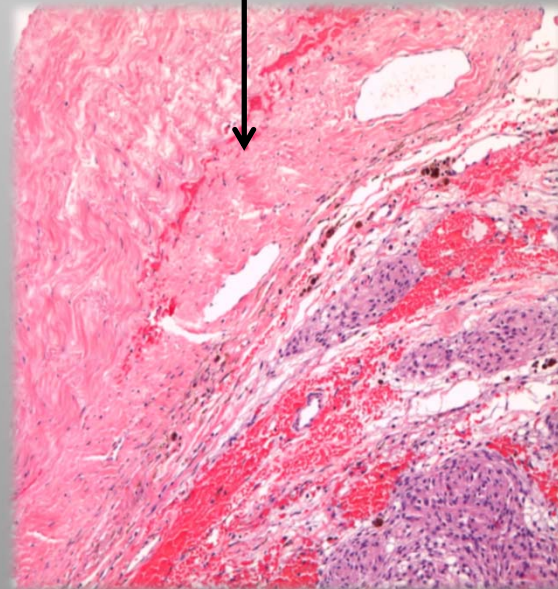
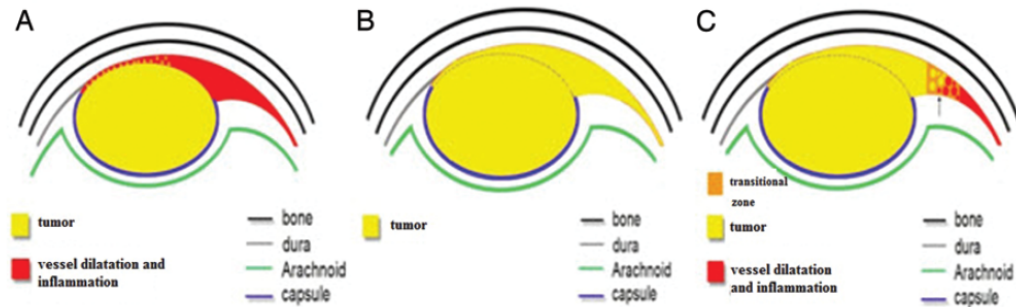
From radiopaedia: dural tail sign



Osborn's brain. Tumors of the meninges



Dural tail sign classification of meningiomas on MRI S. T. Qi et al



- 1- Patrón liso/fino
- 2- Patrón **nodular**
- 3- Patrón mixto

**Invasión tumoral dura 158/179: 88.3%**

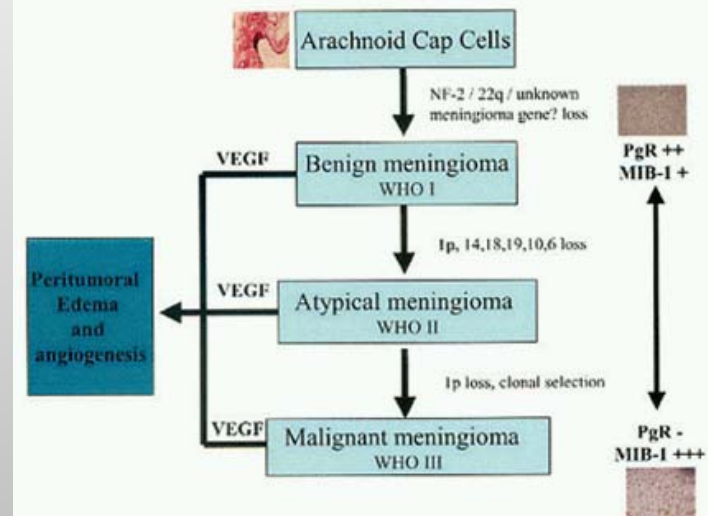
**Rango resección dural 2-2.5cm**

# EFFECTOS LOCALES

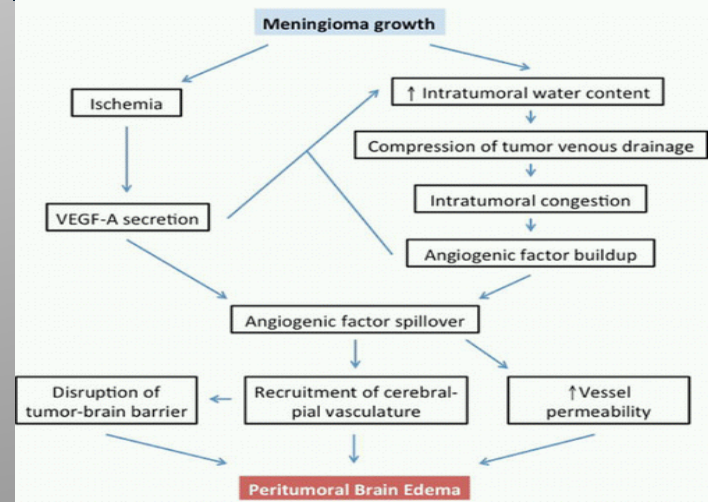
## EDEMA CEREBRAL

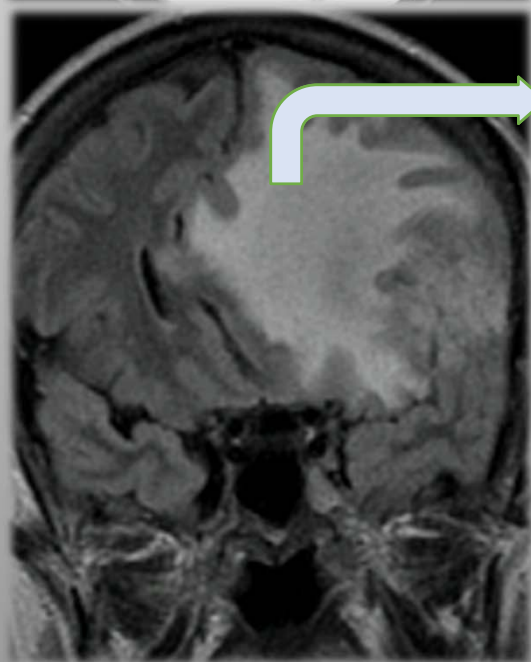
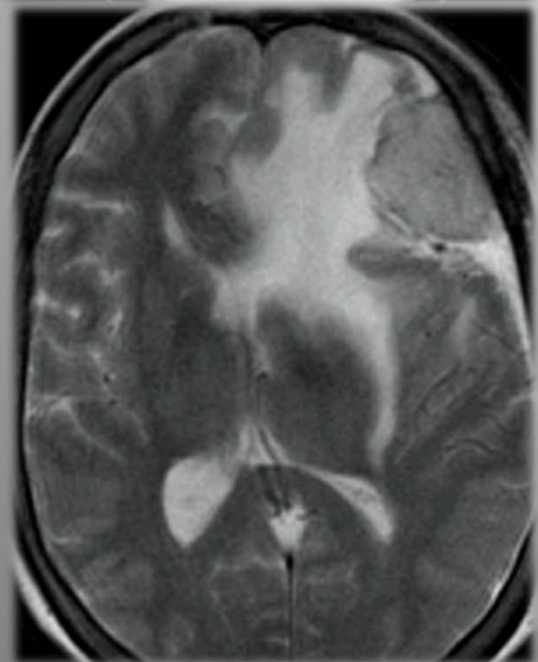
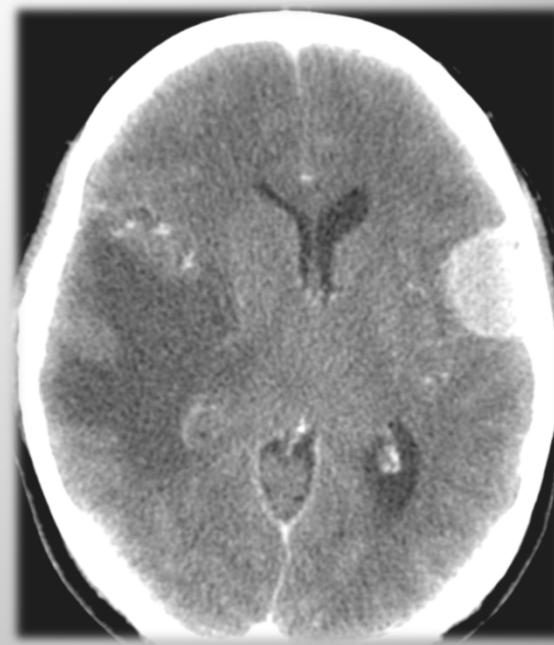
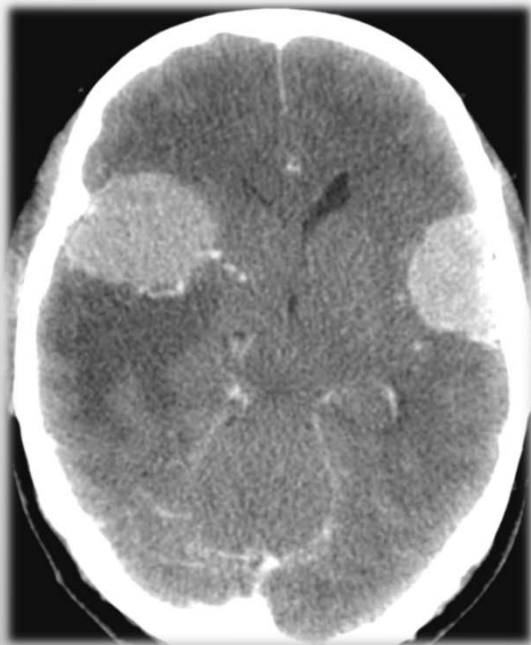
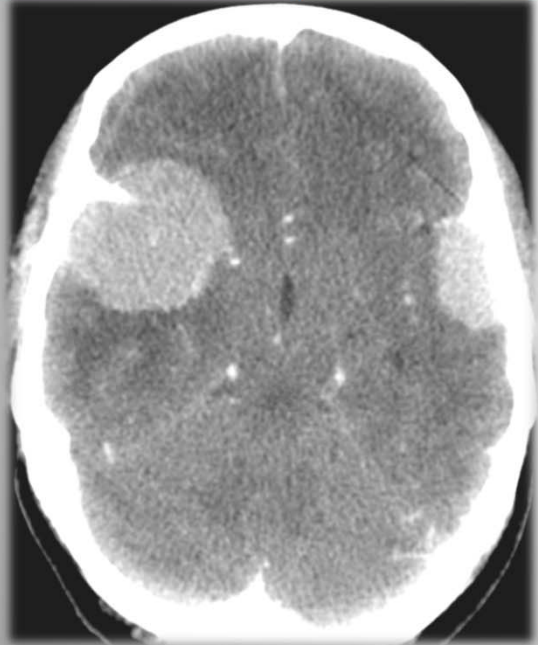
- Alrededor de un **50 %** meningiomas
- Aumento morbilidad: HIC, crisis pre/post-IQ, déficits neurológicos...
- Teorías patogénicas:
  1. Estados secretores-excretorios
  2. Teoría compresiva cerebral
  3. Teoría compresiva vascular
  4. Teoría estados hidrodinámicos
- Expresión de **VEGF**
  - **Proliferación vasos piales**
  - **Aumento vascularización y permeabilidad vascular**

Hou et al.. Peritumoral brain edema in intracranial meningiomas: the emergence of vascular endothelial growth factor-directed therapy. Journal of Neurosurgery Dec 2013; Vol 35:Nº 6



Source: Neurosurg Focus © 2005 American Association of Neurological Surgeons





## RM Y EDEMA

- AUSENCIA CLEFT LCR
- MÁRGENES IRREGULARES
- HIPERINTENSIDAD EN T2/REALCE HETEROGÉNEO
- LOCALIZACIÓN
- OBSTRUCCIÓN VENOSA

Magnetic resonance imaging of meningioma: a pictorial review. Watts et al. / Insights imaging 2014; 5: 113-122

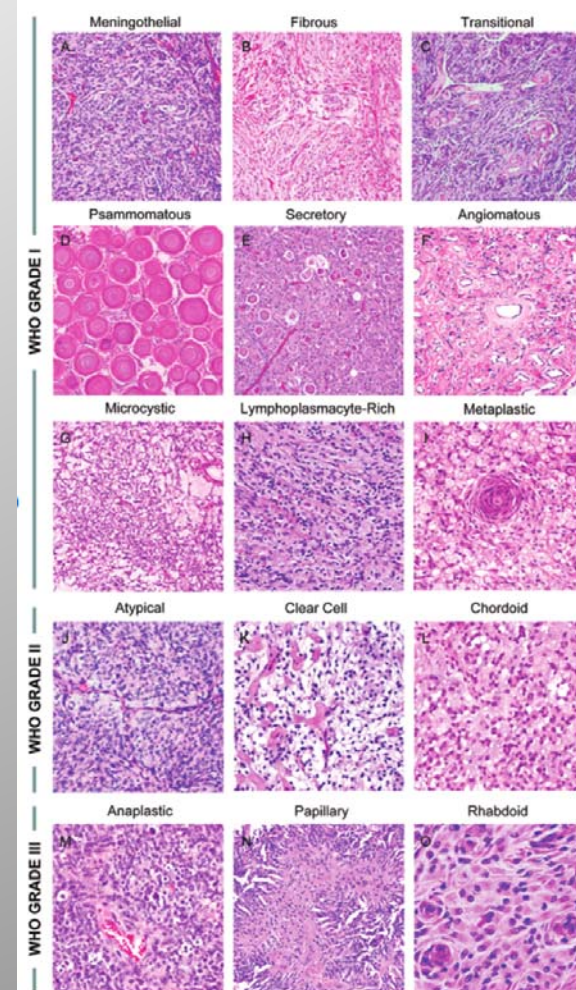


# COMPOSICIÓN

## Meningioma subtypes

	WHO grade
<b>Meningiomas with low risk of recurrence or aggressive growth:</b>	
Meningothelial	I
Fibrous (fibroblastic)	I
Transitional (mixed)	I
Psammomatous	I
Angiomatous	I
Microcystic	I
Secretory	I
Lymphoplasmacyte-rich	I
Metaplastic	I
<b>Meningiomas with greater likelihood of recurrence and/or aggressive behavior:</b>	
Atypical	II
Clear cell (intracranial)	II
Chordoid	II
Rhabdoid	III
Papillary	III
Anaplastic (malignant)	III
Meningiomas of any subtype or grade with high proliferative index and/or brain invasion	

**80% MENINGIOMAS**



Linda Bl et al. Genomic landscape of intracranial meningiomas Neurosurg January 15, 2016 .

# COMPOSICIÓN

TC

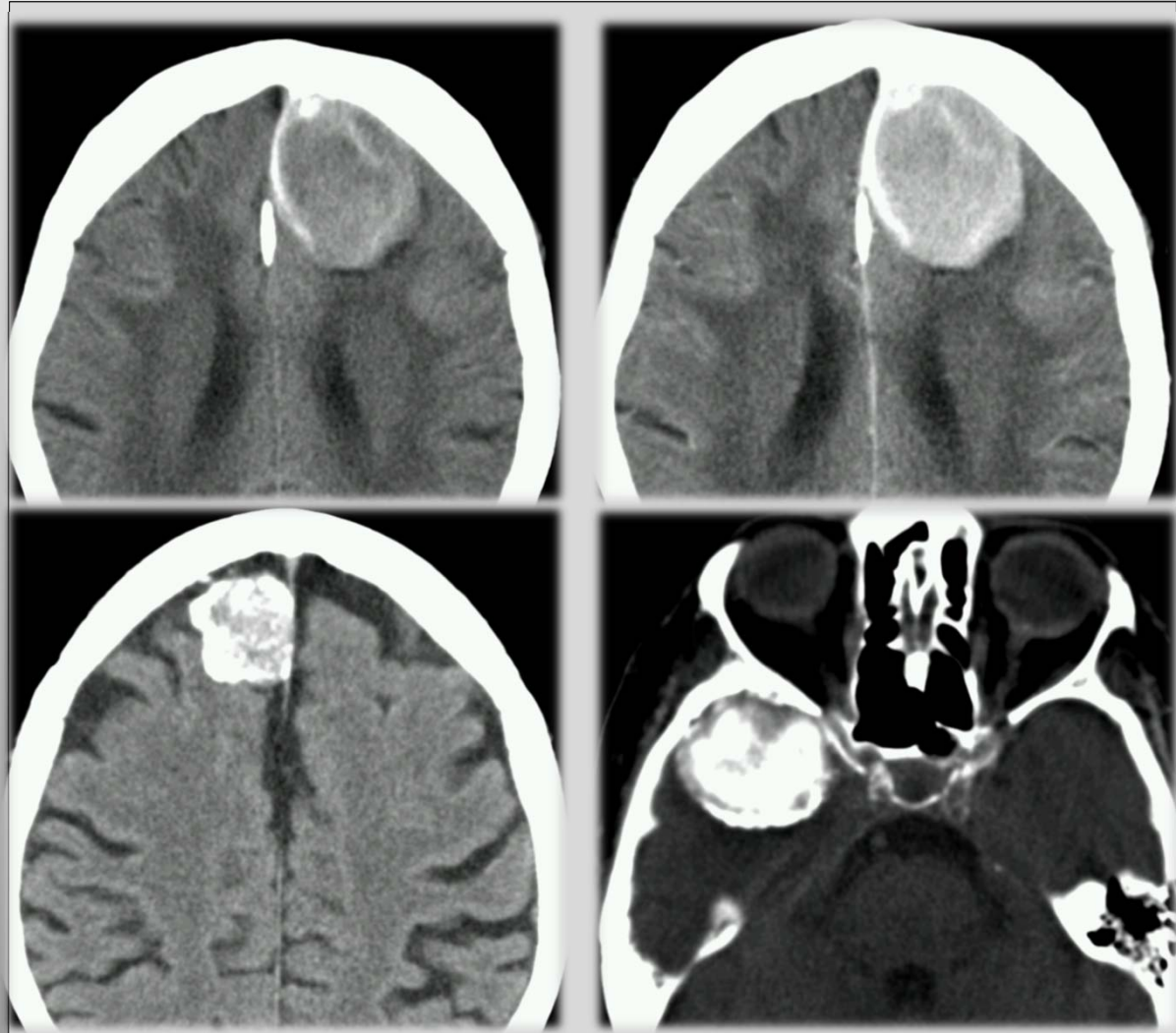
**HIPERDENSOS:** 70-75%  
**ISODENSOS:** 25%  
**HIPODENSOS:** 1-5%

