RADYOLOJİ KIŞ OKULU 2019

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Mirage Park Otel, Antalya

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İNTRAKRANYAL TÜMÖRLER

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Nöroradyoloji Bilim Dalı

İNTRAKRANYAL TÜMÖRLER

SINIFLAMA:

* **Histolojik** (WHO 2016)
* **Yaş** (pediatrik, erişkin)
* **Yerleşim**(intra/extra-aksiyel, post fossa/supratentorial)
* **İnsidans** (Primer 2/3, metastaz 1/3)

SINIFLAMA; İnsidans

* **Primer serebral tümörler (2/3);**
  - Gliom(%45-50): Astrositom %75, oligo. %5, ependimom %7
  - Meningiom(%15)
  - Pitüiter adenom (%10)
  - Sinir Kılıfı tümörleri(%6)
* **Metastatik tümorler (1/3);**
  - Yerleşim: parankimal, leptomeningeal, dura, kemik
  - Etiyoloji: Akciğer %45, meme %15, melanom, GIS,GUS %10-15

YAŞ: Erişkin

***Genel özellikler**

Tüm intrakranial tümörlerin %80-85

Primer (2/3) > metastatik (1/3)

Malignansi ve metastaz olasılığı yaş ile artar

***Yerleşim**

-Supratentorial (3/4)

Gliom, meningiom, pitüiter adenom, met. → Sık

Lenfoma, ependimom → Nadir

-Infratentorial (1/4)

Schwannom, meningiom, epidermoid, metastaz → Sık

Gliom, hemangioblastom → Nadir

YAŞ: Pediatrik

* **Genel özelikler**

İntrakranyal tümörlerin %15-20si

Sıklıkla primer (met nadir)

Çocuklukta en sık görülen 2. tümör grubu (Lösemiden sonra)

* **Yerleşim**

Infratentorial (%41-48); astrositom, medulloblastom, epandimom

Supratentorial (%52-54); astrositom, kraniofar. ,epandimom, pineal...

SINIFLAMA; Histolojik (WHO 2016)

Diffuse astrocytic and oligodendroglial tumours
Diffuse astrocytoma, IDH-mutant
    Gemistocytic astrocytoma, IDH-mutant
Diffuse astrocytoma, IDH-wildtype
Diffuse astrocytoma, NOS

Anaplastic astrocytoma, IDH-mutant
Anaplastic astrocytoma, IDH-wildtype
Anaplastic astrocytoma, NOS

Glioblastoma, IDH-wildtype
    Giant cell glioblastoma
    Gliosarcoma
    Epithelioid glioblastoma
Glioblastoma, IDH-mutant
Glioblastoma, NOS

Diffuse midline glioma, H3 K27M–mutant

Oligodendroglioma, IDH-mutant and
    1p/19q-codeleted
Oligodendroglioma, NOS

Anaplastic oligodendroglioma, IDH-mutant
    and 1p/19q-codeleted
Anaplastic oligodendroglioma, NOS

Oligoastrocytoma, NOS
Anaplastic oligoastrocytoma, NOS

Other astrocytic tumours
Pilocytic astrocytoma
    Pilomyxoid astrocytoma
Subependymal giant cell astrocytoma
Pleomorphic xanthoastrocytoma
Anaplastic pleomorphic xanthoastrocytoma

Ependymal tumours
Subependymoma
Myxopapillary ependymoma
Ependymoma
    Papillary ependymoma
    Clear cell ependymoma
    Tanycytic ependymoma
Ependymoma, *RELA* fusion–positive
Anaplastic ependymoma

Other gliomas
Chordoid glioma of the third ventricle
Angiocentric glioma
Astroblastoma

SINIFLAMA; Histolojik (WHO 2016)

Choroid plexus tumours
Choroid plexus papilloma
Atypical choroid plexus papilloma
Choroid plexus carcinoma

Tumours of the pineal region
Pineocytoma
Pineal parenchymal tumour of intermediate differentiation
Pineoblastoma
Papillary tumour of the pineal region

Neuronal and mixed neuronal-glial tumours
Dysembryoplastic neuroepithelial tumour
Gangliocytoma
Ganglioglioma
Anaplastic ganglioglioma
Dysplastic cerebellar gangliocytoma (Lhermitte–Duclos disease)
Desmoplastic infantile astrocytoma and ganglioglioma
Papillary glioneuronal tumour
Rosette-forming glioneuronal tumour
Diffuse leptomeningeal glioneuronal tumour
Central neurocytoma
Extraventricular neurocytoma
Cerebellar liponeurocytoma
Paraganglioma

SINIFLAMA; Histolojik (WHO 2016)

Embryonal tumours
Medulloblastomas, genetically defined
- Medulloblastoma, WNT-activated
- Medulloblastoma, SHH-activated and *TP53*-mutant
- Medulloblastoma, SHH-activated and *TP53*-wildtype
- Medulloblastoma, non-WNT/non-SHH
  - *Medulloblastoma, group 3*
  - *Medulloblastoma, group 4*

Medulloblastomas, histologically defined
- Medulloblastoma, classic
- Medulloblastoma, desmoplastic/nodular
- Medulloblastoma with extensive nodularity
- Medulloblastoma, large cell / anaplastic

Medulloblastoma, NOS

Embryonal tumour with multilayered rosettes, C19MC-altered
Embryonal tumour with multilayered rosettes, NOS
Medulloepithelioma
CNS neuroblastoma
CNS ganglioneuroblastoma
CNS embryonal tumour, NOS
Atypical teratoid/rhabdoid tumour
CNS embryonal tumour with rhabdoid features

Görüntüleme Yöntemleri

- Bilgisayarlı Tomografi (BT)
- Manyetik Rezonans Görüntüleme (MRG)

↑ <u>Yumuşak doku rezolüsyonu</u>

- Lezyon bulunması
- Doku karakterizasyonu
- Post fossada az artefakt

<u>Multiplanar görüntüleme</u>

- Çevre dokular ile anatomik ilişki daha iyi
- Herniasyon saptanması
- Tedavi planlanması

Görüntülemede Amaç:

- ✓ 1. **Tümör varlığını göstermek**
- ✓ 2. **Spesifik / olası tanıyı raporlamak**
  - Klinik bulgular
  - Hastanın yaşı
  - Infra / supratentorial
  - Intra / ekstra-aksiyel
  - Yerleşim (pineal, suprasellar, ..)

Görüntülemede Amaç:

- Tümör var mı? Cevap evet ise;
- Nerede lokalize?
- Tümörün dansite / sinyal intensitesi nasıl?
- İçinde nekroz, kalsifikasyon, kist var mı??
- Kontrast tutuyor mu?
- Ayrıcı tanıyı yapabiliyor muyuz? Evet / Hayır
- Başka hangi görüntüleme yöntemleri bana yardım eder???

Klasik bulgular:

- ✓ Malign → nekroz (irregular-kalın duvar ve C+)
- ✓ Benign → kist (keskin sınırlı ince duvar ve C-)
- ✓ Kalsifikasyon → BT >>> MRG

İntraaksiyel POSTERIOR FOSSA Tm'leri

- Astrositom (Pilositik astrositom)
- Medulloblastom
- Beyin sapı gliomu
- Ependimom
- ATRT
- Metastaz
- Hemanjioblastom
- Meningiom
- Diğerleri....

Astrositom

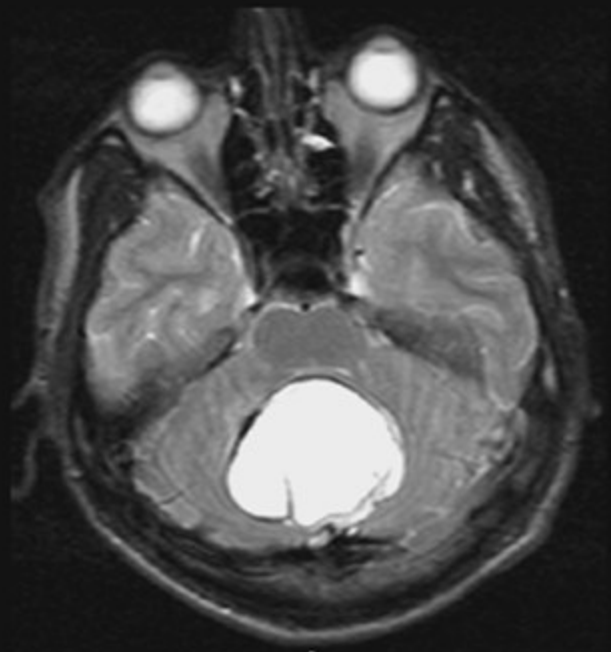
- En sık SSS tmleri (%40-50)
- Pilositik astrositom (1) → 2 → 3 → glioblastoma
- Infratentorial → Çocuklarda sık
- Supratentorial → Erişkinlerde sık