**CA++:** 20-25%

**CAPTACIÓN CTE**

**NECROSIS/QUISTES** 10-25%

**HEMORRAGIA**  
**METAPLASIA**



# COMPOSICIÓN

TC

**HIPERDENSOS: 70-75%**

**ISODENSOS: 25%**

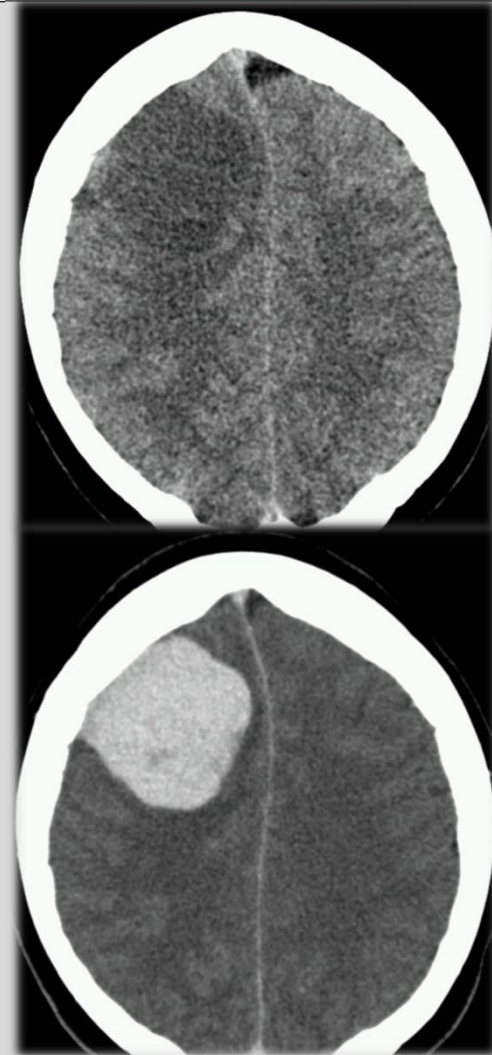
**HIPODENSOS: 1-5%**

**CA++: 20-25%**

**CAPTACIÓN CTE**

**NECROSIS/QUISTES 10-25%**

**HEMORRAGIA  
METAPLASIA**



# COMPOSICIÓN

## RM

### T2 ISO-HIPERINTENSOS

HIPOINTENSOS: Calcio, fibrosis  
**CLEFT LCR . FLOW VOIDS**

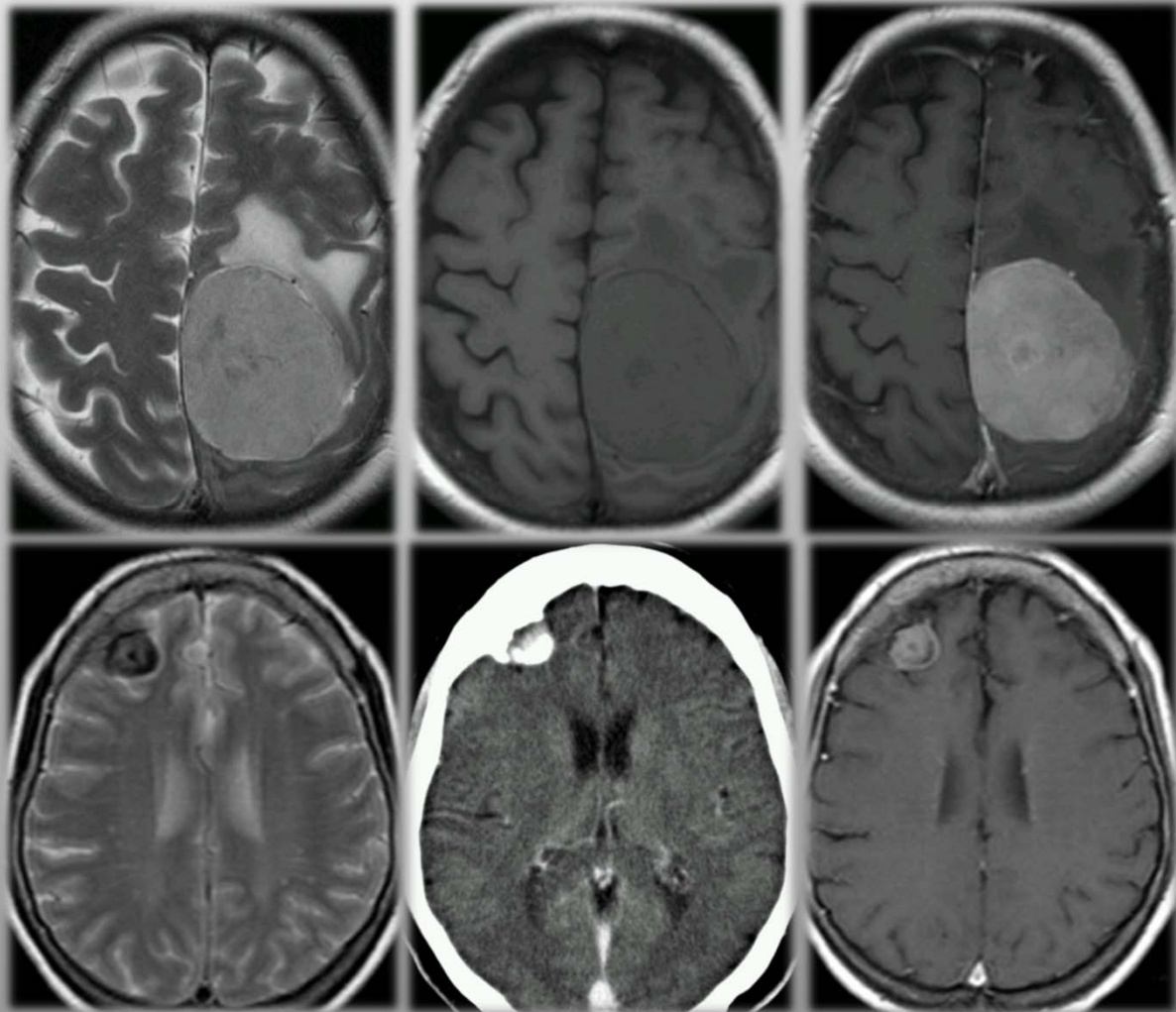
### T1 ISO-HIPOINTENSOS

HIPOINTENSOS: Microquística,  
necrosis, metaplasia ósea  
**CLEFT LCR . FLOW VOIDS**

### T1Gd 100% REALCE

DURAL TAIL: 60-70%  
QUISTES intra/extratumorales

### FLAIR EDEMA PERITUMORAL



# COMPOSICIÓN

## RM

### DW

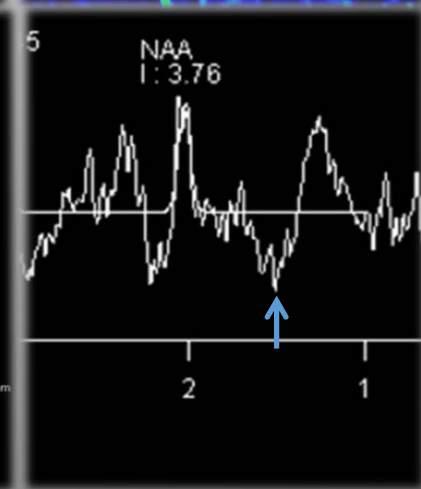
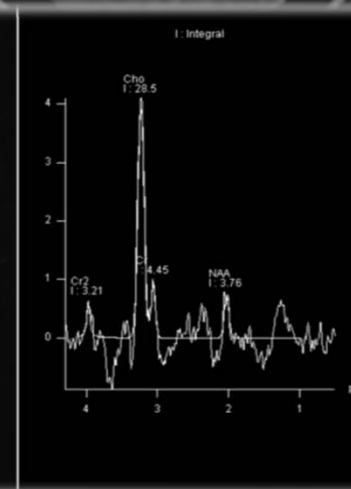
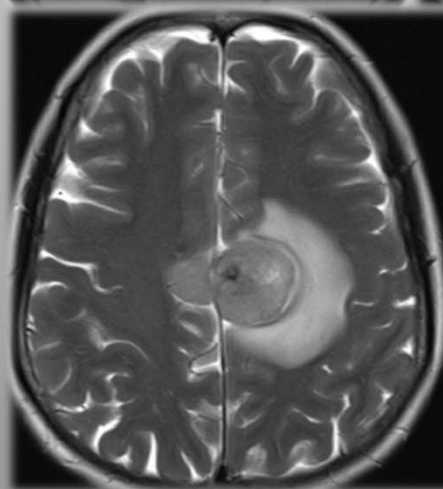
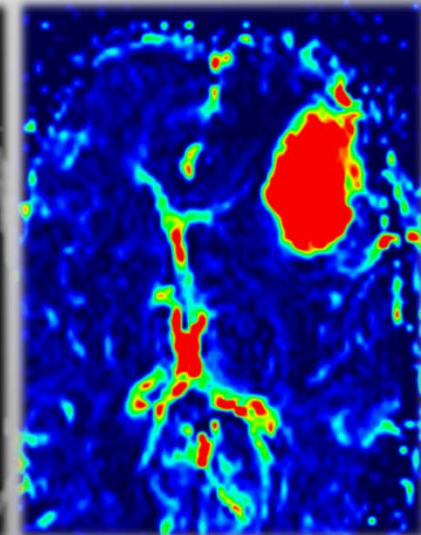
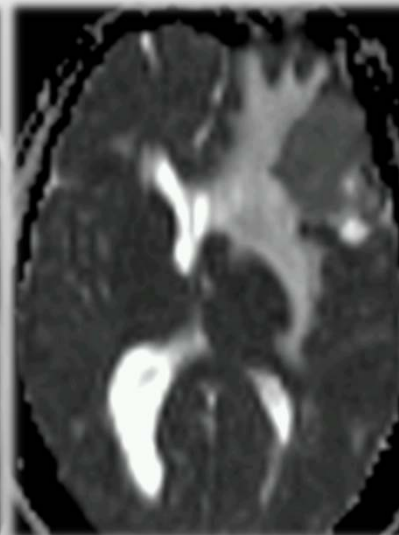
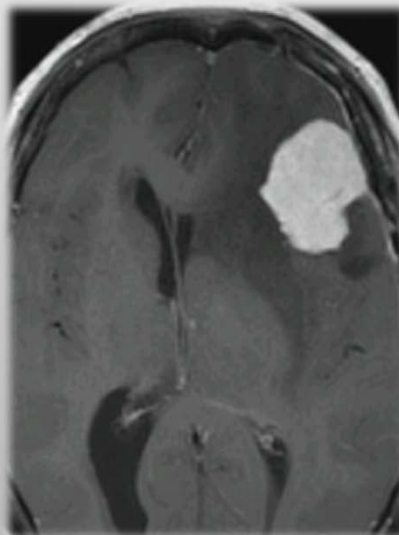
VARIABLE. **Bajo** ADC  
ADC << en Grados II-III

### PW

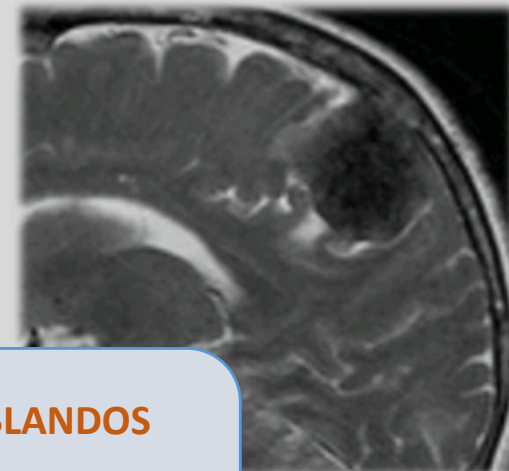
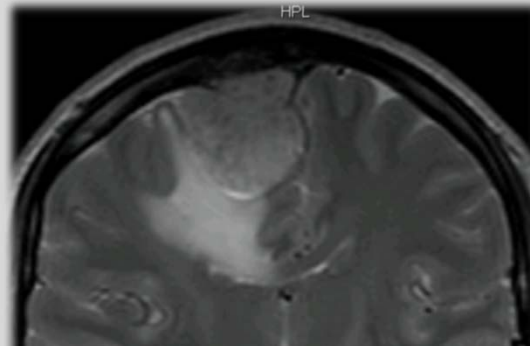
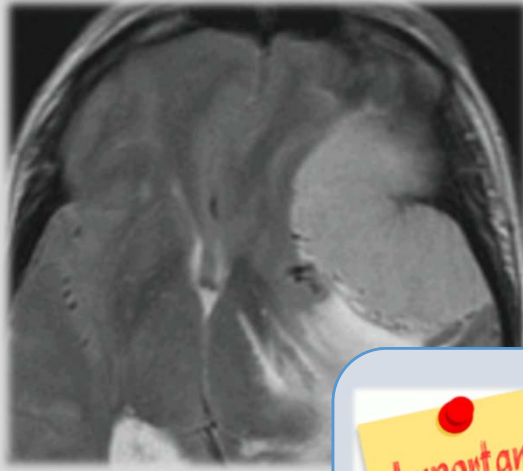
**Aumento** CBVr  
Grado III: >CBV/TTM en edema peritumoral

### MRs

- ↑ **Ala** (1.48 ppm)
- ↑ **Glm/Glu** (3.75 ppm)
- ↑ **Cho** (3.2ppm)
- ↓ **Creat, NAA**



# SEÑAL T2 e HISTOPATOLOGÍA



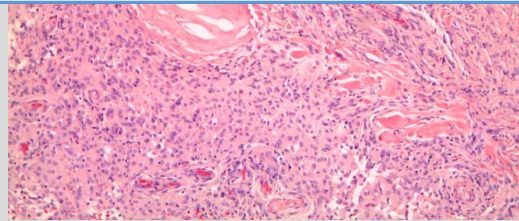
**TUMORES HIPERINTENSOS T2: BLANDOS**

**TUMORES HIPOINTENSOS T2: DUROS**

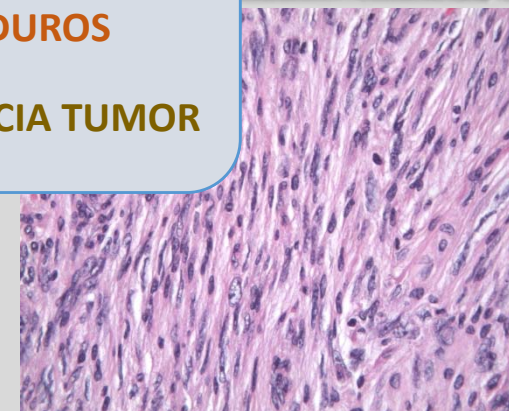
**RM-ELASTOGRAFÍA: VALORACIÓN CONSISTENCIA TUMOR**



**MENINGOTELIAL**



**TRANSICIONAL**

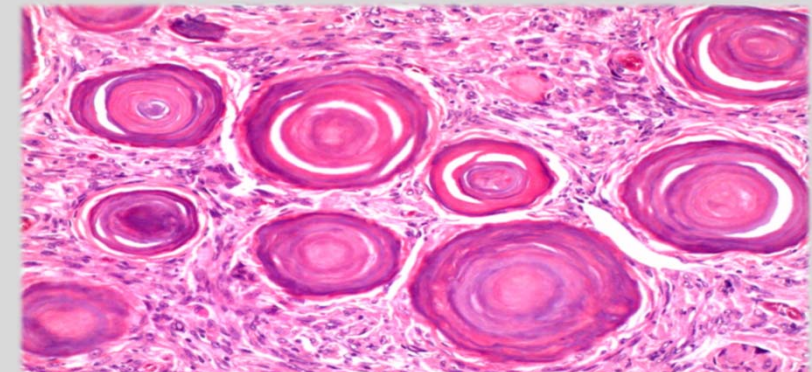
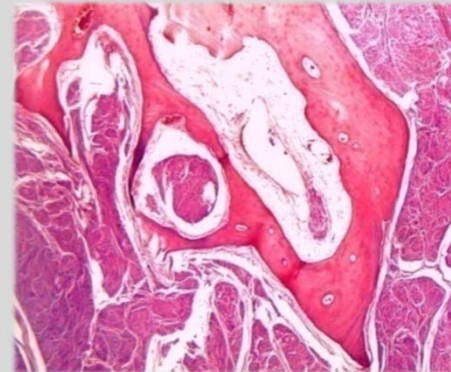
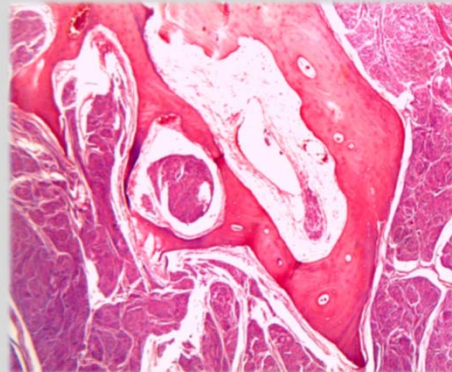
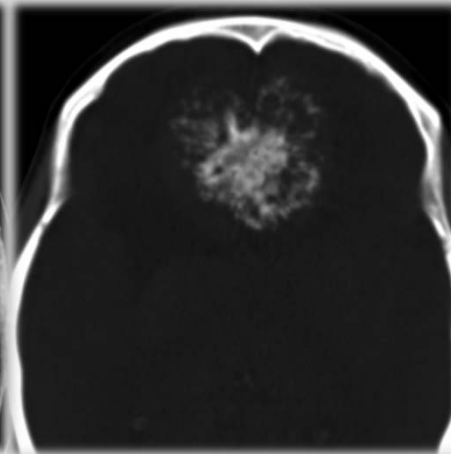
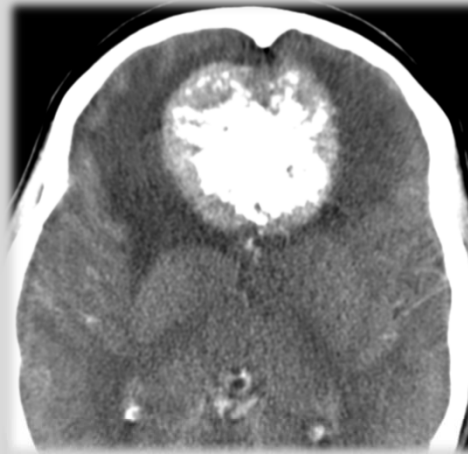


**FIBROBLÁSTICO**

Cortesía Dra M<sup>a</sup> Rosa Bella. Anatomía Patológica-Corporació Sanitària ParcTauli.Sabadell.BCN.

Intracranial meningiomas: correlations between MR imaging and histology. Maiuri et al. / Eur J Radiol 1999 Jul; 31 (1): 69-75.

# TC e HISTOPATOLOGÍA



**METAPLÁSICO: DIFERENCIACIÓN ÓSEA**

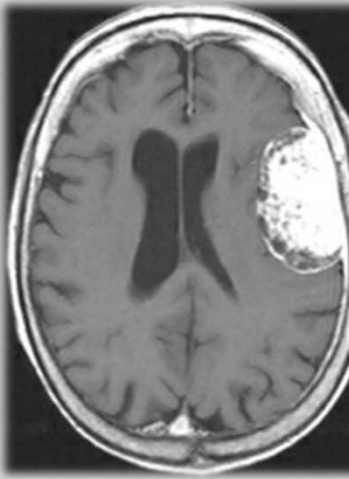
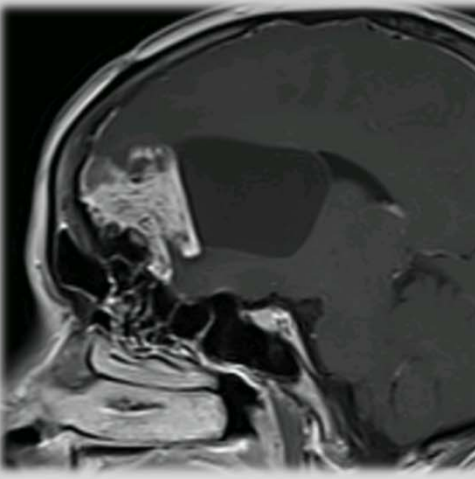
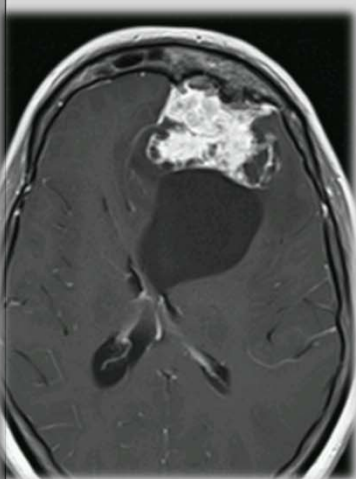
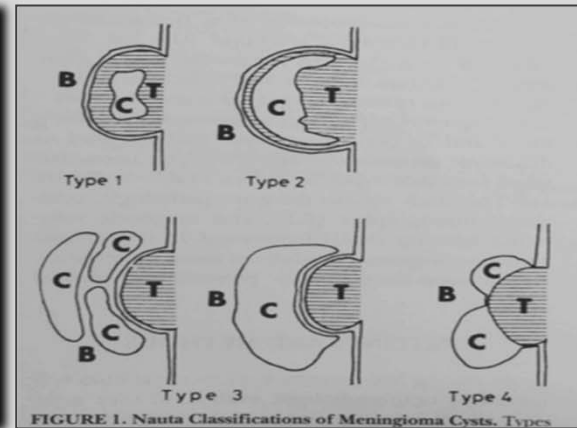
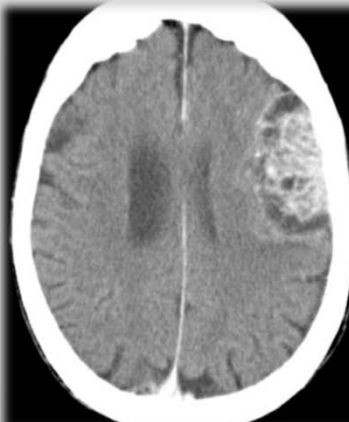
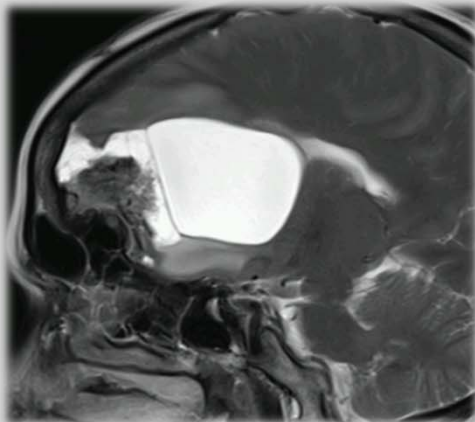
*Cortesía Dra M<sup>a</sup>Rosa Bella. Anatomía Patológica- Corporació Sanitària ParcTauli.Sabadell.BCN.*

**PSAMMOMATOSO**

*Cortesía Dra M<sup>a</sup>Rosa Bella. AP. Corporació Sanitària. ParcTauli.Sabadell.BCN.*

# VARIANTES MENINGIOMA

## FORMAS QUÍSTICAS (MENINGIOMA QUÍSTICO)



### QUISTES (Nauta)

- \* TIPO 1/2: INTRATUMORALES
- \*\* TIPO 3/4: PERITUMORALES

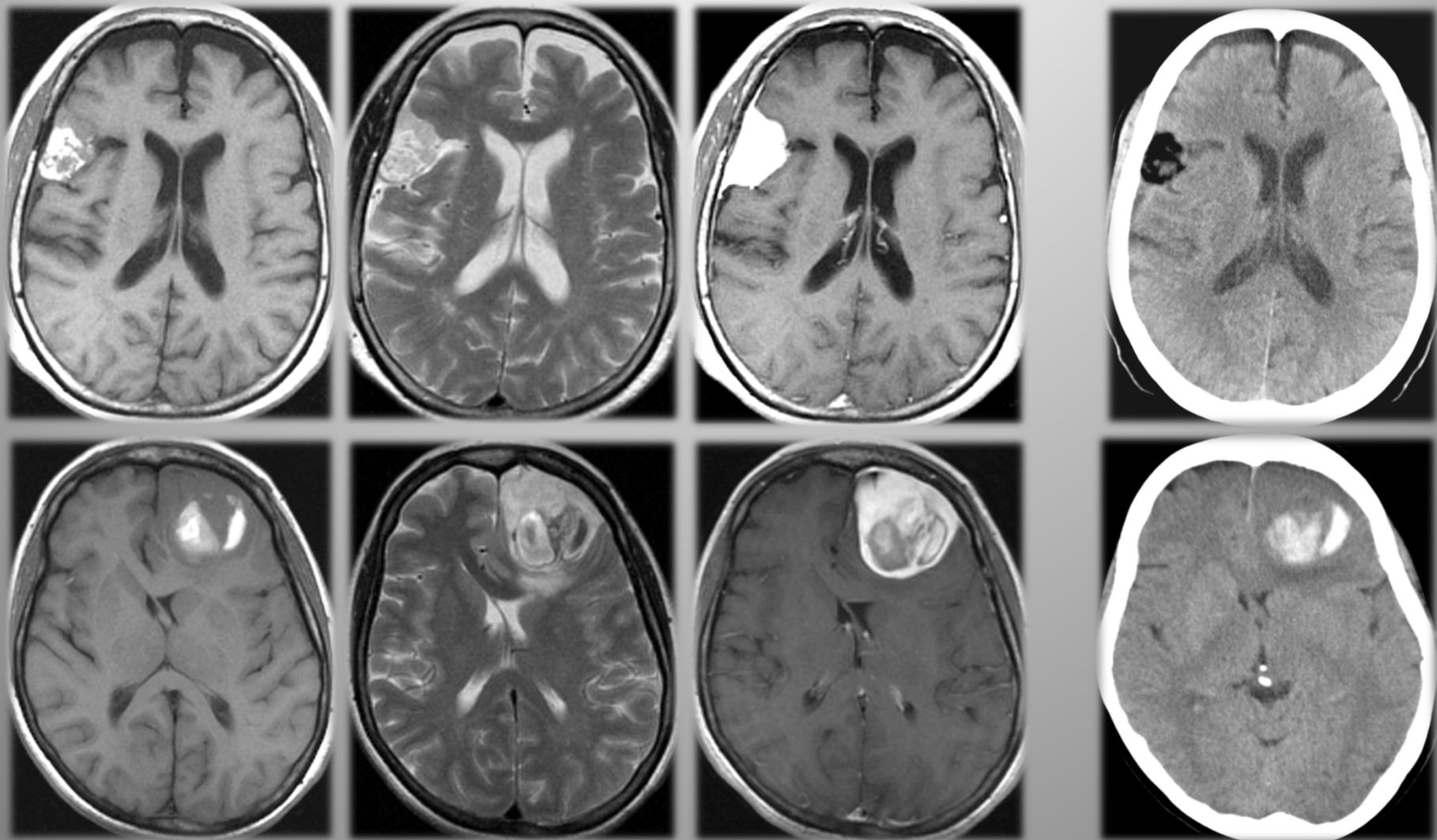
- \* Cambios secretorios/degenerativos
- \*\* Loculaciones LCR espacio SA
- Cambios encefalomalácicos

Nauta et al. Xanthochromic cysts associated with meningioma. *J Neurol Neurosurg Psychiatry* 1979; 42: 529-535



# VARIANTES MENINGIOMA

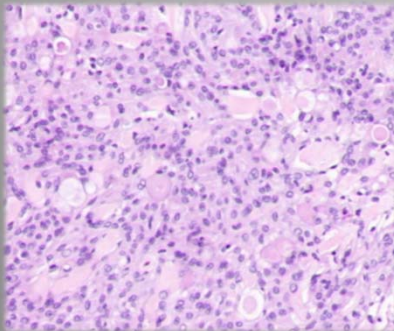
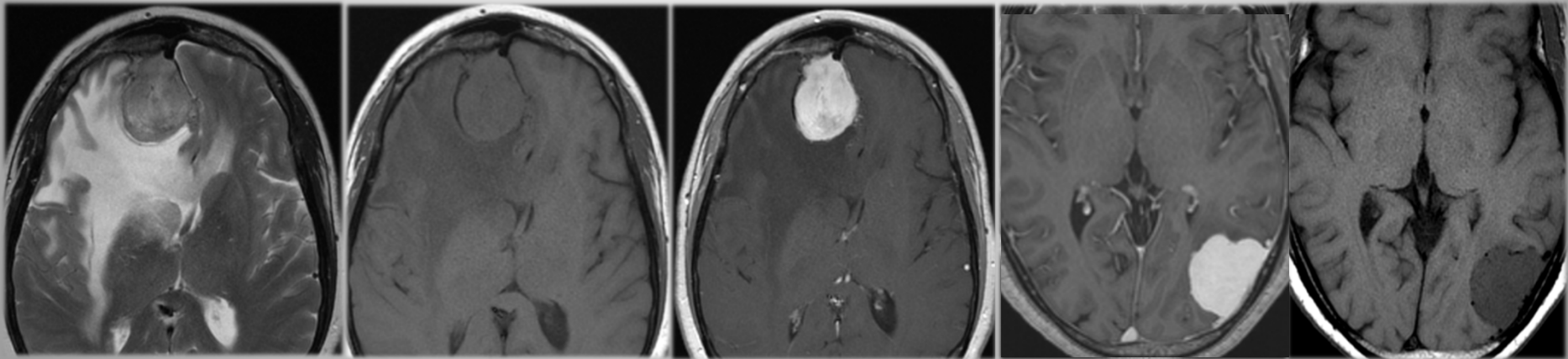
## FORMAS LIPOIDEA (LIPOMENINGIOMA) Y HEMORRÁGICA



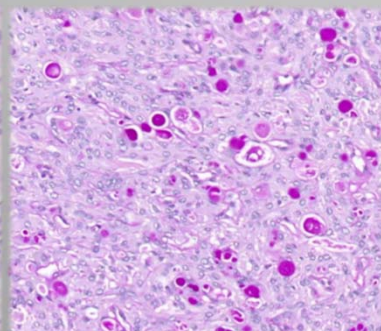
# VARIANTES MENINGIOMA

## MENINGIOMA SECRETOR

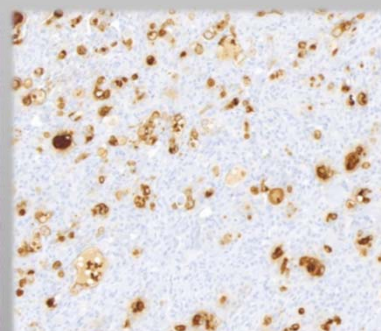
## MENINGIOMA MICROQUÍSTICO



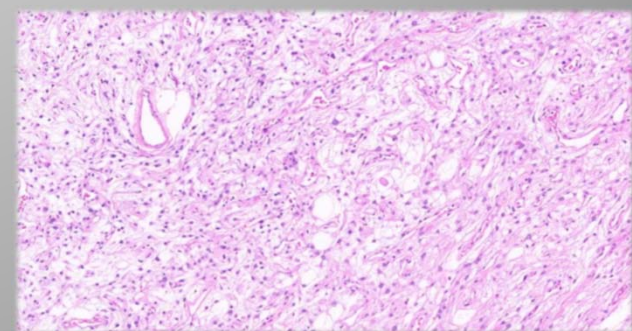
H-E: MATERIAL EOSINÓFILO



INCLUSIONES PAS +



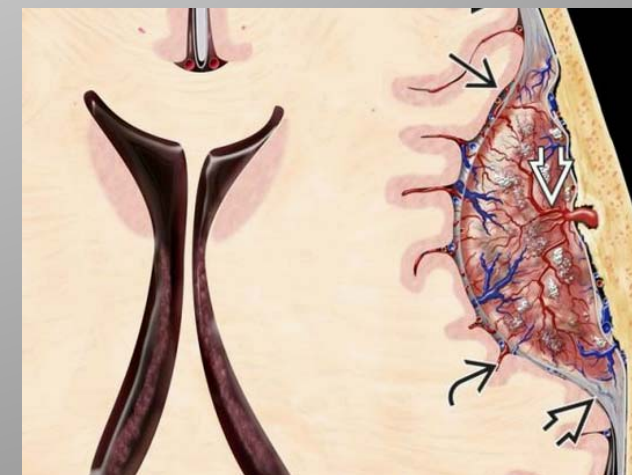
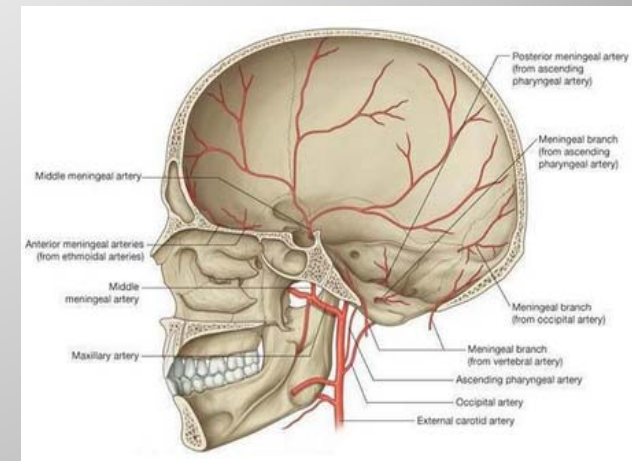
IH: CEA +