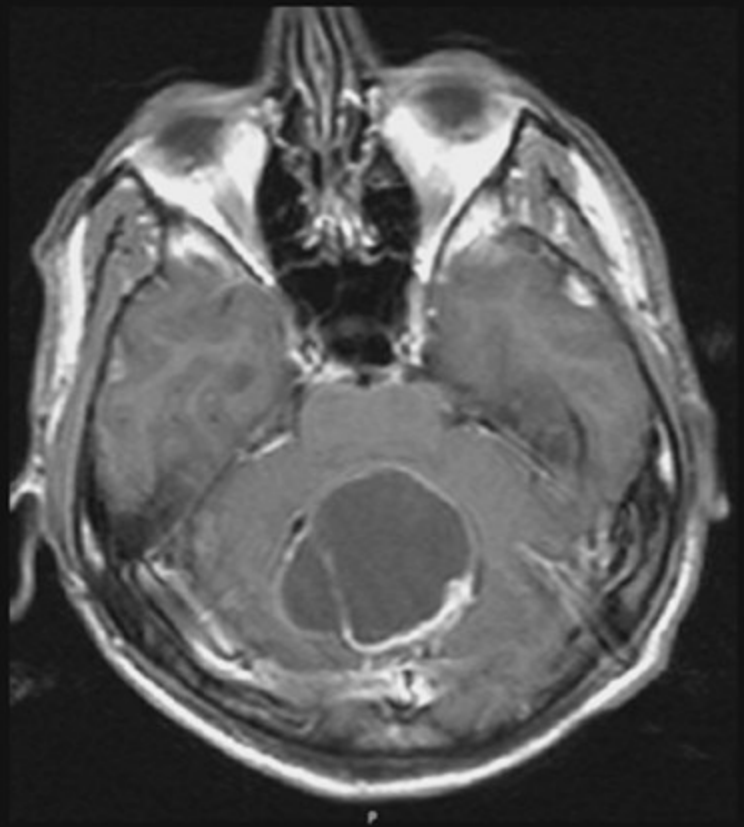
Pilositik astrositom

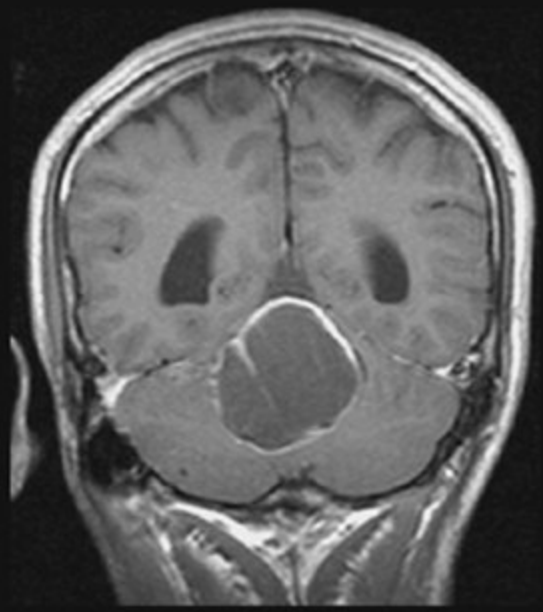
- Sıklıkla serebellar hemisferik yerleşim
- WHO Grade I,
  - Tamamen solid (%40)
  - Mural nodülü olan kist (%50)
  - Santral nekrotik tm (%10)
    - Kalsifikasyon nadir

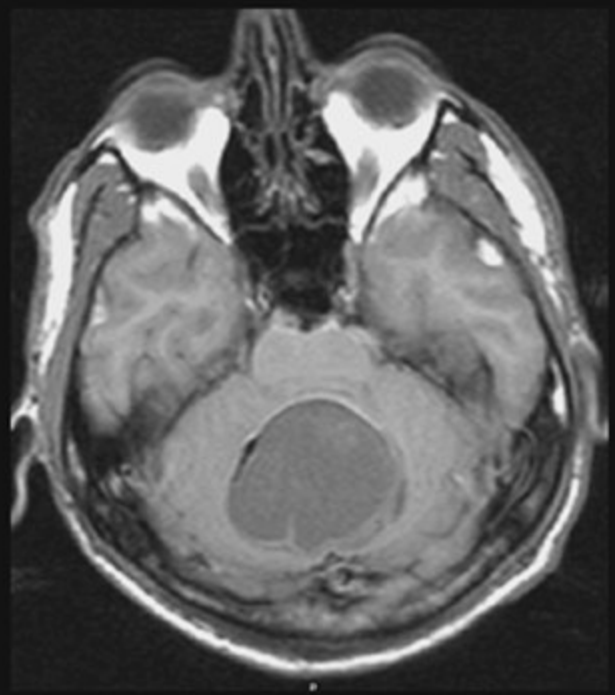
Pilositik astrositom

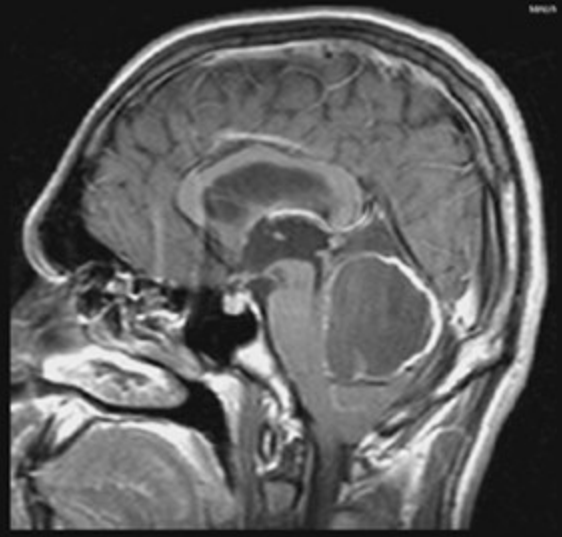
- 4. ventriküler posteriordan bası
- BT solid kısım → izo - hipodens
  kist/nekroz → BOS ile izodens
- MRG Kist ve mural nodül → T1 hipointens
  → T2 hiperintens
- +C nodül ve solid kısım → belirgin C+
  kist → C-