VACUOLIZACIÓN Y CAMBIOS MICROQUÍSTICOS

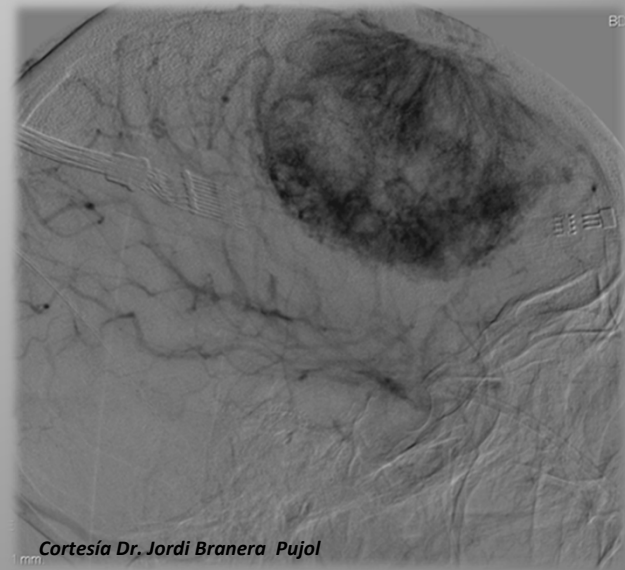
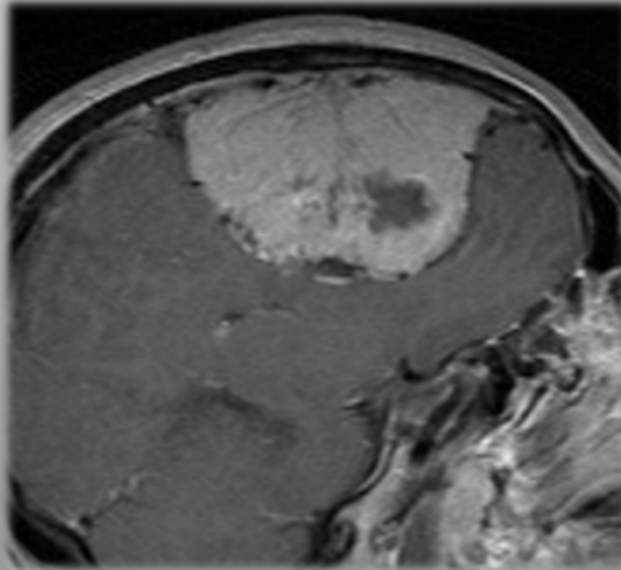
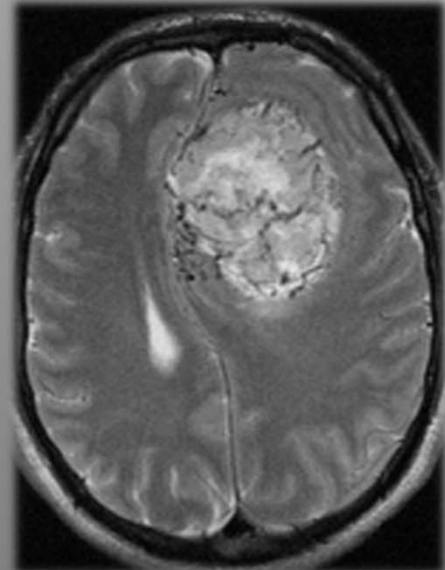
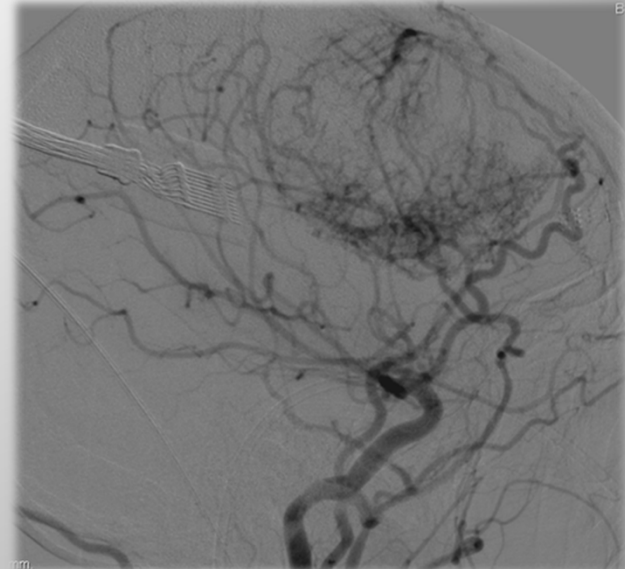
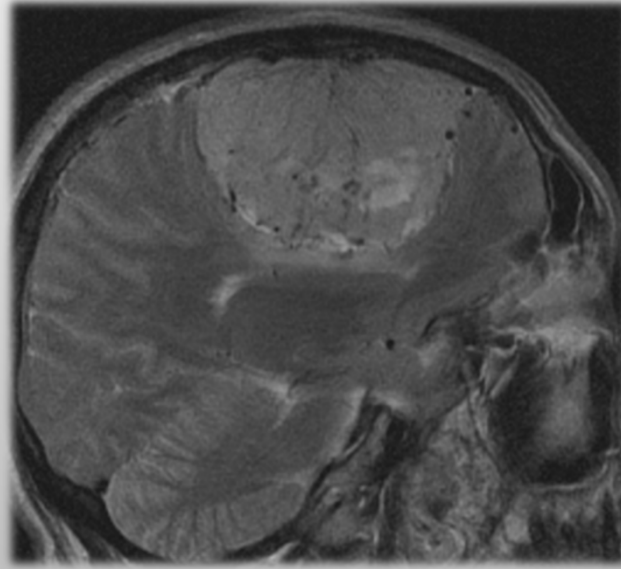
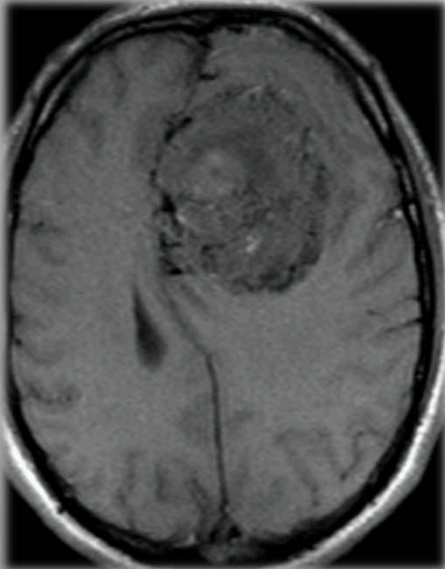
# VASCULAR

1. RAMAS CARÓTIDA EXTERNA (ARTERIA MENÍNGEA MEDIA) O RAMAS MENÍNGEAS ACI/VB. PARASITACIÓN DE VASOS PIALES
2. SIGNO RM: **“SOL NACIENTE”**: VASOS DURALES DISPOSICIÓN RADIAL CENTRO HACIA LA PERIFERIA Y PLEXO PIAL SUPERFICIE
3. SIGNO ANGIOGRÁFICO: **“MOTHER IN LAW”**- CAPTACIÓN ARTERIAL PRECOZ Y PERSISTE EN FASE VENOSA
4. MENINGIOMA ANGIOMATOSO (Sobreexpresión de VEGF): VASOS INTRATUMORALES + EDEMA + HIPERSEÑAL T2



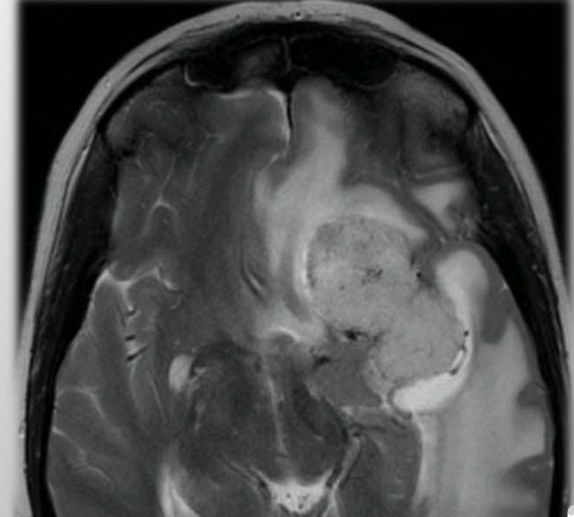
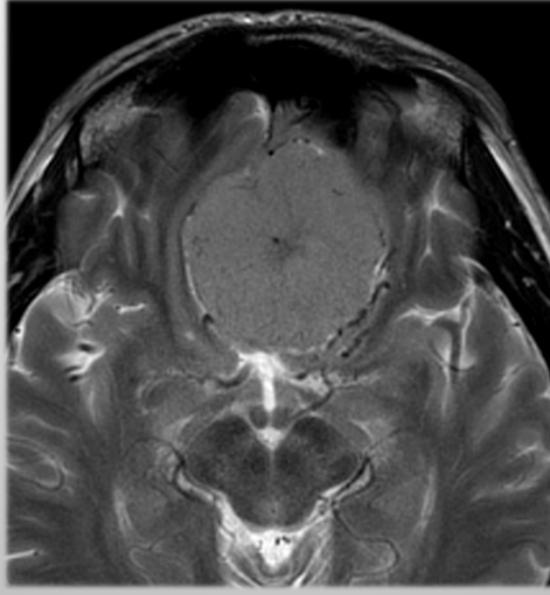
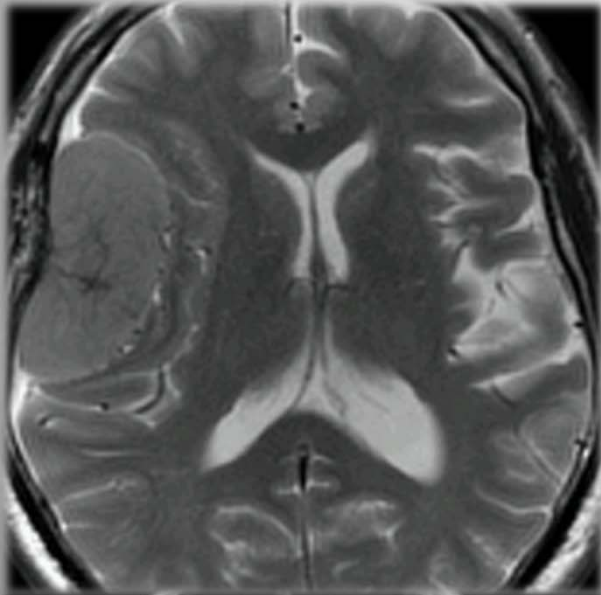
Osborn's brain. Tumors of the meninges

# MENINGIOMA-VASCULARIZACIÓN

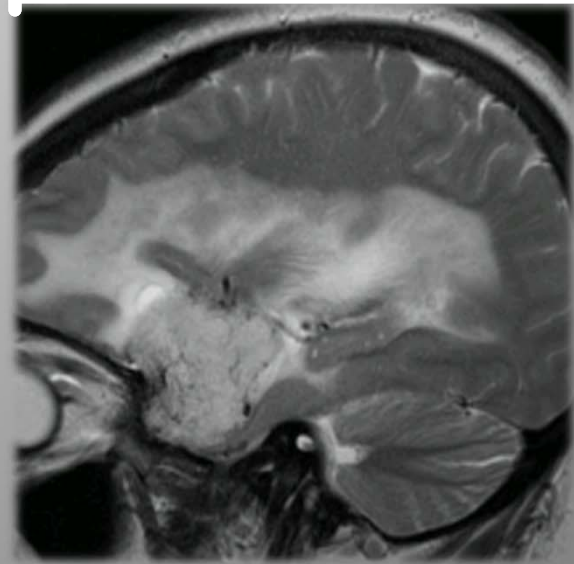
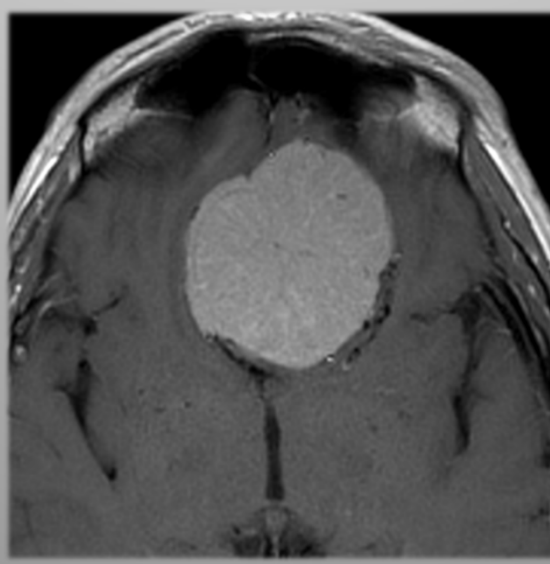
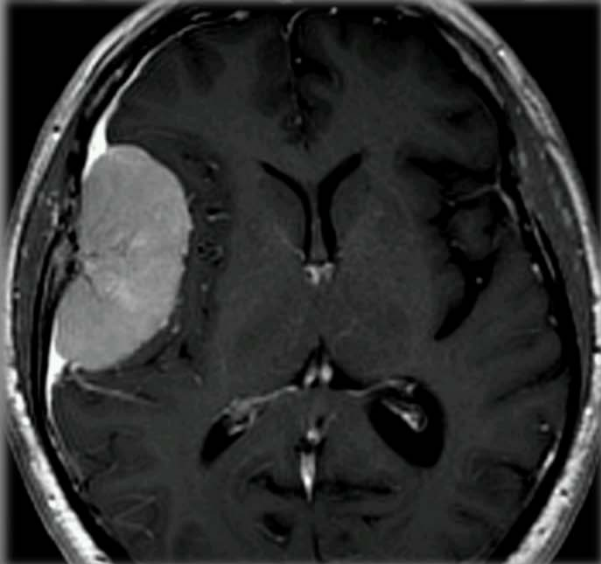


Cortesía Dr. Jordi Branera Pujol

# MENINGIOMA-VASCULARIZACIÓN

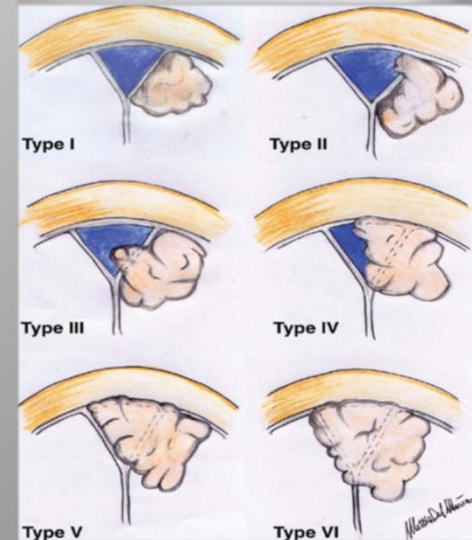
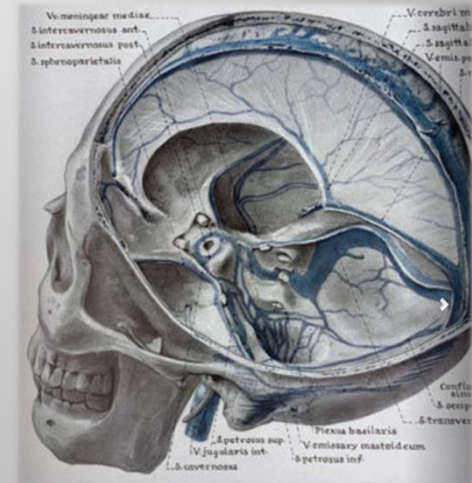


MENINGIOMA ANGIOMATOSO

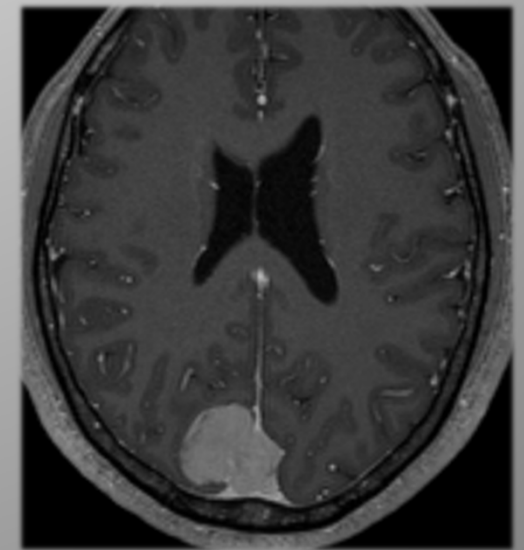
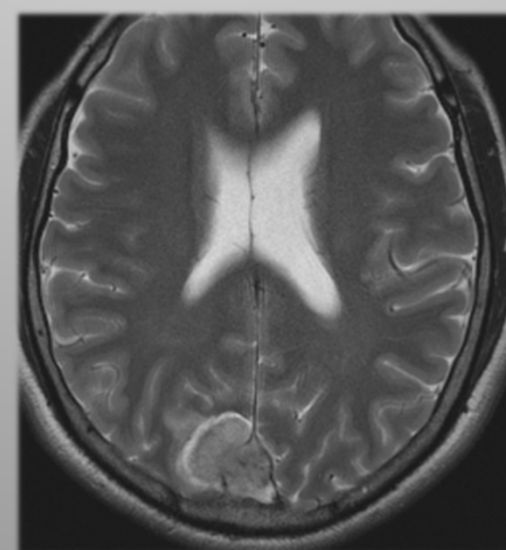
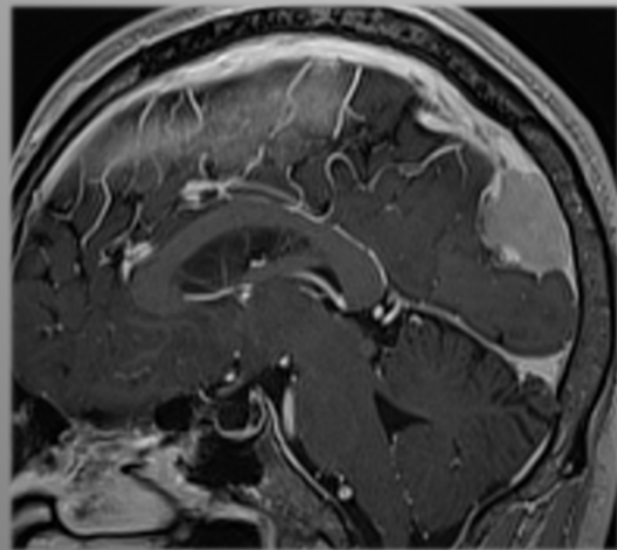
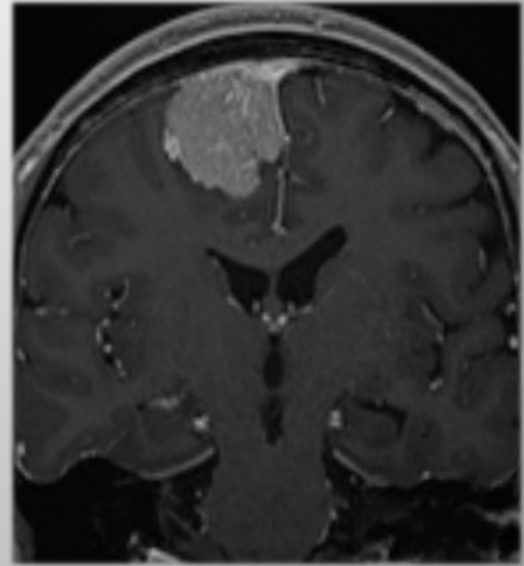
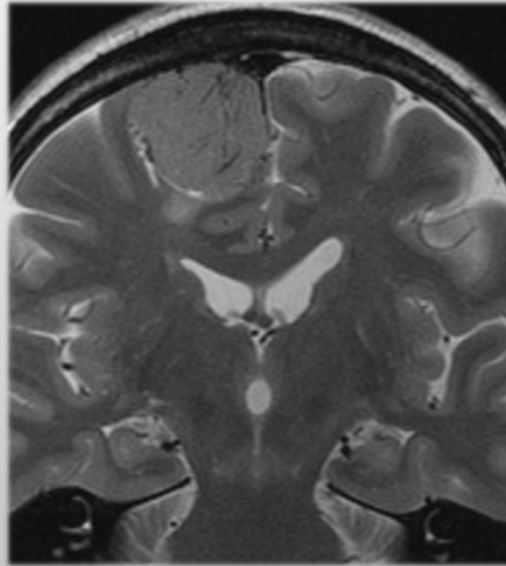
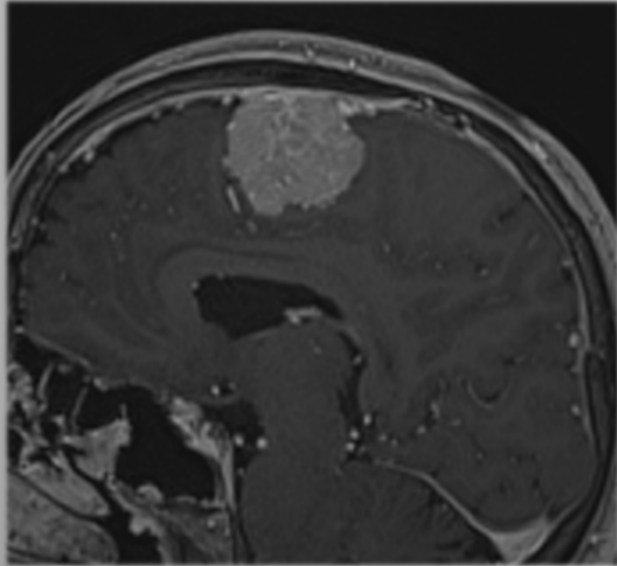


# VASCULAR

1. RAMAS CAROTIDA EXTERNA (ARTERIA MENÍNGEA MEDIA) O RAMAS MENÍNGEAS ACI/VB
2. SIGNO RM: “SOL NACIENTE”: VASOS DURALES DISPOSICIÓN RADIAL CENTRO HACIA LA PERIFERIA Y PLEXO PIAL SUPERFICIE
3. SIGNO ANGIOGRÁFICO: “MOTHER IN LAW”- CAPTACIÓN ARTERIAL PRECOZ Y PERSISTE EN FASE VENOSA
4. MENINGIOMA ANGIOBLÁSTICO: VASOS INTRATUMORALES, EDEMA, HIPERSEÑAL T2
5. INVASIÓN SENO VENOSO: SECUENCIAS T1, T2 Y RM-ANGIOGRAFÍA



# MENINGIOMA-VASCULARIZACIÓN



# CAMBIOS ÓSEOS

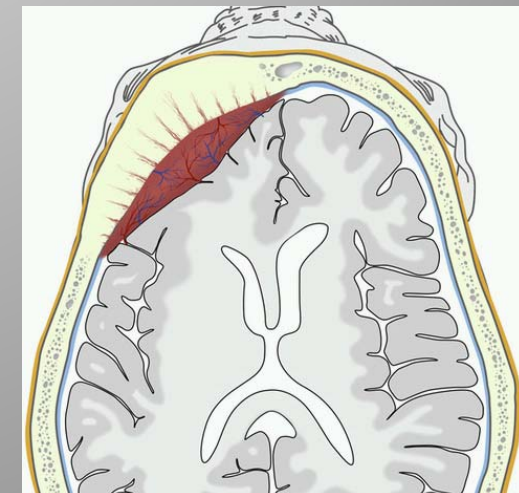
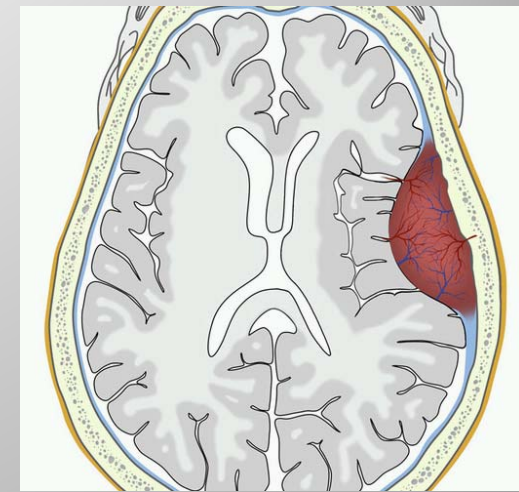
- 25-49% MENINGIOMAS CAMBIOS ÓSEOS
- **HIPEROSTOSIS** Y OSTEOLISIS
- **HIPEROSTOSIS:**
  - TUMORES BASE DE CRÁNEO (ALA ESFENOIDAL) Y CONVEXIDAD
  - PROCESO REACTIVO POR ACTIVACIÓN OSTEABLÁSTICA
  - TEORIA ACEPTADA: **INVASIÓN TUMORAL HUESO**
- **ESTUDIOS DE IMAGEN**
  - TC: { **Engrosamiento** hueso/Abombamiento interno/Superficie **irregular**  
Spur Enostótico: Hiperostosis focal  
Pneumosinus dilatans
  - RM (**T1 FS Gd**): Realce hueso **heterogéneo**, mayor bordes hiperostosis
  - **68 GA-DOTATATE PET/CT**: Sobreexpresión de Receptores de Somatostatina II

Important

**MAYOR SENSIBILIDAD INFILTRACIÓN ÓSEA**

- **MENINGIOMA EN PLACA VS INTRADIPLOICO**

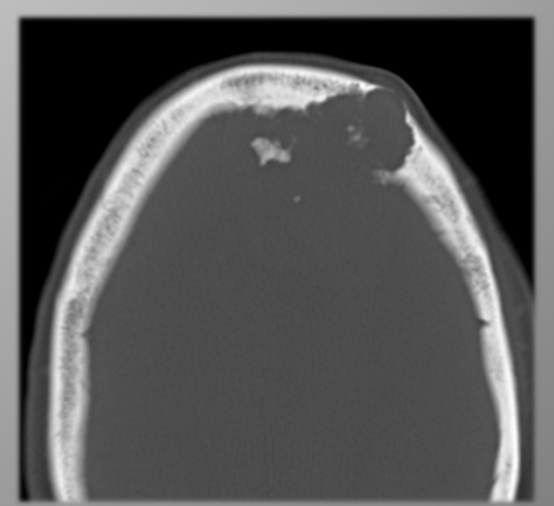
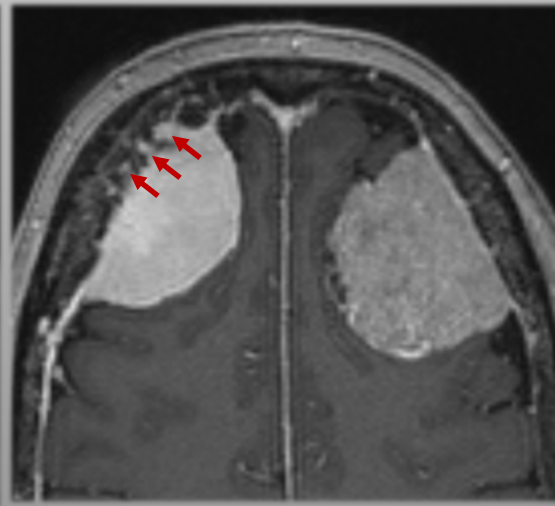
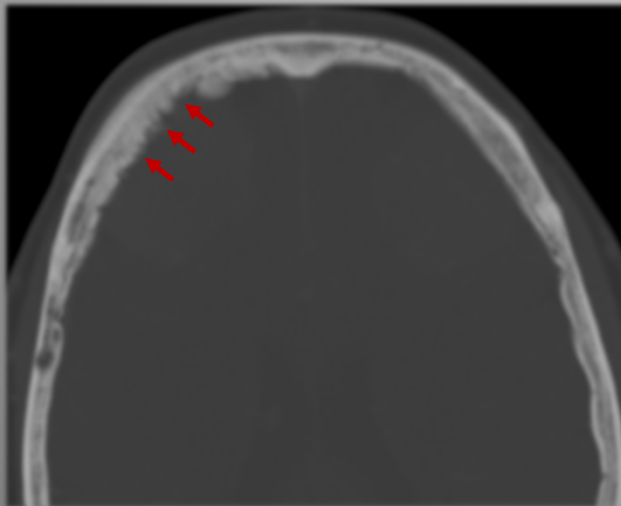
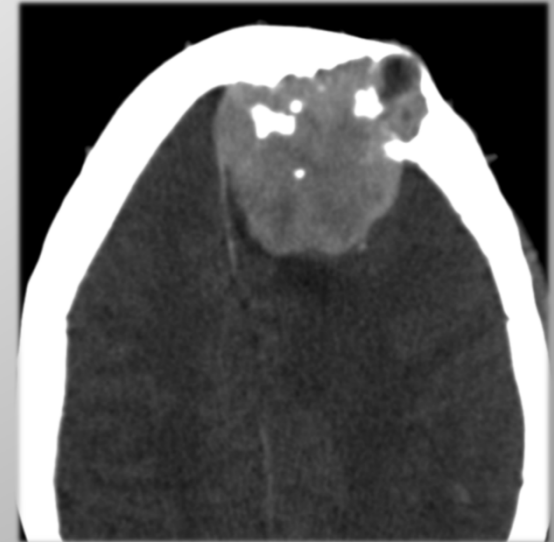
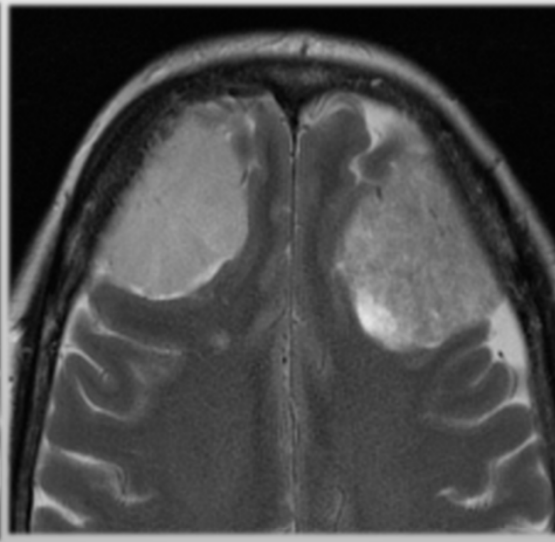
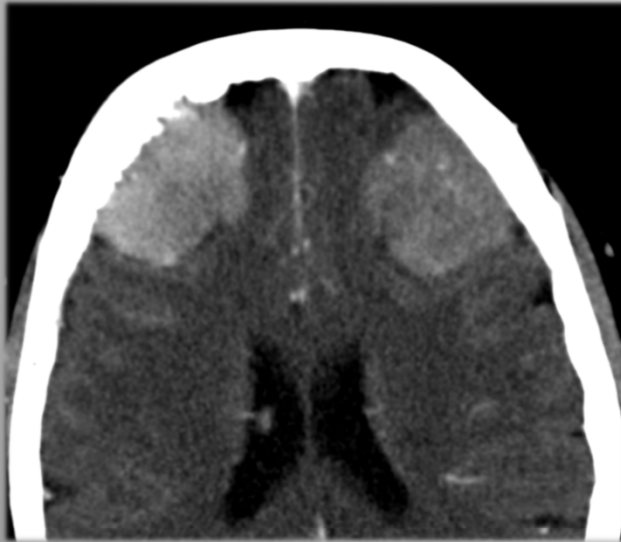
Kunz et al. Improved Detection of Transosseous Meningiomas Using 68Ga-DOTATATE PET/CT Compared with Contrast-Enhanced MRI. J Nucl Med 2017; 58:1580–1587



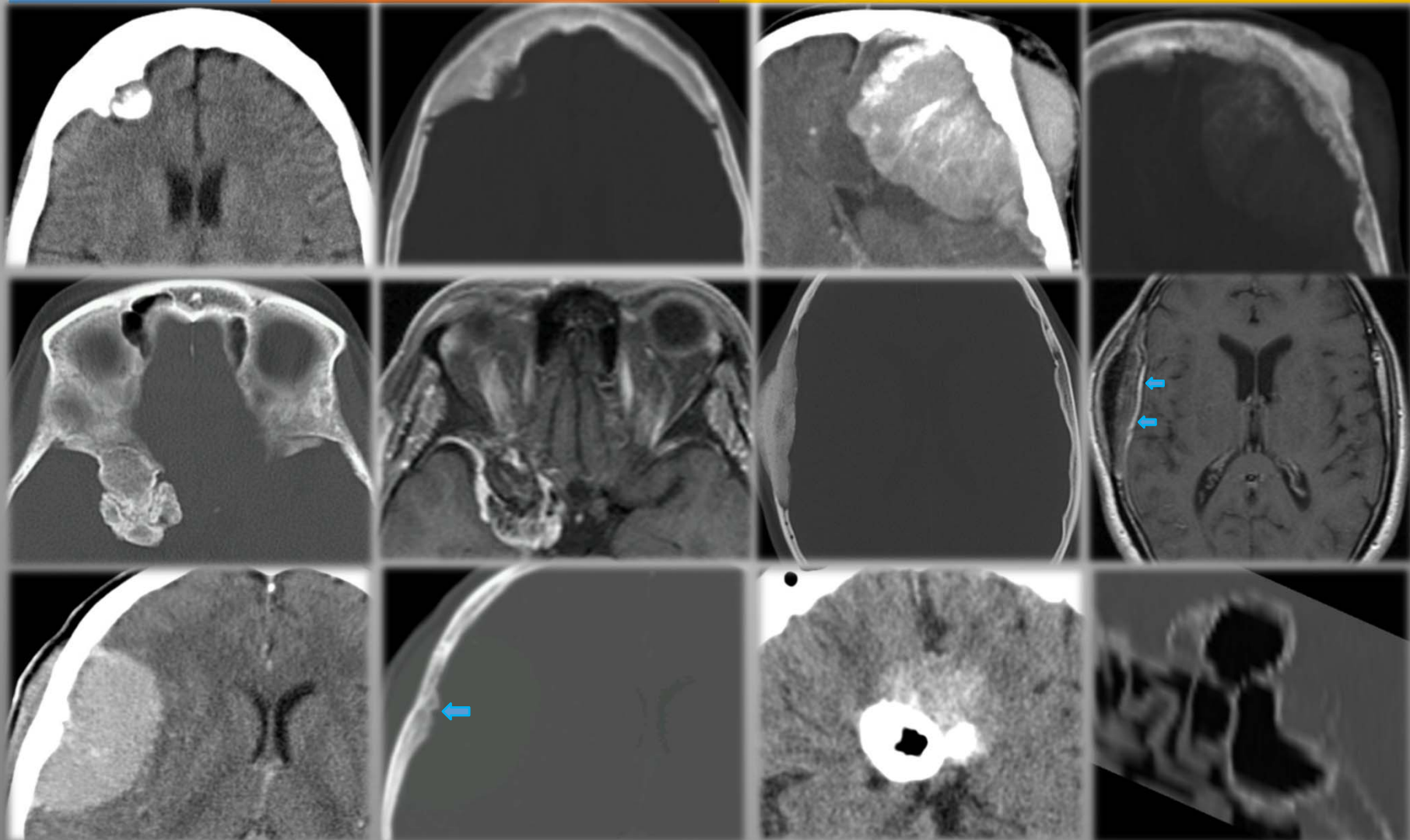
Calvarian lesions. Jarred Garfinkle. Association des radiologistes du Québec. Montreal.



# CAMBIOS ÓSEOS



# CAMBIOS ÓSEOS



# MIMICS

Ghosal et al. A clinicopathological study of diagnostically challenging **meningioma mimics**.

J Neurooncol (2012) 106:339–352

1000 MASAS DURALES

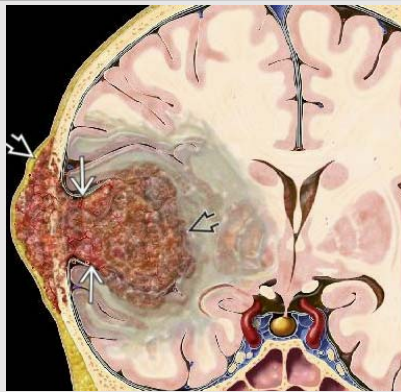
2% MENINGIOMAS MIMICS  
20

Cha et al. Meningioma mimics: **Five key imaging features** to differentiate them from meningiomas.