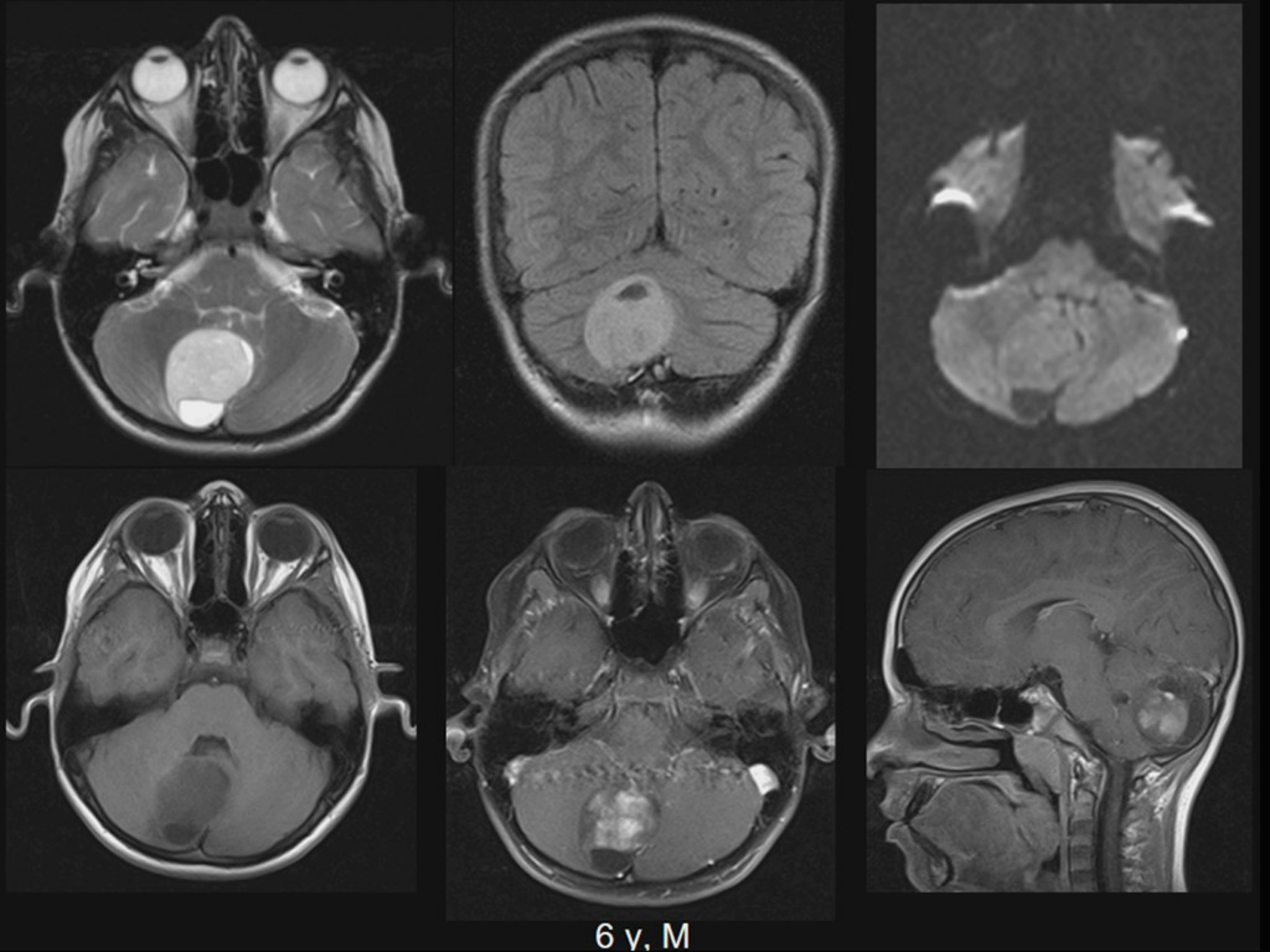








Pilositik astrositom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Medulloblastom

MRG, BT:

- Homojen, iyi sınırlı
- Kontrastsız BT'de hiperdens**
- DAG'de kısıtlanma ***
- T2A gri madde ile izointens
- Genellikle +C belirgin kontrastlanma
  - Kalsifikasyon
  - Nekroz
  - Kanama
  - +C kontrastlanmama
  - Hemisferik yerleşim

  } Atipik özellikler(%2-50)

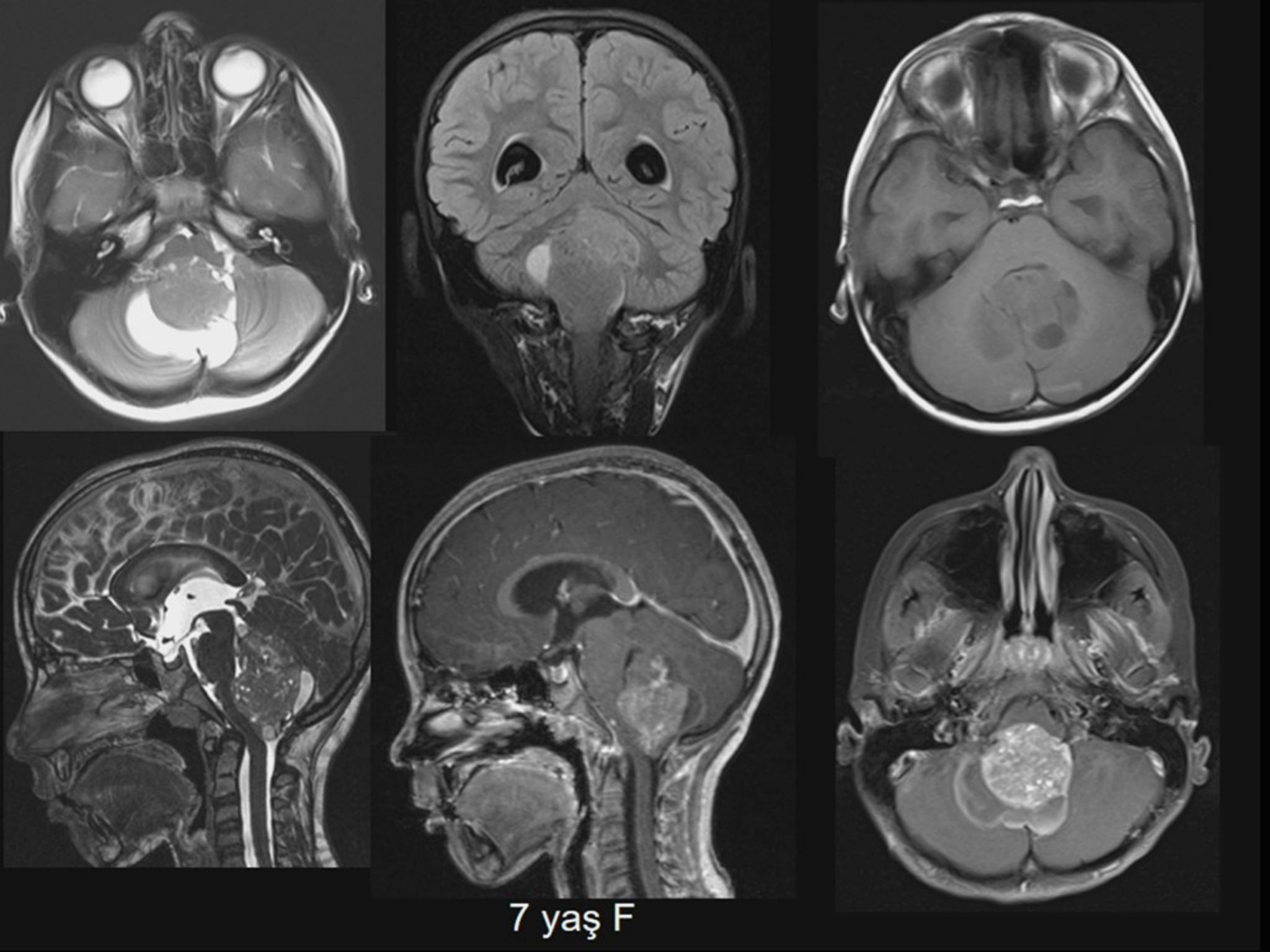
- Hidrosefali (%90) & peritumoral ödem (%50)sık
- Ayırıcı tanı: astrositom → -C BT hipodens

  ependimom → kistik komponentler

Sınıflama; Moleküler (Genomics)

Medulloblastoma subtipleri

- **WNT**
  - Pontoserebellar köşe, serebelar pedinkül
  - En iyi prognoz
- **SHH (Sonic Hedgehog)**
  - Serebellar hemisfer
- **Grup 3**
  - Orta hatta
  - En kötü prognoz
- **Grup 4**
  - Orta hatta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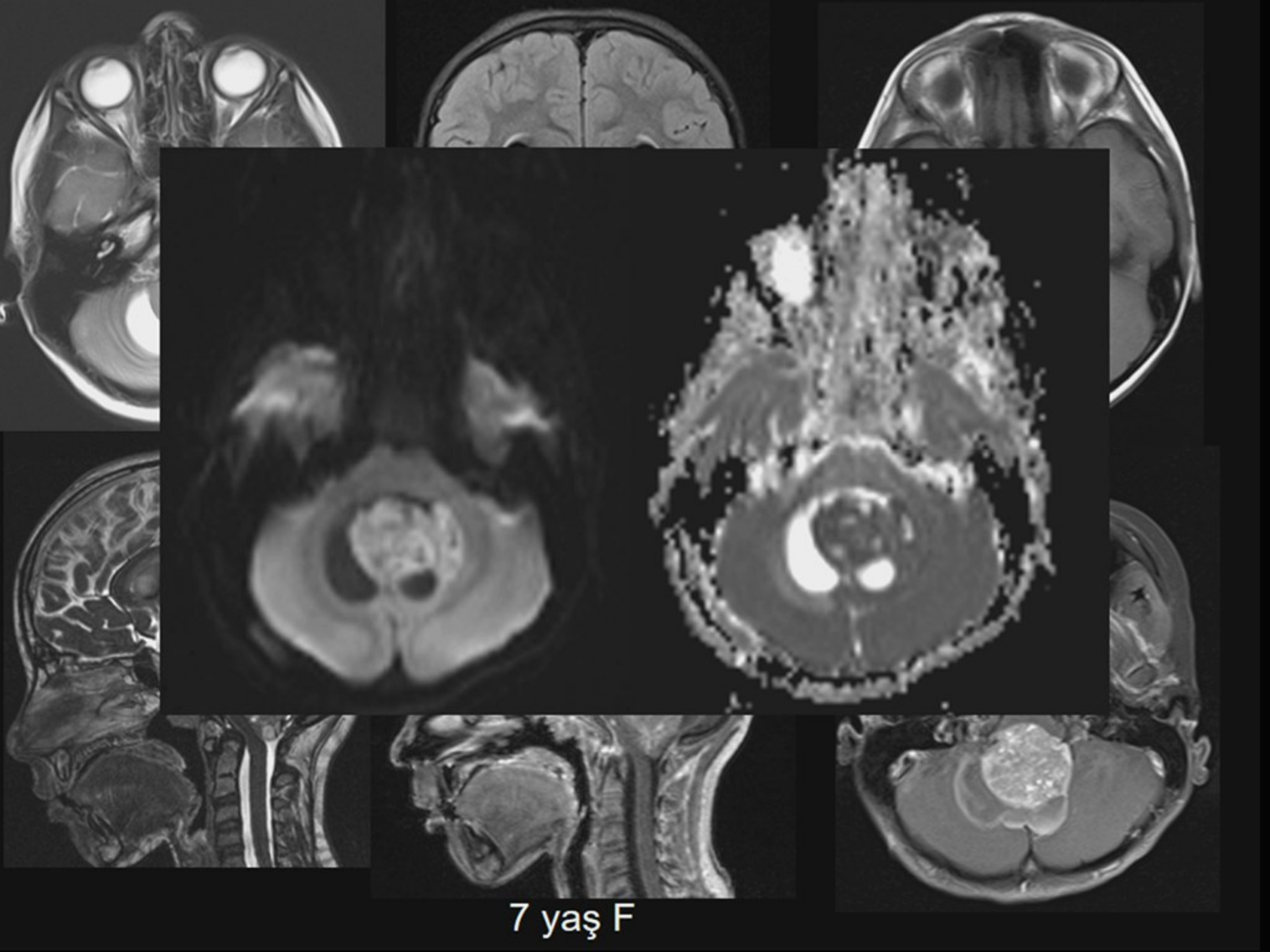