Clinical Radiology 72 (2017) 722-728

1. MARCADA HIPOSEÑAL T2
2. MARCADA HIPERSEÑAL T2
3. DESTRUCCIÓN ÓSEA
4. EXTENSIÓN LEPTOMENÍNGEA
5. AUSENCIA DE DURAL TAIL

# MIMICS



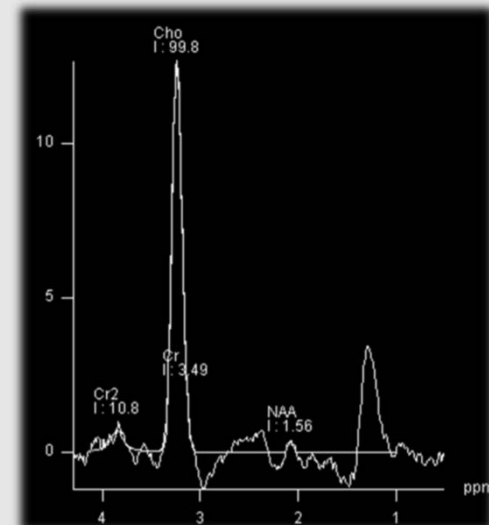
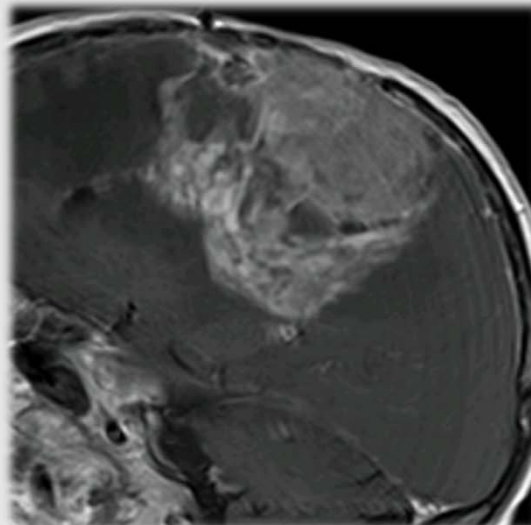
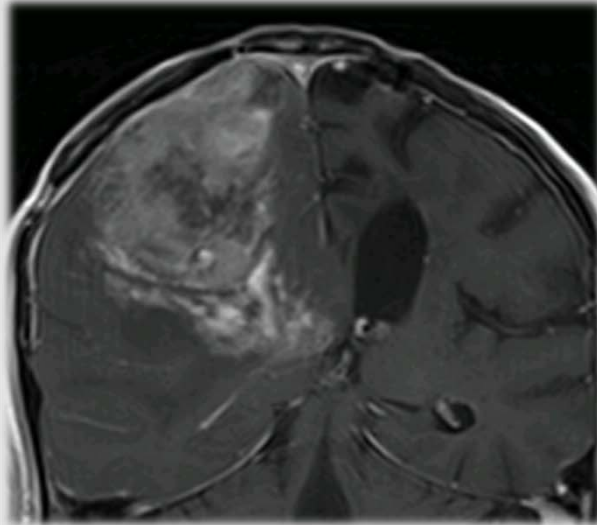
## MENINGIOMA ATÍPICOS Y MALIGNOS- GRADOS II-III

REPRESENTAN EL **10%** MENINGIOMAS (4-8%/1-3%). PREDOMINIO VARÓN  
FRECUENTE **INVASIÓN CEREBRAL** – PÉRDIDA CLEFT LCR Y VASCULAR  
MÁRGENES IRREGULARES, EDEMA PERITUMORAL Y OSTEOLISIS

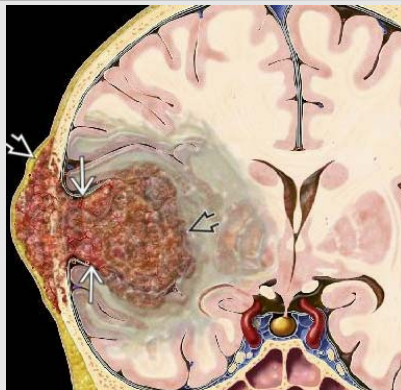
DW: ↓↓ ADC

PW: ↑↑ rCBV (EDEMA PERITUMORAL)

RMS: ↑ ALA



# MIMICS



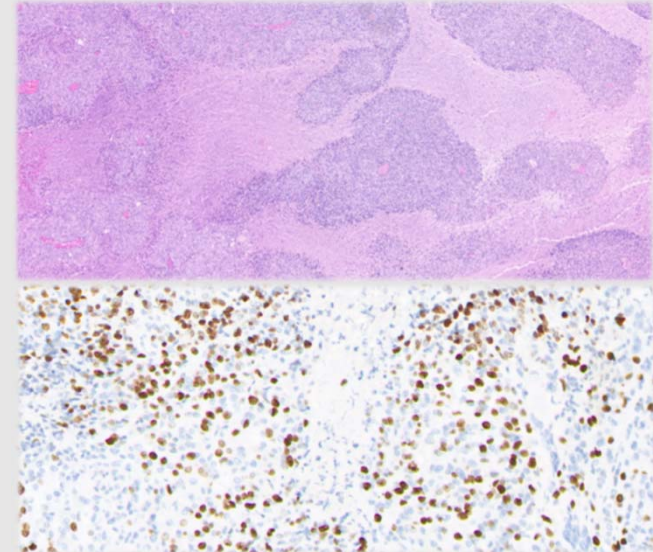
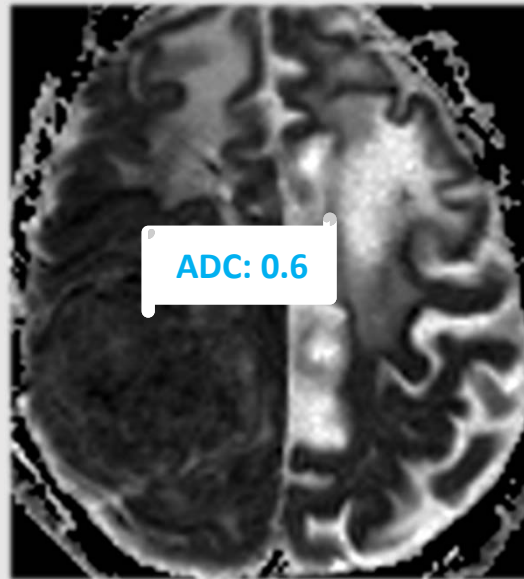
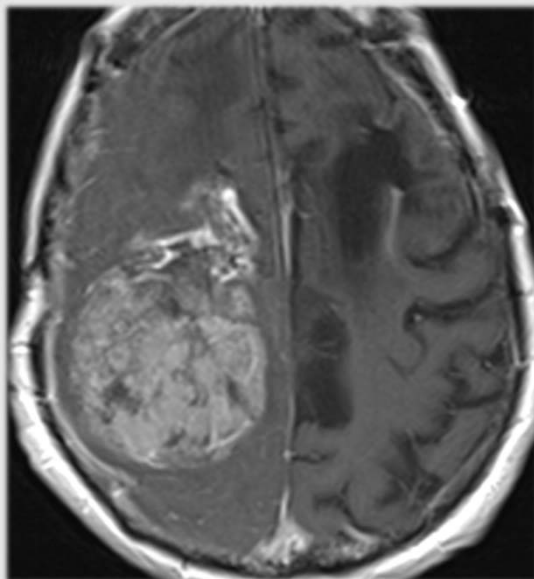
## MENINGIOMA ATÍPICOS Y MALIGNOS- GRADOS II-III



- RM ST:** HETEROGENEIDAD TUMORAL (NECROSIS), MÁRGENES, FORMA, VOLUMEN
- RM DW:** VALORES ADC  $\ll$  TUMORES ALTO GRADO. CUT-OFF: 0.80
- RM PW:** VALORES CBV  $\gg$  TUMORES ALTO GRADO. EDEMA PERITUMORAL
- PET-TC:** CORRELACIÓN SUV-GRADO TUMORAL

**\*BIOMARCADORES NO SUFICIENTE EVIDENCIA EN PREDICCIÓN GRADO TUMORAL\***

Huang et al. Imaging and diagnostic advances for intracranial meningiomas. Neuro-Oncology 21(S1), 44–61, 2019



Cortesía Dra M<sup>a</sup>Rosa Bella. AP. Corporació Sanitària. ParcTauli.Sabadell.BCN.

# MIMICS

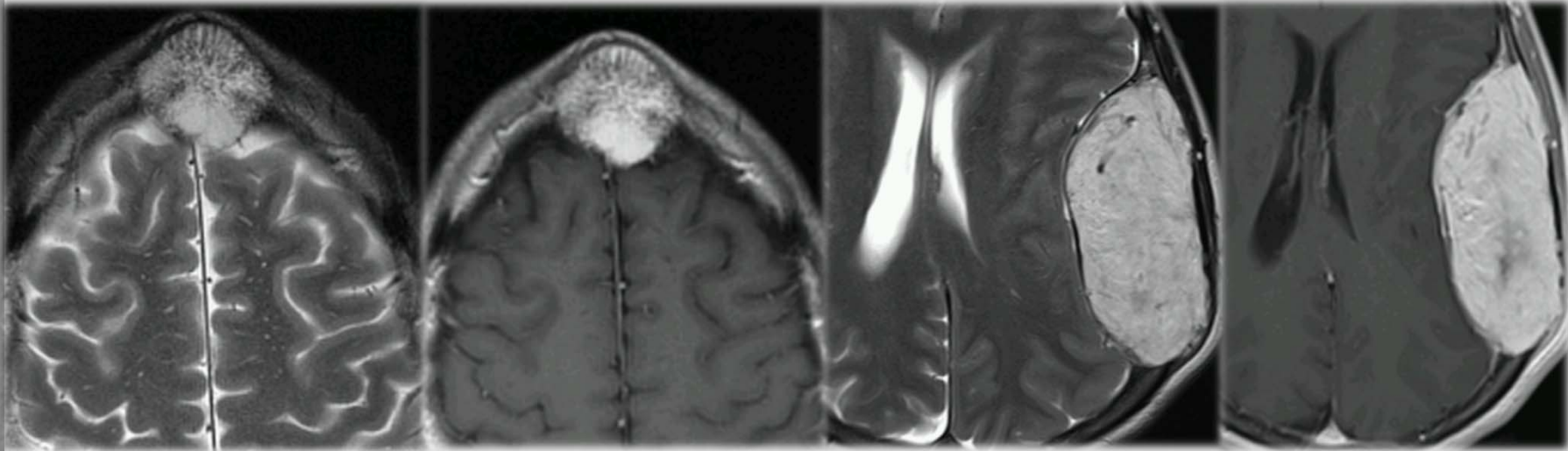
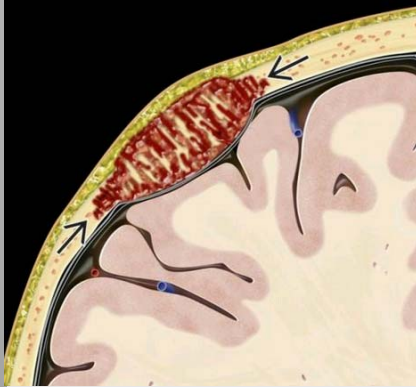
## TUMORES MENÍNGEOS NO MENINGOTELIALES

TUMORES MESENQUIMALES BENIGNOS Y MALIGNOS: TM OSTEOCARTILAGINOSOS, TUMOR FIBROSO SOLITARIO, TUMORES VASCULARES, SARCOMAS

**HEMANGIOMA** LOCALIZACIÓN INTRADIPLOICA

**TC** PATRÓN EN **PANAL**. HIPERDENSIDADES RETICULARES

**RM** MARCADAMENTE **HIPERINTENSOS EN T2**. INTENSO REALCE GD



# MIMICS



## TUMORES MENÍNGEOS NO MENINGOTELIALES

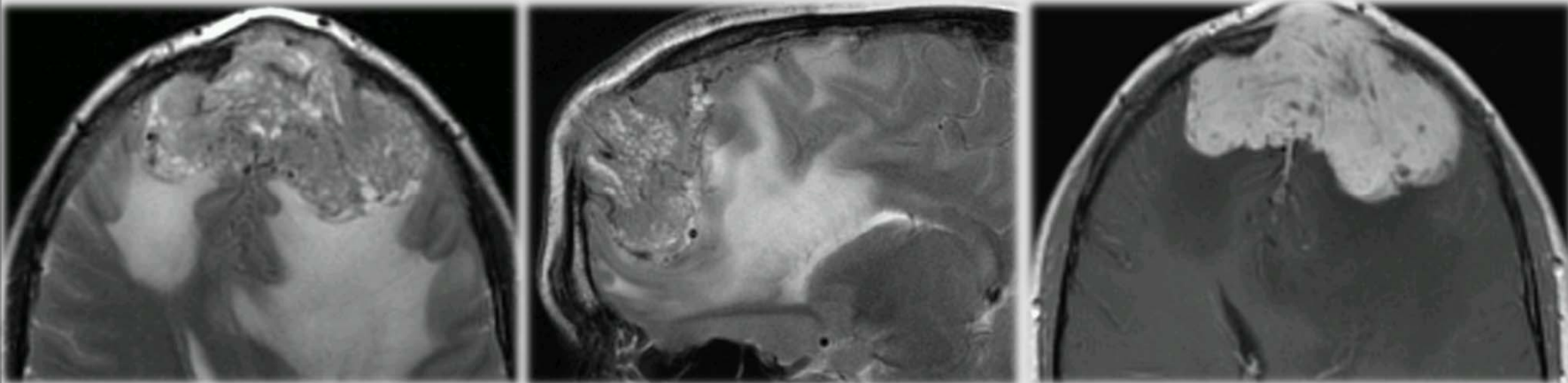
### HEMANGIOPERICITOMA (ESPECTRO TUMOR FIBROSO SOLITARIO)

NEOPLASIA MALIGNA MESENQUIMAL MÁS COMÚN

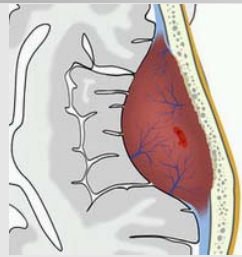
TUMOR MUY CELULAR Y VASCULAR, ALTA RECURRENCIA Y MTTTS A DISTANCIA

**TC** MASA DURAL HIPERDENSA, **OSTEOLISIS**, AUSENCIA DE CALCIO Y HIPEROSTOSIS

**RM** ISO EN T1 Y ISO-HIPER EN T2. **FLOW VOIDS** E IMPORTANTE REALCE.

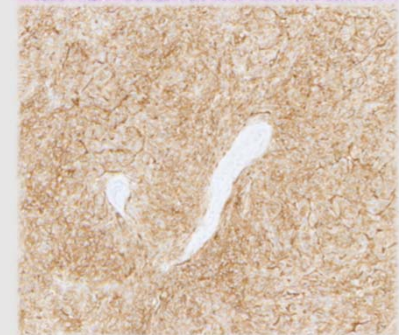
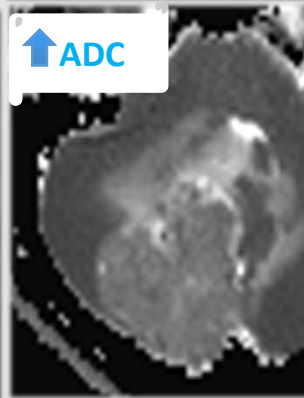
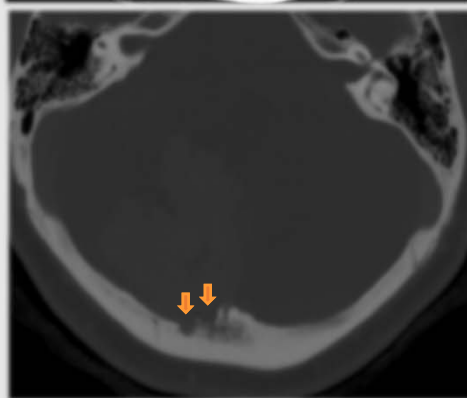
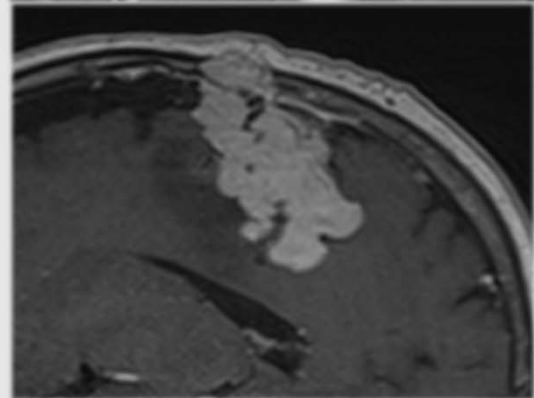
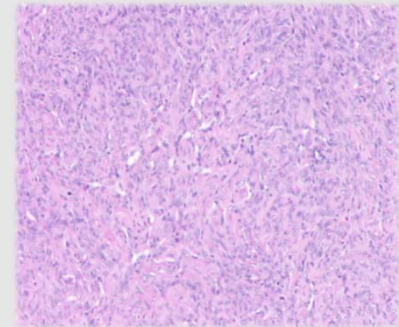
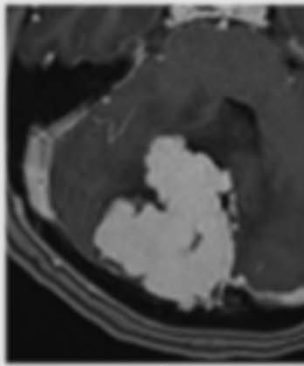
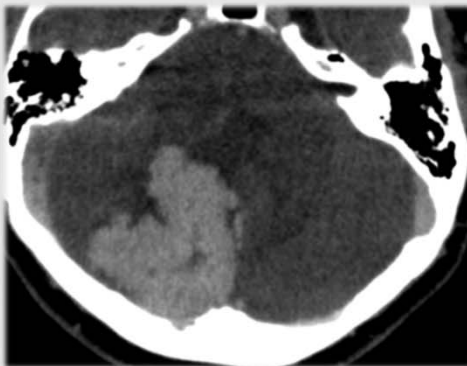
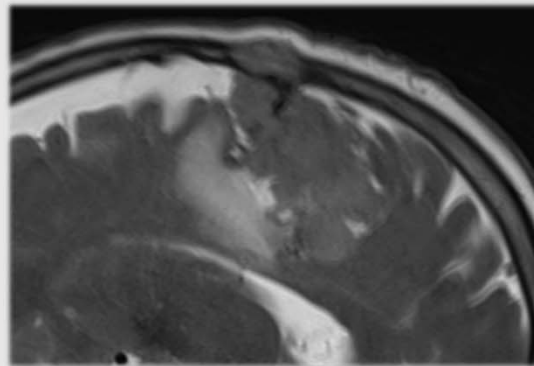


# MIMICS



## HEMANGIOPERICITOMA (ESPECTRO TUMOR FIBROSO SOLITARIO)

- RM** BASE DE IMPLANTACIÓN DURAL > ESTRECHA QUE EL MENINGIOMA
- DW** VALORES **ADC MAYORES** DEL HPC EN RELACIÓN AL MENINGIOMA
- RMS** PICO MIOINOSITOL (3,56ppm). NO ALANINA



Cortesía Dra M<sup>a</sup>Rosa Bella. AP. Corporació Sanitària. ParcTauli.Sabadell.BCN.