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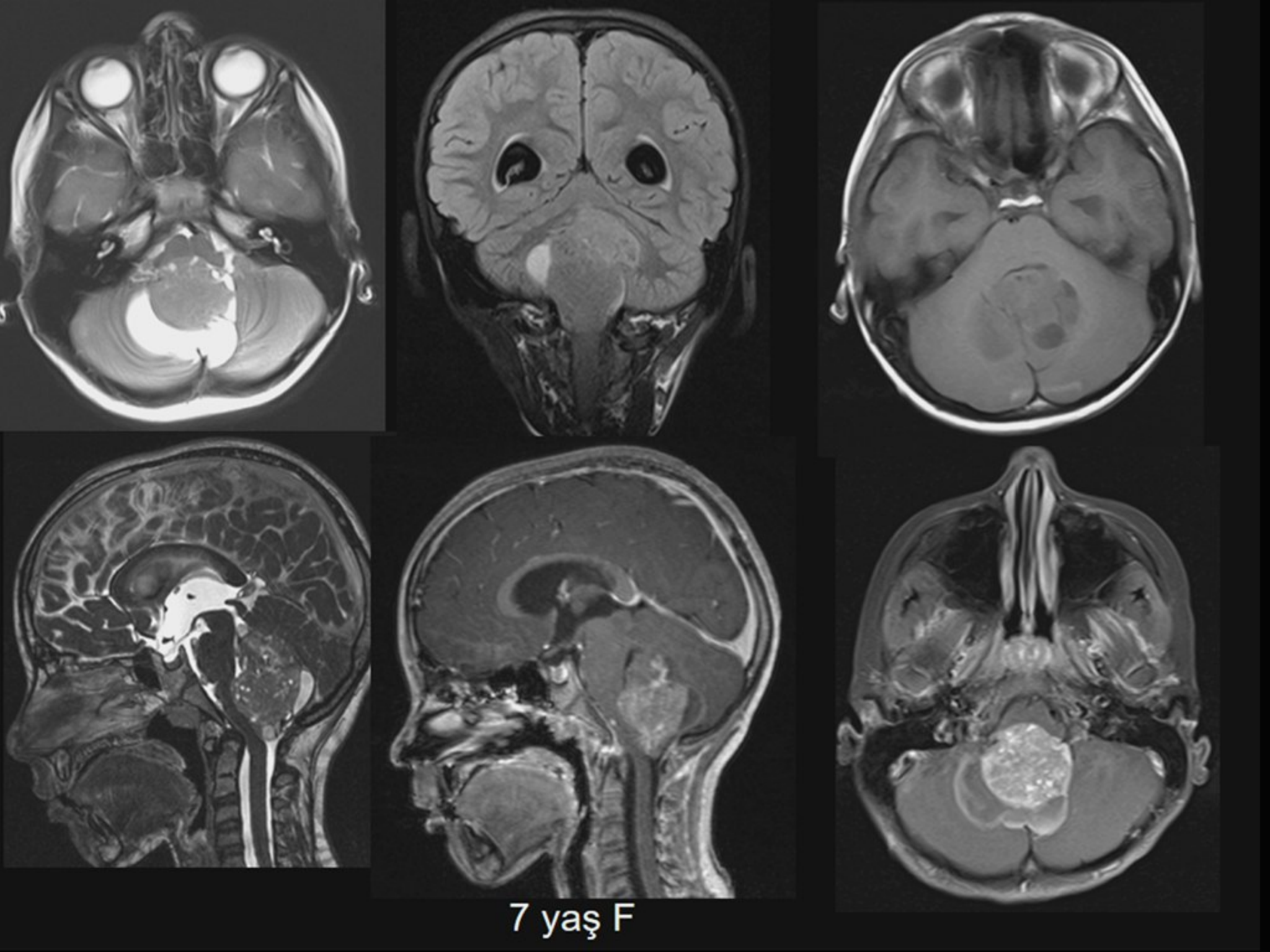
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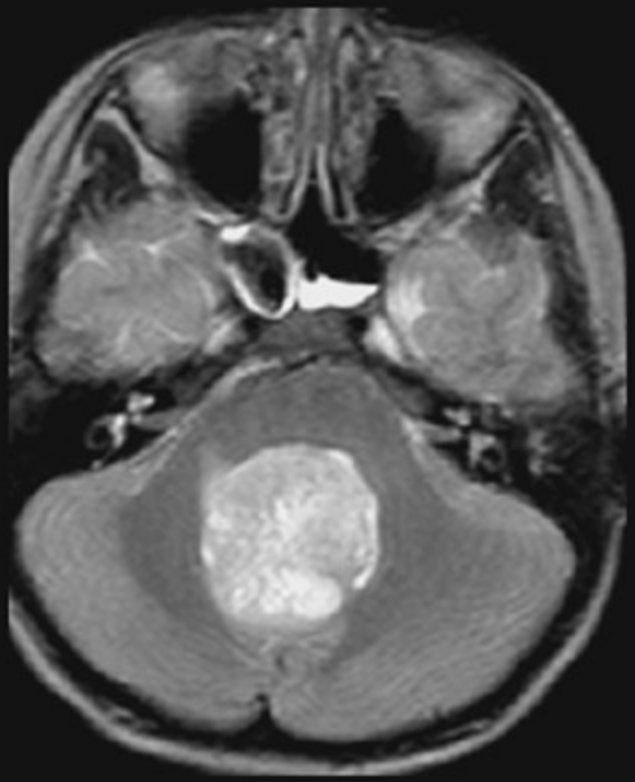
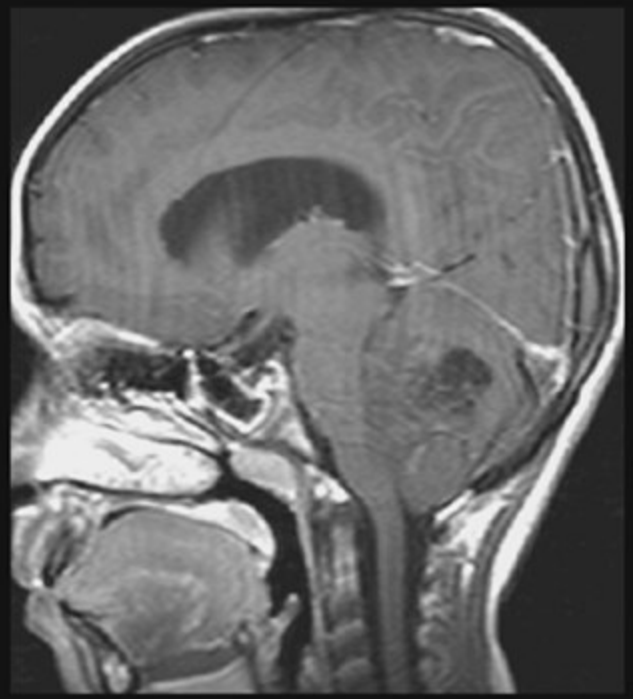
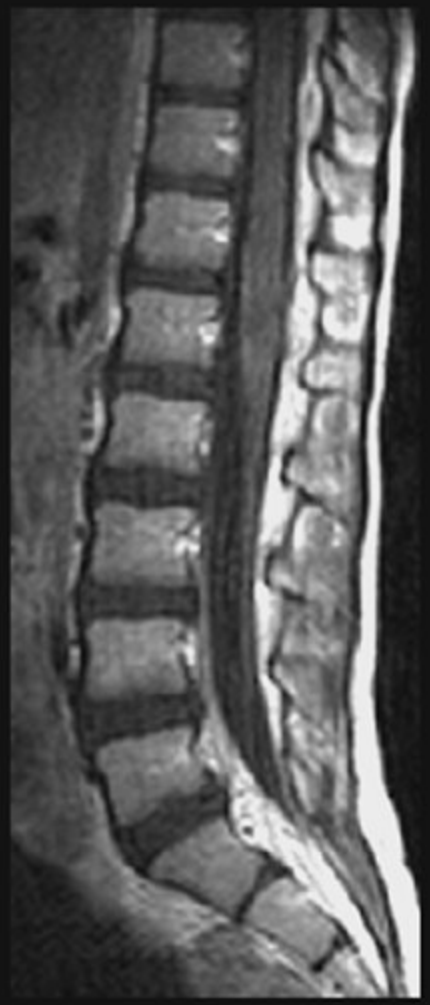
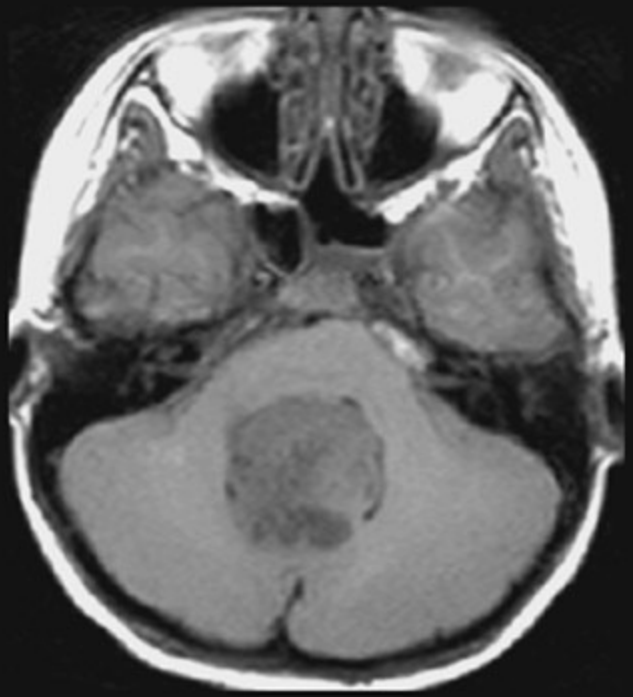
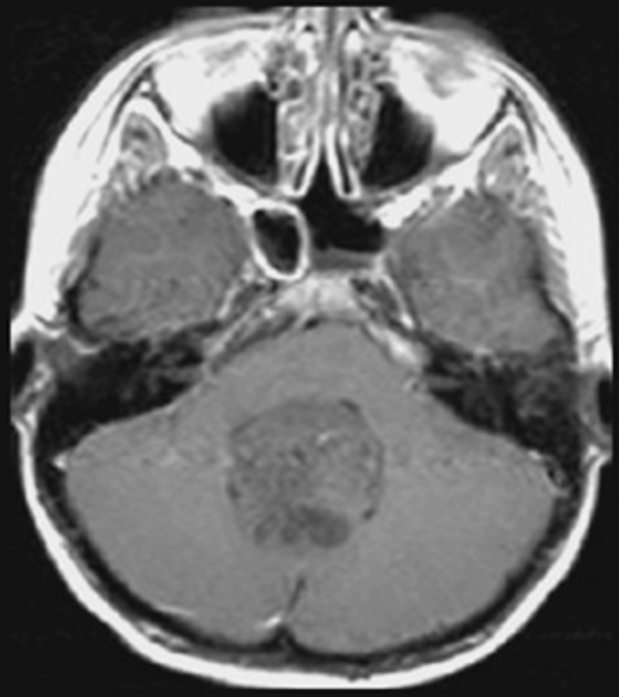
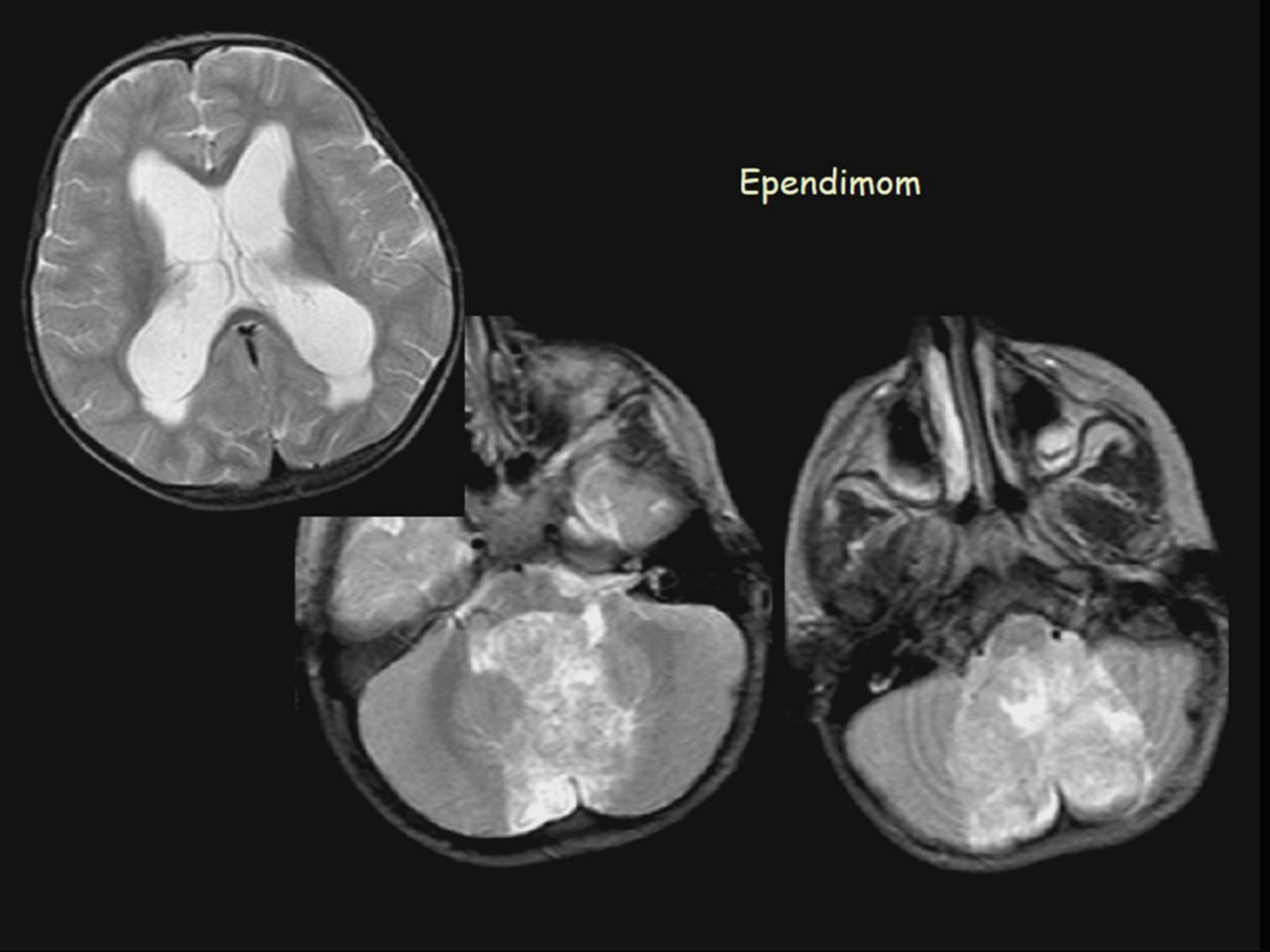
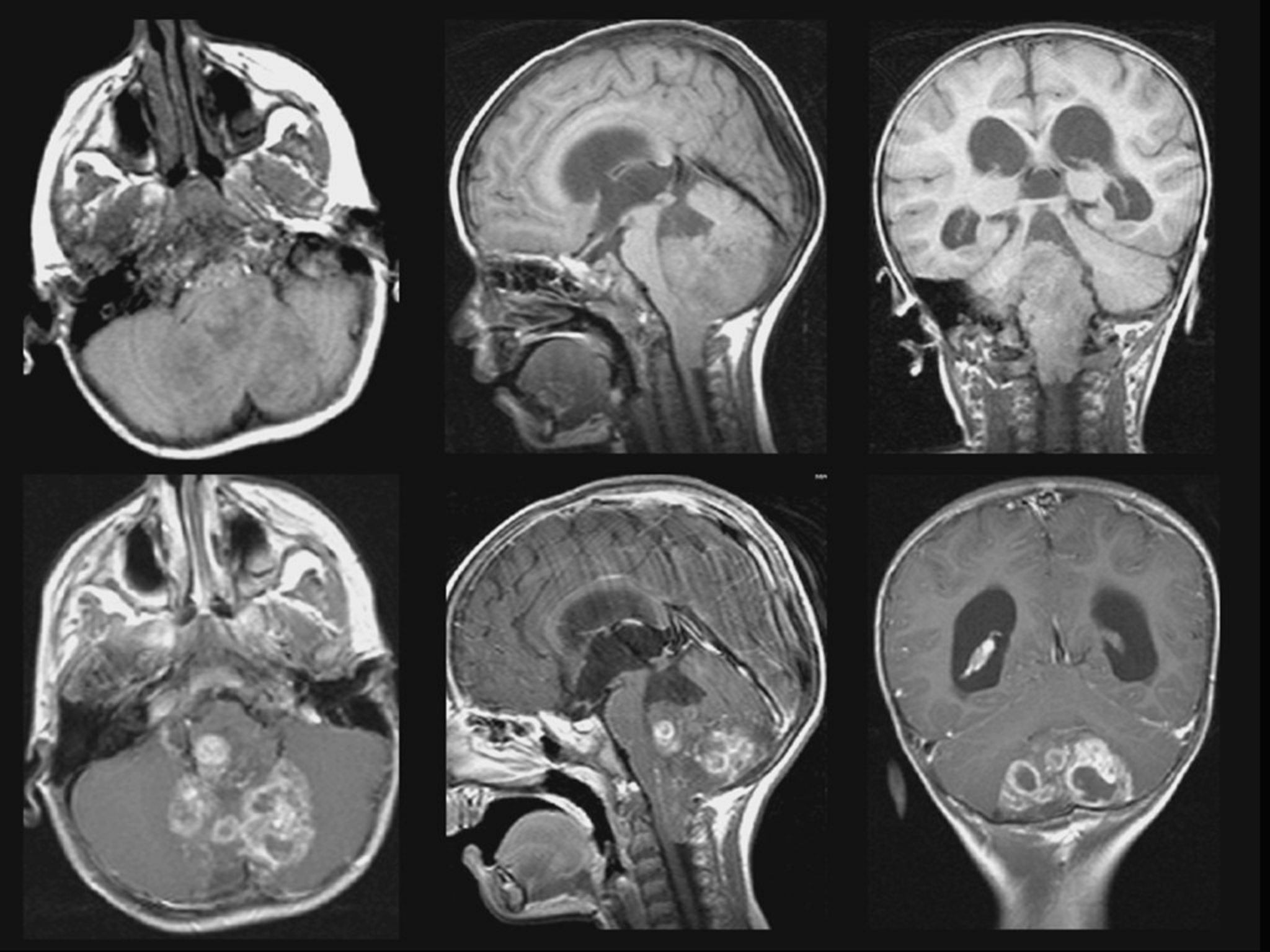