# MIMICS



## METÁSTASIS DURALES

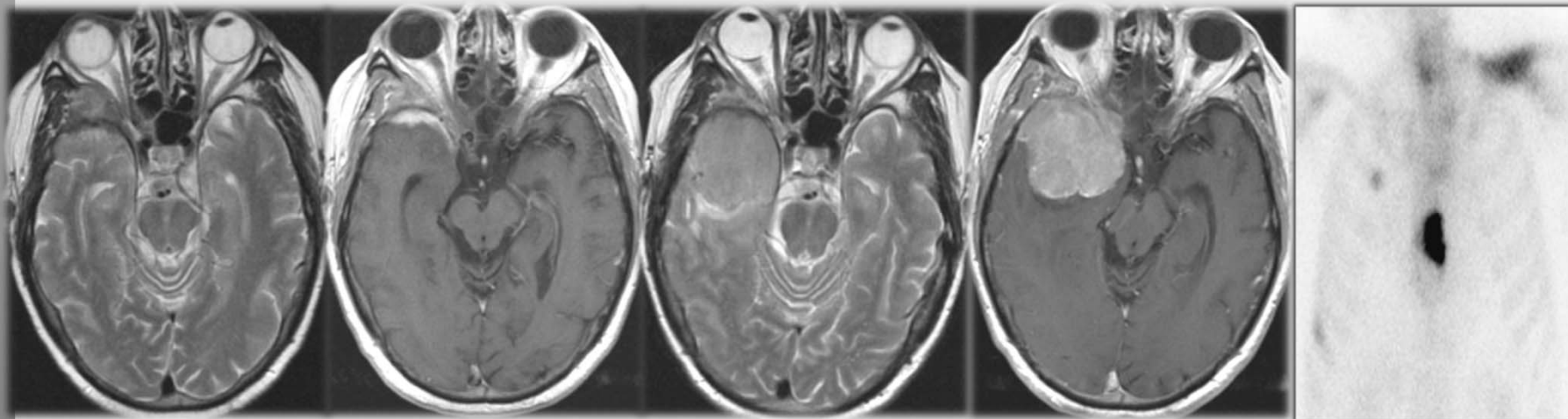
**NEOPLASIAS MAMA (35%) , PRÓSTATA (15-20%) y PULMÓN (13%)**

8-10% CÁNCER METÁSTASIS DURALES. DURA-CALOTA CRANEAL 2º MTTs SNC.

**TC** MASA FOCAL HIPERCAPTANTE DIPLOE CON EXTENSIÓN SUBGALEAL Y DURAL

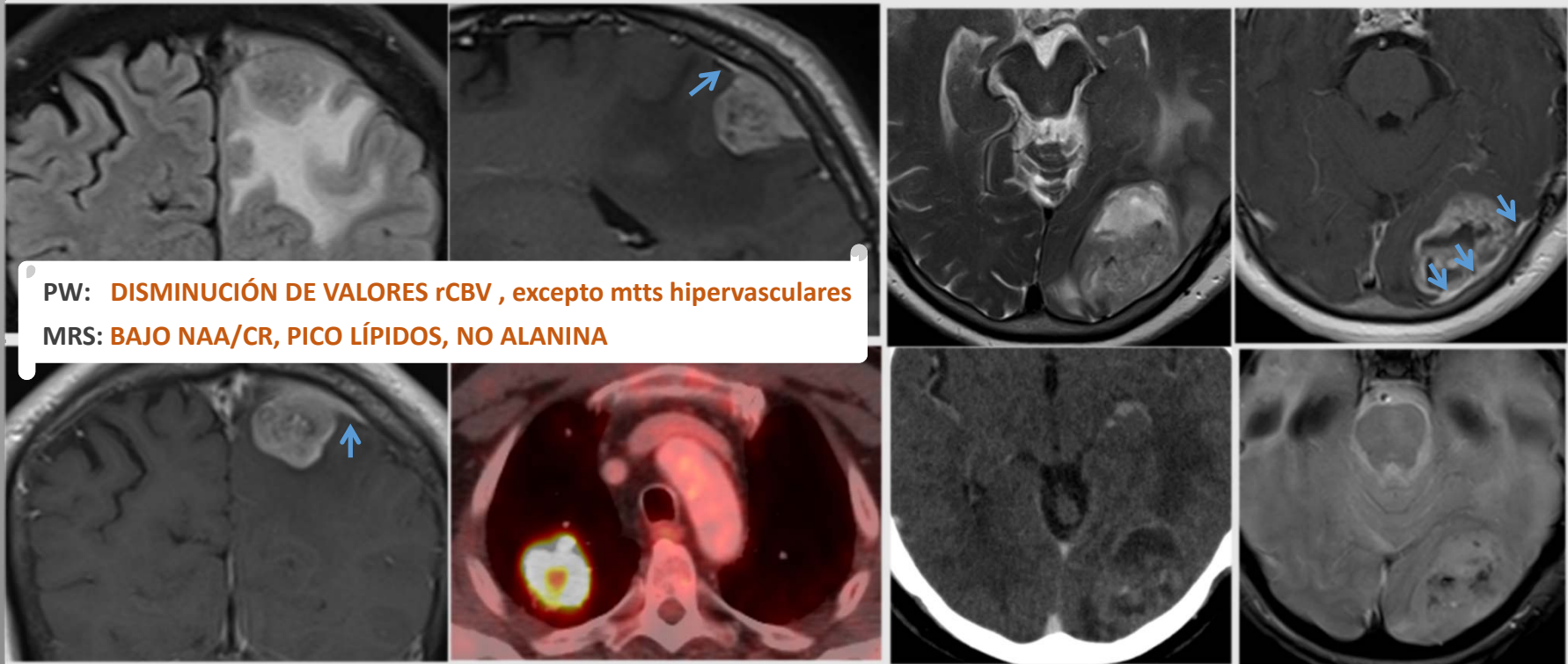
**RM** HIPO EN T1 Y HIPER EN T2. T1 FAT-SAT: IMPORTANTE REALCE. **50% : DURAL TAIL**

**GAMMAGRAFÍA Tc-99m** ALTO VPP MTTs ÓSEAS (CALOTA)



# MIMICS

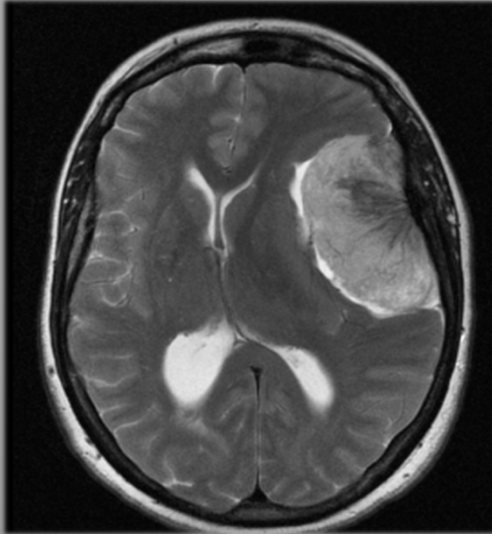
## DURAL TAIL



**METÁSTASIS ADENOCARCINOMA PULMONAR**

**GLIOBLASTOMA (WILD TYPE)**

# MENINGIOMA CORDOIDE (GII WHO)



## LOCALIZACIÓN

CONVEXIDAD CEREBRAL (20-34%)

## EFFECTOS LOCALES

MASA DE IMPLANTACIÓN DURAL

CLEFT LCR

SIGNO COLA DURAL

NO EDEMA/SÍ EFECTO DE MASA

## COMPOSICIÓN

ISODENSA TC

HIPERINTENSA EN T2

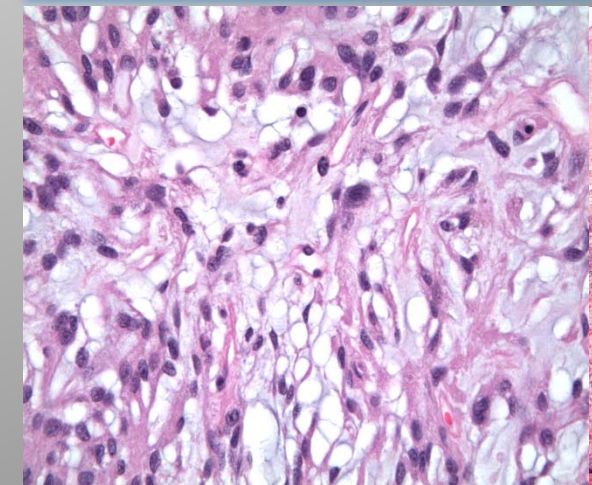
REALCE DIFUSO

## VASCULAR

PATRÓN SOL NACIENTE

## CAMBIOS ÓSEOS

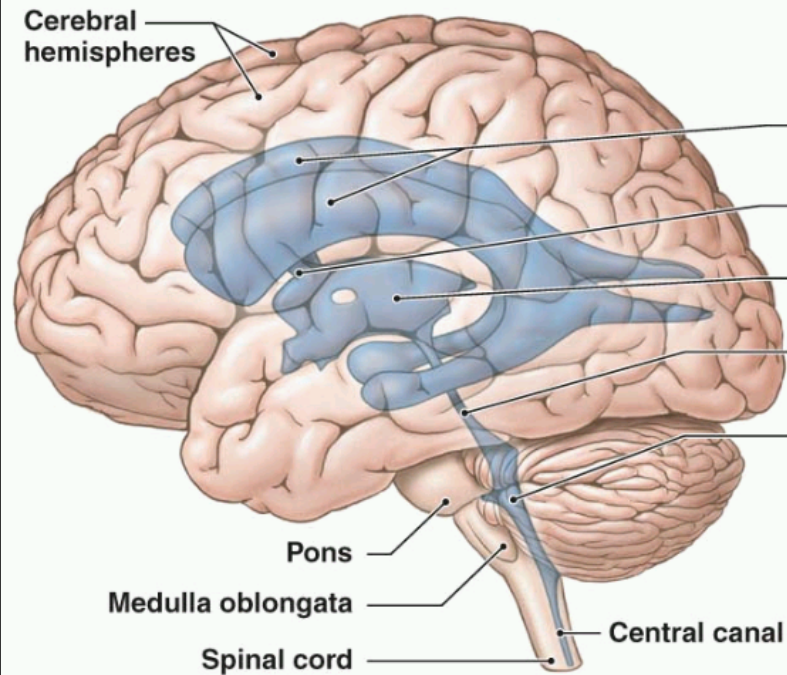
SPUR ENOSTÓTICO



Cortesía Dra M<sup>re</sup>Rosa Bella. Anatomía Patológica-Corporació Sanitària ParcTauli. Sabadell.BCN.

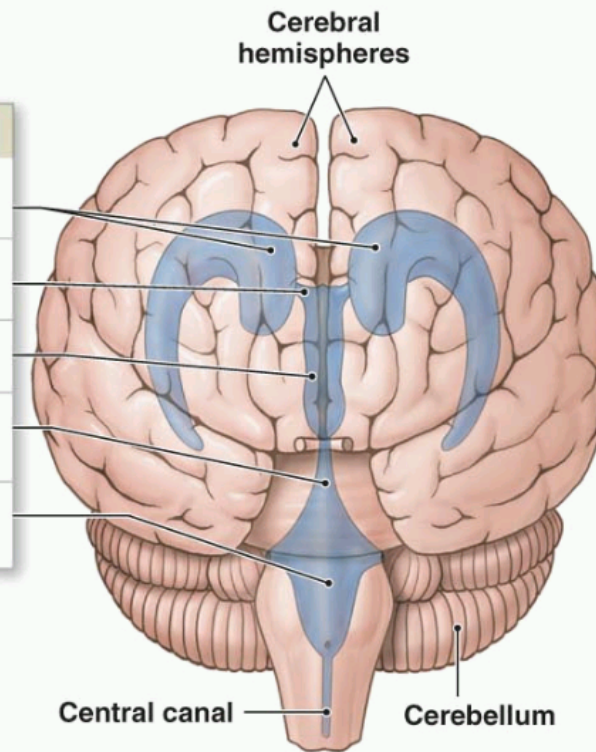
# TUMORES INTRAVENTRICULARES

Two views of the ventricles, which are filled with cerebrospinal fluid



**Ventricular system, lateral view**

Ventricles of the Brain
Lateral ventricle
Interventricular foramen
Third ventricle
Aqueduct of midbrain
Fourth ventricle



**Ventricular system, anterior view**

## VENTRÍCULOS LATERALES

### FORAMEN MONRO

ASTROCITOMA SUBEPENDIMARIO CLS GIGANTES. SUBEPENDIMOMA (30-40%). QUISTE COLOIDE

### ATRIO

PAPILOMA PLEXO COROIDEO (50%). MENINGIOMA. METÁSTASIS. XANTOGRANULOMAS P.C

### CUERPO

NEUROCIOMA CENTRAL. METÁSTASIS. QUISTE EPENDIMARIO

## TERCER VENTRÍCULO

CRANEOFARINGIOMA. ASTROCITOMA PILOCÍTICO

PAPILOMA PLEXO COROIDEO (5%)

GLIOMA CORDOIDE

## CUARTO VENTRÍCULO

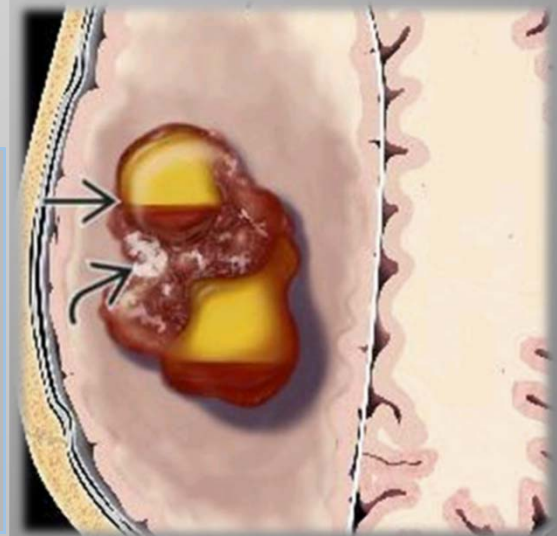
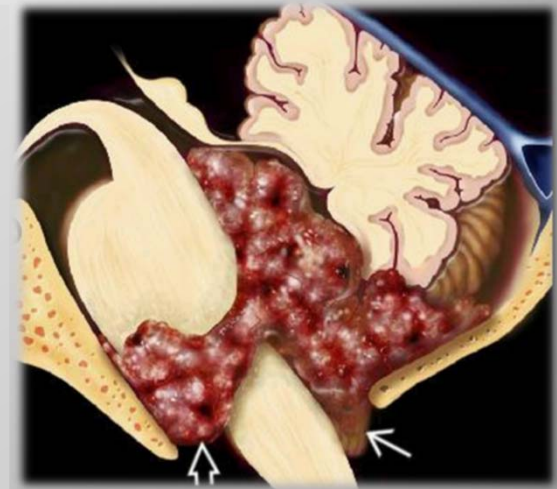
EPENDIMOMA (60-70%). SUBEPENDIMOMAS (50-60%)

PAPILOMA PLEXO COROIDEO (40%)

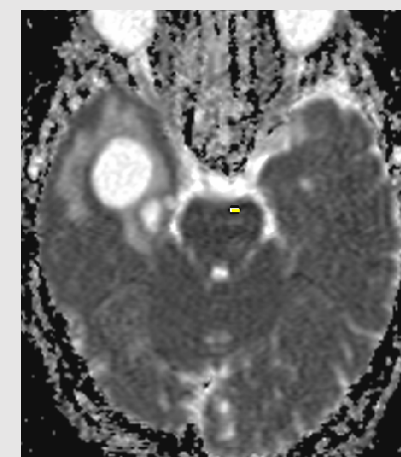
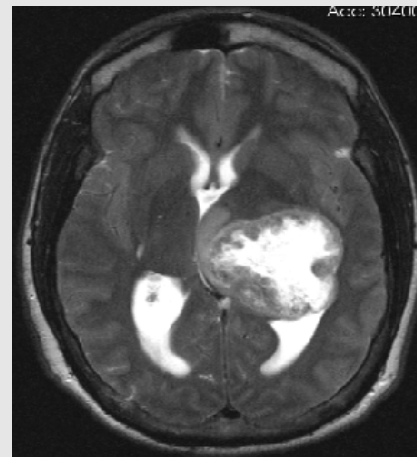
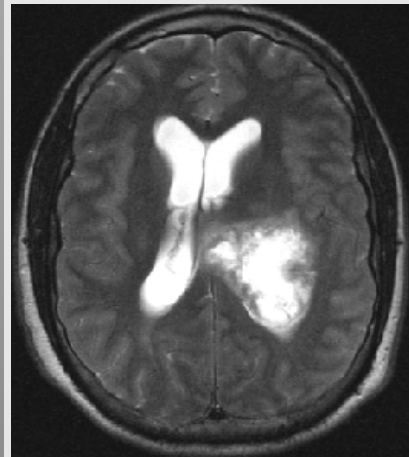
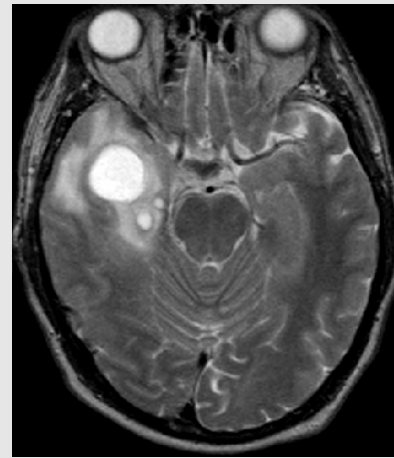
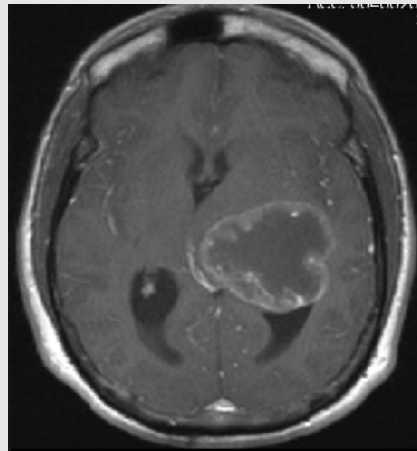
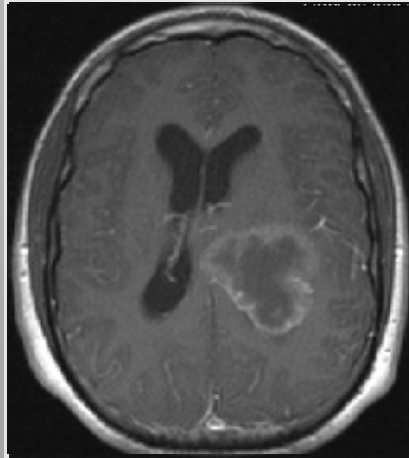
TUMOR GLIONEURONAL FORMADOR DE ROSETAS