Medulloblastoma

Ependimom

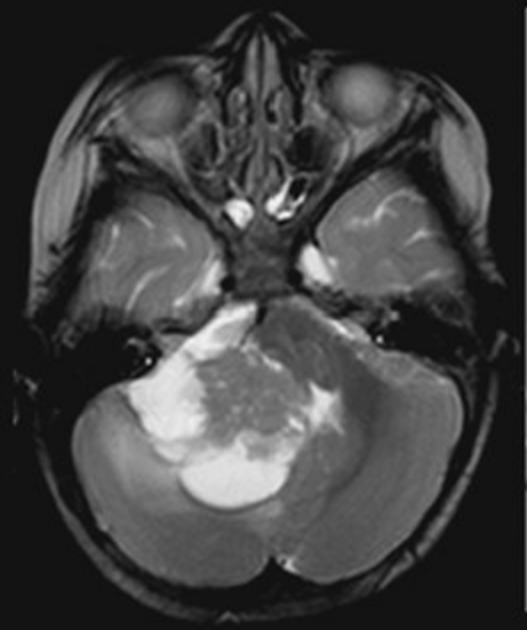
- %70 infratentorial
- En sık 1-5 yaş arasında
- Ependimal hücrelerden köken alıp, nöronal dokuyu infiltre eder
- Foramenler boyunca infiltrasyon, damar ve kranial sinirleri sarar (plastik tm)
- Sıklıkla 4. ventrikül tabanında lokalize
- Supratentorial ise en sık frontal loblarda
- Kalsifikasyon (50%) (BT), nekroz ve kanama (10%)

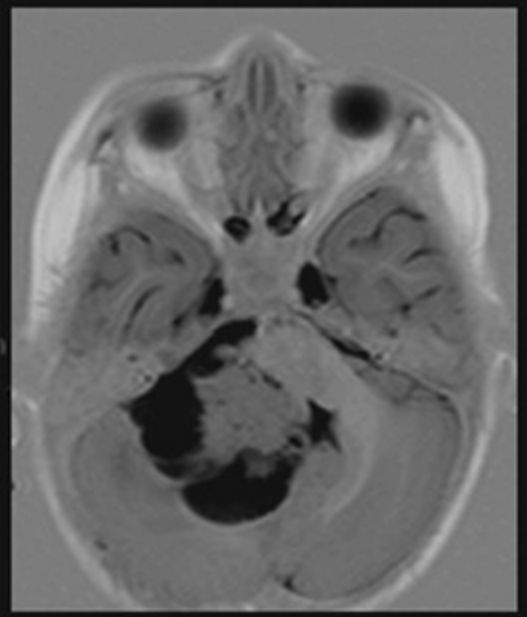

Ependimom

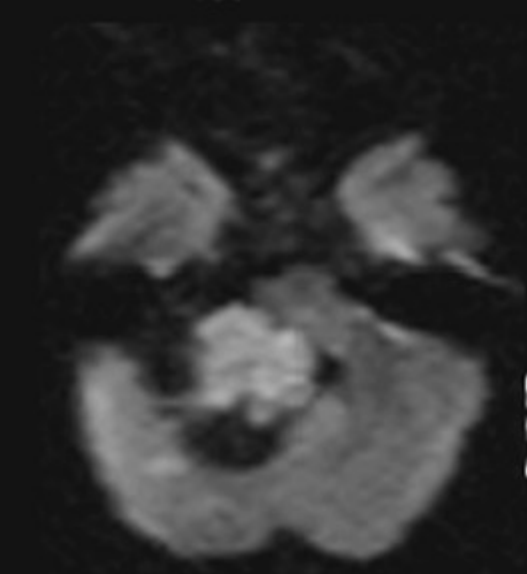


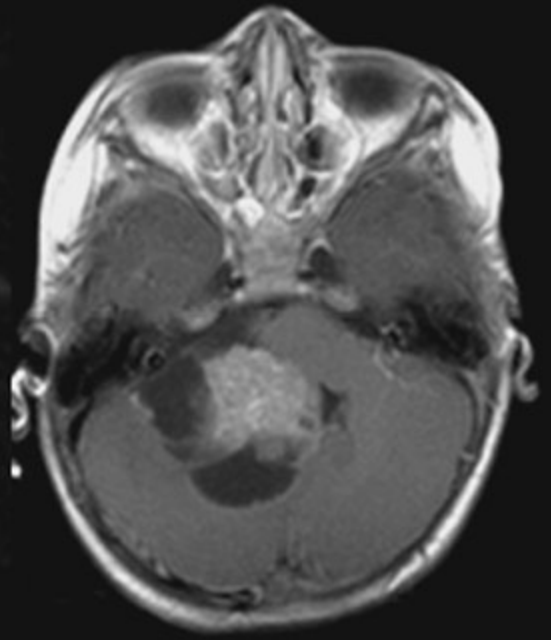
Atipik Teratoid Rabdoid Tümor

- Sıklıkla küçük çocuklarda
- WHO Grade IV
- Infratentorial > supratentorial
- Serebellum / beyin sapı
- Heterojen kontrastlanma
- Kalsifikasyon sık
- Kanama sık
- Medulloblastom'lara göre kötü prognoz



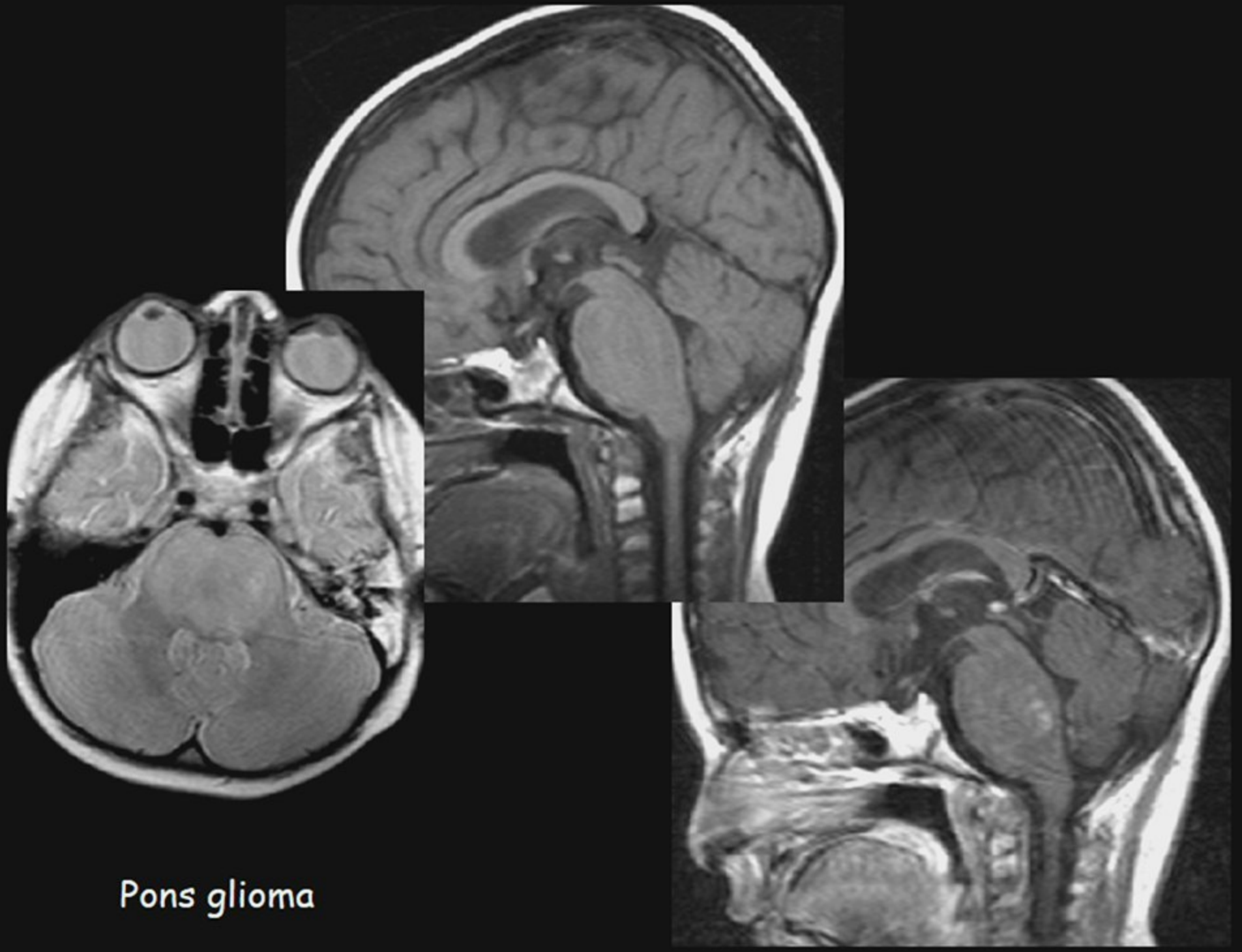




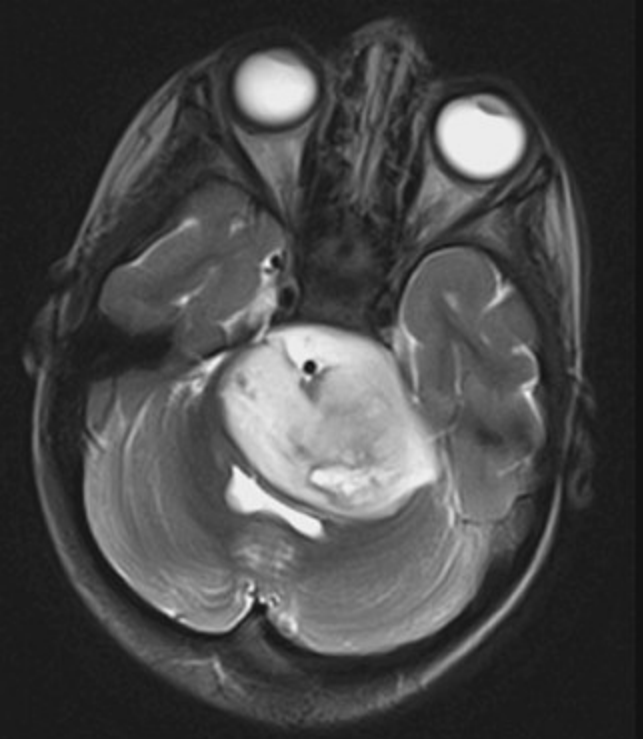


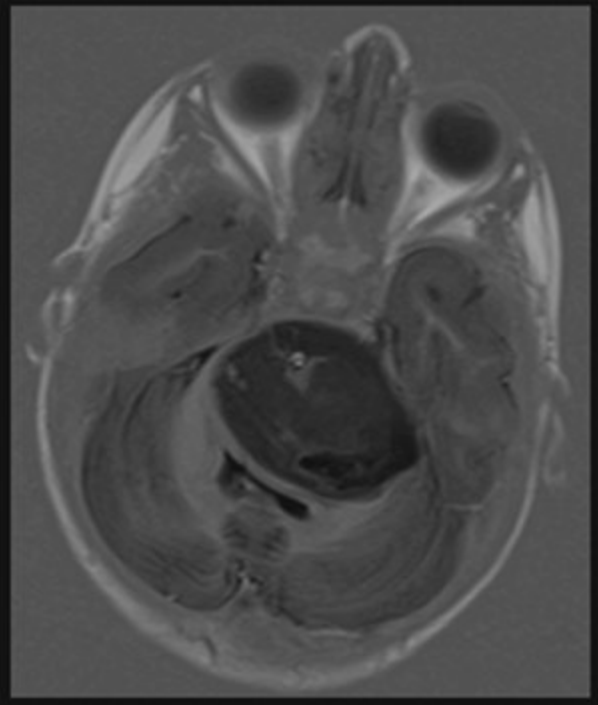
Beyin sapı gliomu (Diffüz Orta Hat Gliomu)

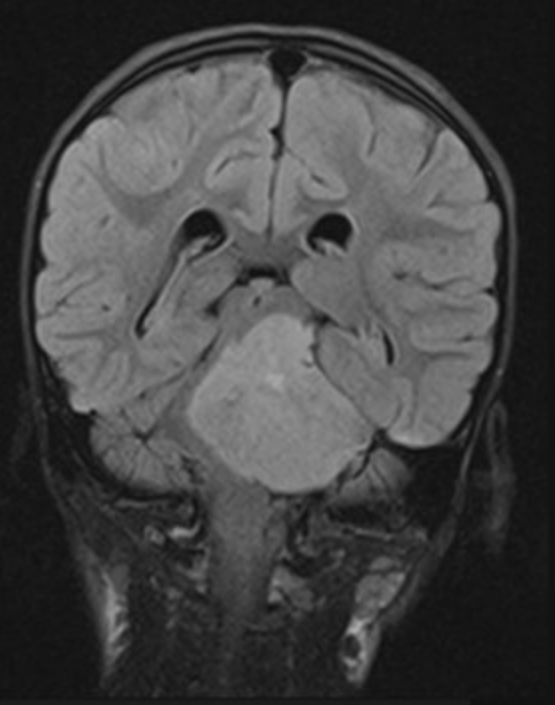
- 3 – 10 yaşlar arasında sık
- Pons > mezensefalon > medulla
- Çoğunlukla astrositom
- Yavaş ve infiltratif büyüme
- Anatomik distorsiyon
- Ekspansiyon
- Genellikle düşük grade
- +C kontrastlanma (-) veya minimal