# EPENDIMOMA

- 60-70% INFRATENTORIALES. **IV VENTRÍCULO**  
30-40% SUPRATENTORIALES. **HEMISFÉRICOS**
  - **GRADO II WHO. 10% NEOPLASIAS SNC NIÑOS**  
**TERCER TUMOR FOSA POSTERIOR INFANCIA**
  - INFRATENTORIAL: MASA IV VENTRÍCULO CON  
EXTENSIÓN LATERAL CISTERNA APC
  - SUPRATENTORIAL: MASSA HEMISFÉRICA CON  
FORMACIÓN **QUISTES, SANGRADO O CALCIO**
- **TC** MASA ISO-HIPODENSE CON QUISTES  
CALCIFICACIONES 50%. REALCE MODERADO
  - **RM** HIPO EN T1 Y HIPER EN T2. REALCE GD.  
T2\*: HSA-SIDEROSIS SUPERFÍCIE PIAL  
DW: NO RESTRICCIÓN



# EPENDIMOMA- SUPRATENTORIAL



Cortesia Dr. Alex Rovira. Hospital Vall D'Hebron. Barcelona

Cortesia Dr. Alex Rovira. Hospital Vall D'Hebron. Barcelona

# SUBEPENDIMOMA

- 50-60% IV VENTRÍCULO. 30-40% ASTA FRONTAL VL
- TUMORES BENIGNOS NO INVASIVOS (WHO I)  
ADULTOS VARONES MAYORES
- HALLAZGO CASUAL. 40% SX: OBSTRUCCIÓN LCR
- CRECIMIENTO LENTO INTRAVENTRICULAR  
BUEN PRONÓSTICO
- **TC:** MASA DISCRETAMENTE HIPODENSA. ESCASO O NULO REALCE
- **RM:** HIPO-ISO EN T1 Y HIPER EN T2  
REALCE MÍNIMO O AUSENTE
- T2\*: CALCIFICACIONES. 10% HEMORRAGIA
- DW: NO RESTRICCIÓN



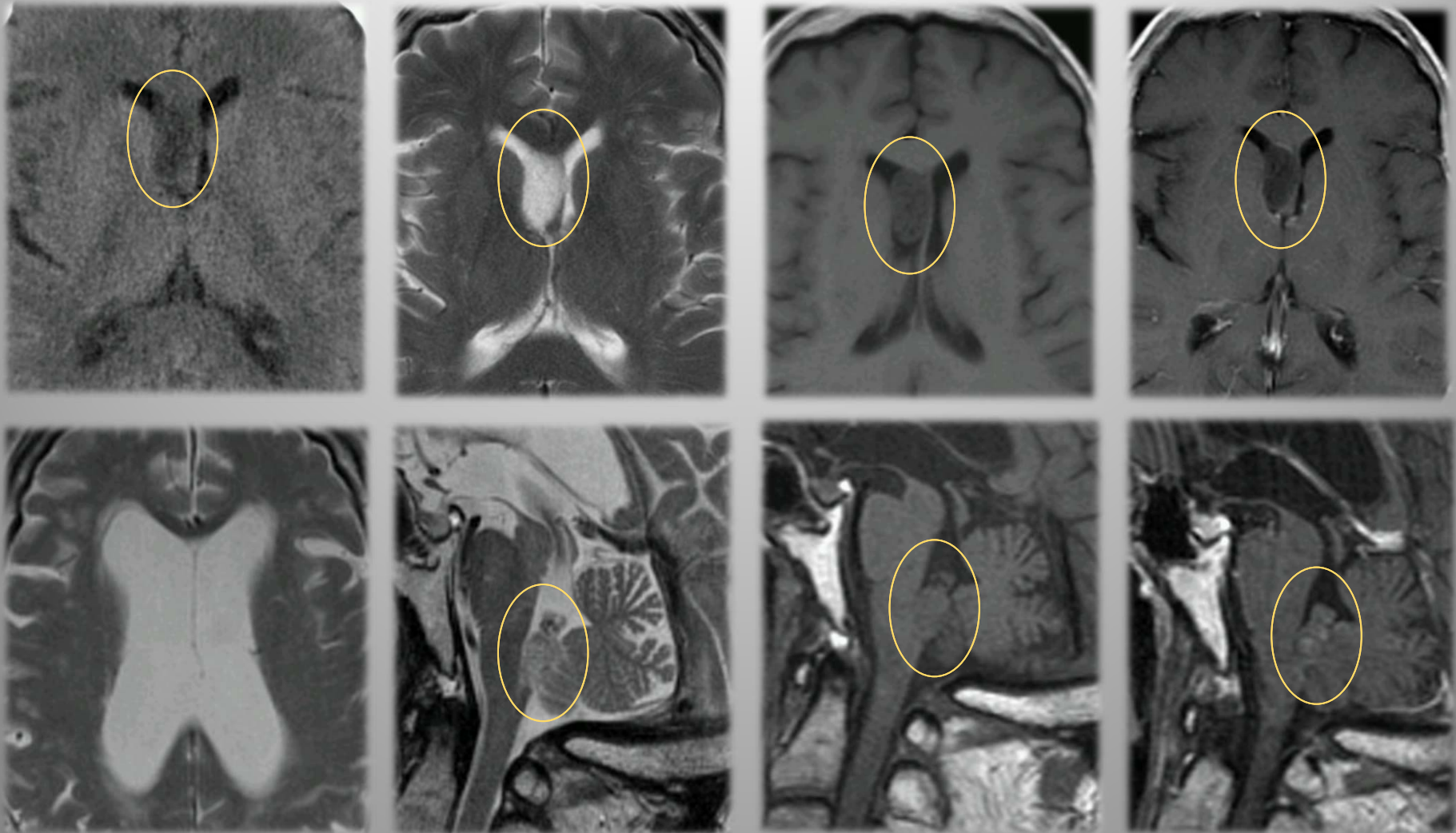
Osborn's brain. Nonastrocytic Glial Neoplasm.  
*Subependimoma.*



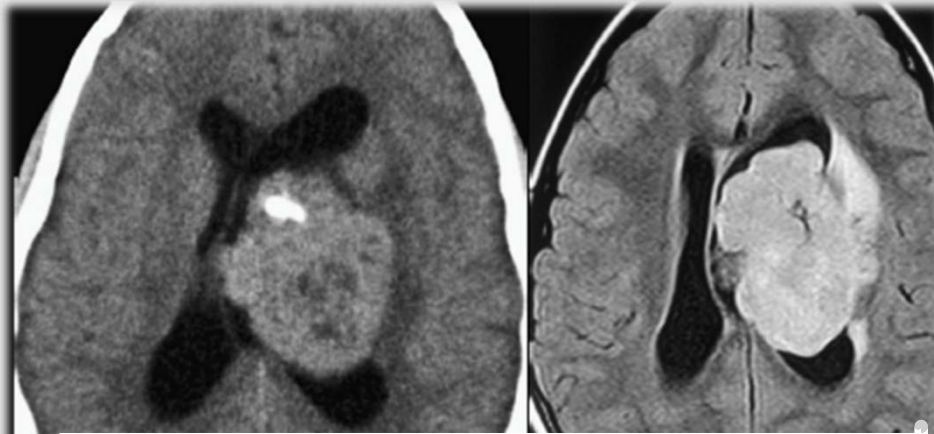
WHO Classification of CNS tumours.  
Pubcan.org



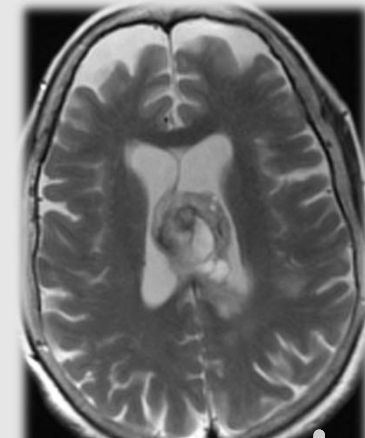
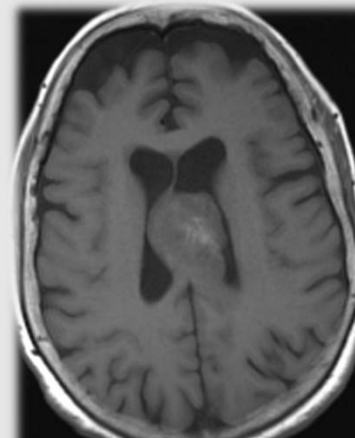
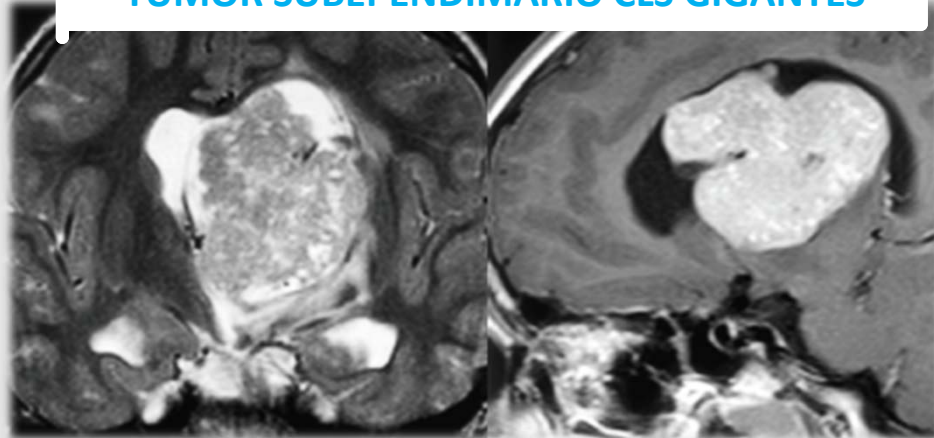
# SUBEPENDIMOMA



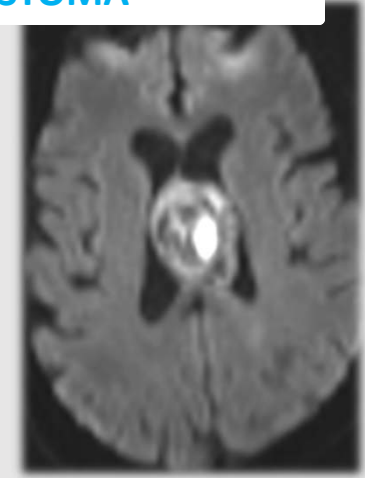
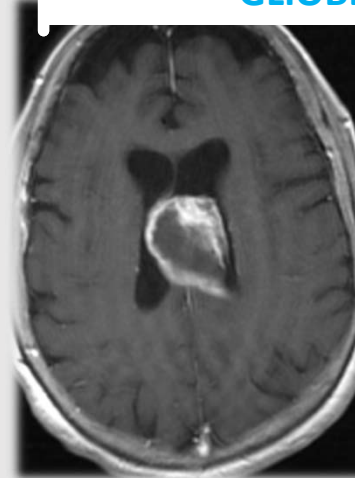
# SUBPENDIMOMA. DD.



TUMOR SUBPENDIMARIO CLS GIGANTES



GLIOBLASTOMA



European Course of Pediatric Neuroradiology. Phakomatoses. Marsella 2011.  
Dra Severino

# PAPILOMA PLEXO COROIDEO

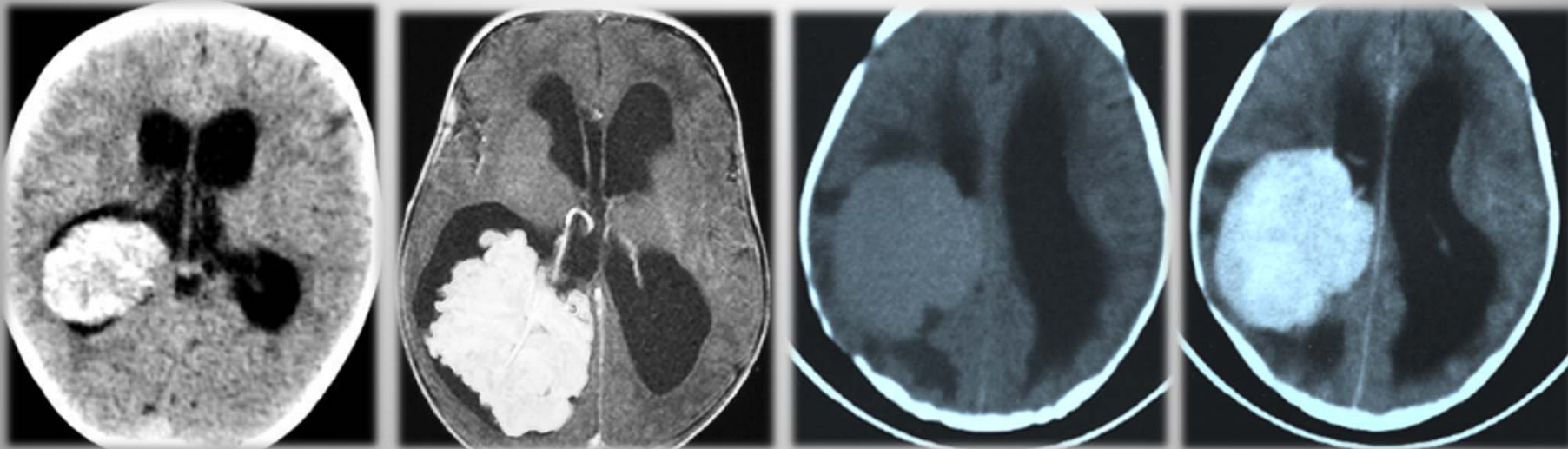
- 50% VENTRÍCULO LATERAL (ATRIO), 40% IV VENTRÍCULO, 10% III VENTRÍCULO
  - WHO: **PAPILOMA PC** -PAPILOMA ATÍPICO-CARCINOMA
  - OBSTRUCCIÓN LCR: MACROCEFALIA, CEFALEA, VÓMITOS
  - DISEMINACIÓN LCR: **IMAGEN NEUROAXIS**
- TC: MASA ISO-HIPERDENSE. IMPORTANTE REALCE. HIPERDENSIDAD
  - RM:
    - REALCE INTENSO
    - T2\*: CALCIFICACIONES. HEMORRAGIA
    - DW: NO RESTRICCIÓN MRS: ELEVACIÓN **MIOINOSITOL**



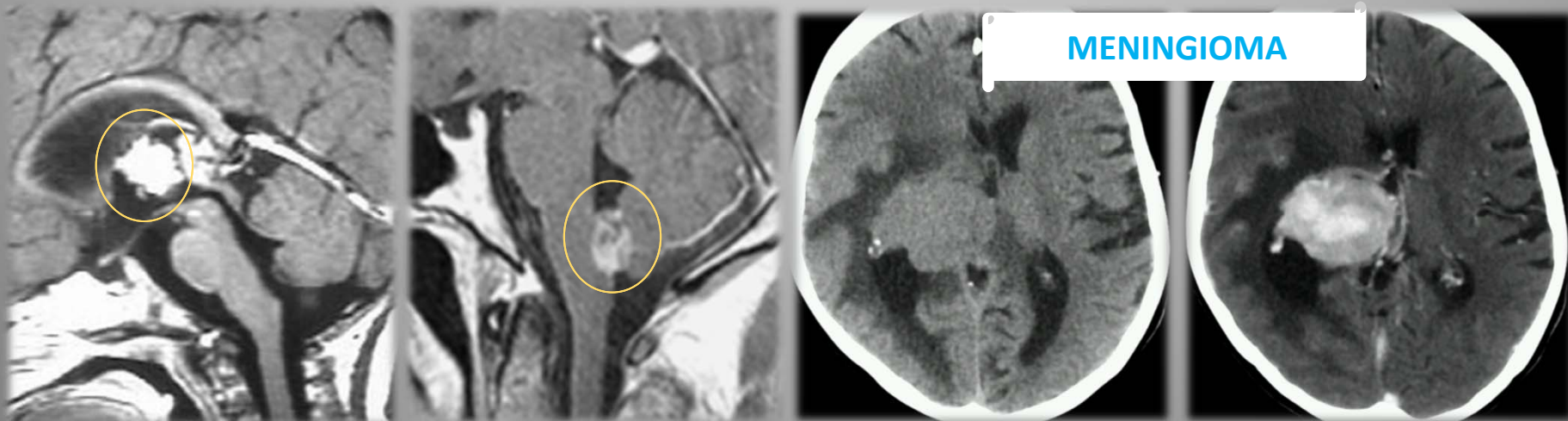
Osborn's brain. Nonastrocytic Glial Neoplasm. CPP.



# PAPILOMA PLEXO COROIDEO



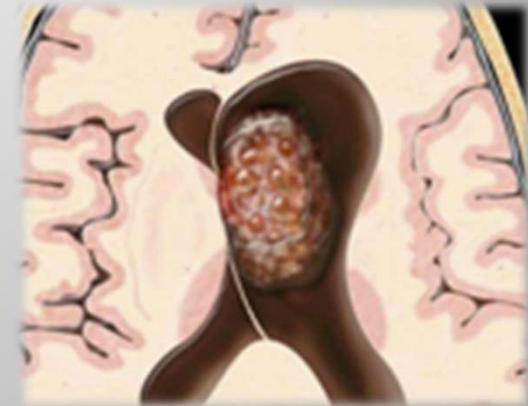
Pierre Lasjaunias Course. Brain tumors . Roma. 2009. Dr Romanowski.



**MENINGIOMA**

# NEUROCITOMA CENTRAL

- CUERPO **VENTRÍCULO LATERAL**. FORMA EXTRA.
- WHO GRADO II. NEOPLASIA INTRAVENTRICULAR MÁS COMÚN ADULTO JOVEN. 10% TUMORES IV.
- AUMENTO PRESIÓN IC. CEFALEA, CAMBIOS MENTALES. INCIDENTAL.
- MASA EN **POMPAS DE JABÓN** CUERPO-ASTA FRONTAL
- TC: MASA **HETEROGÉNEA** ÁREAS SÓLIDAS-QUÍSTICAS. REALCE HETEROGÉNEO. CALCIFICACIONES (50-70%). HIDROCEFALIA.
- RM: ISO EN T1 Y PATRÓN **BURBUJAS** EN T2. REALCE MODERADO PERO HETEROGÉNEO. T2\*: CALCIFICACIONES. HEMORRAGIA MRS: ELEVACIÓN **GLY**. PICO INVERTIDO **ALA**



Osborn's brain. Neuronal and glioneuronal tumors. Central Neurocytoma.



# NEUROCYTOMA CENTRAL