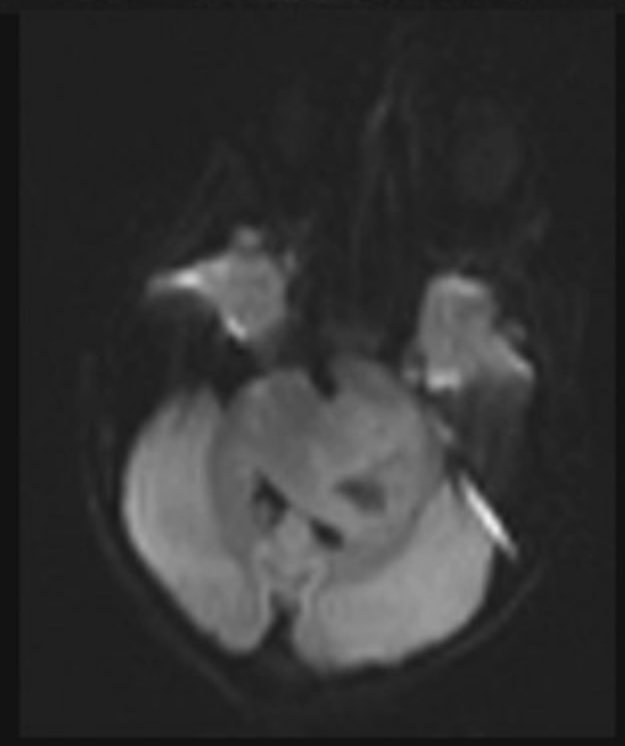


Pons glioma









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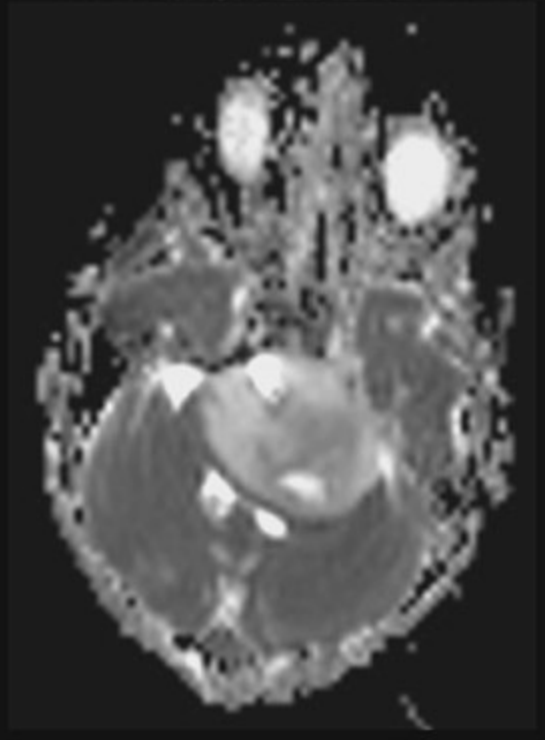
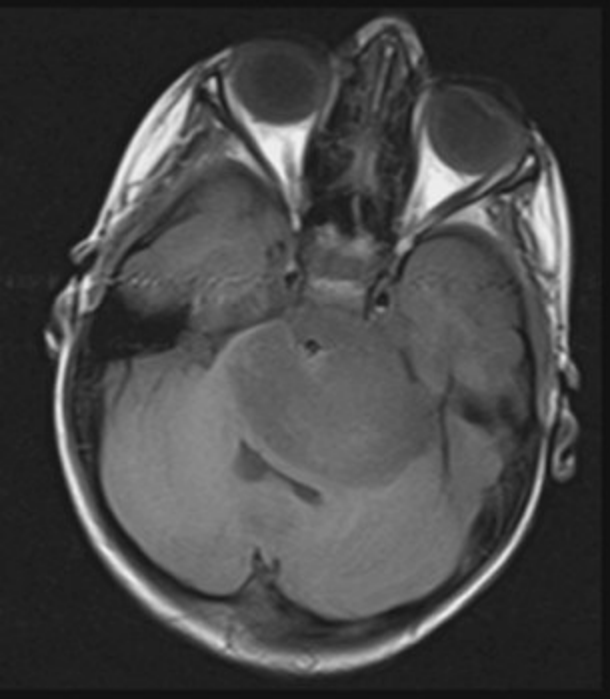
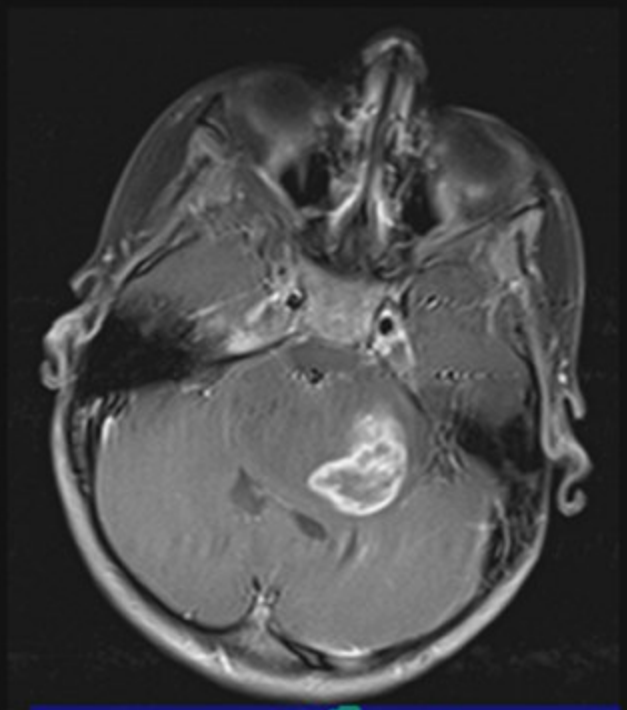
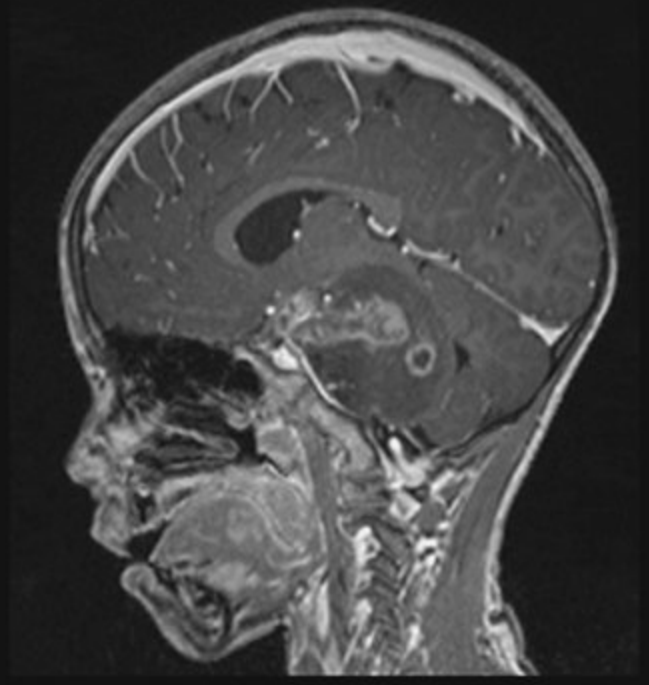
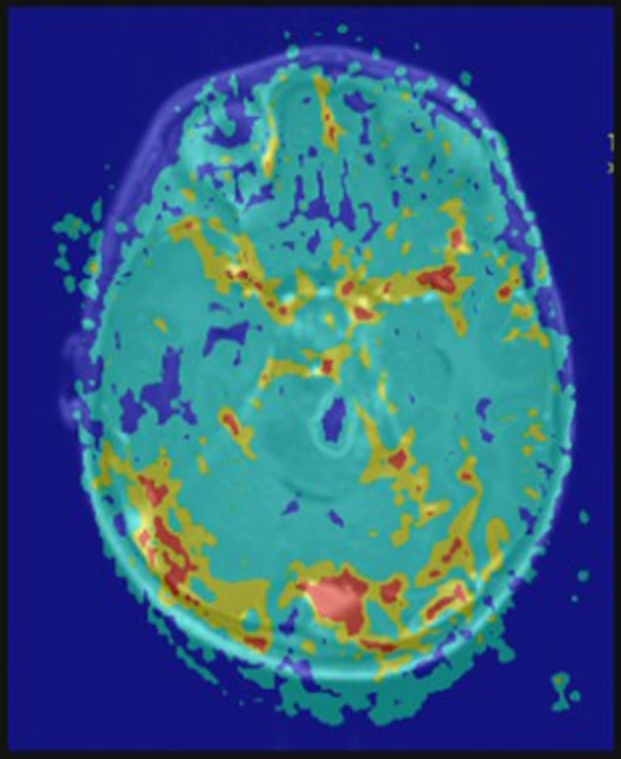
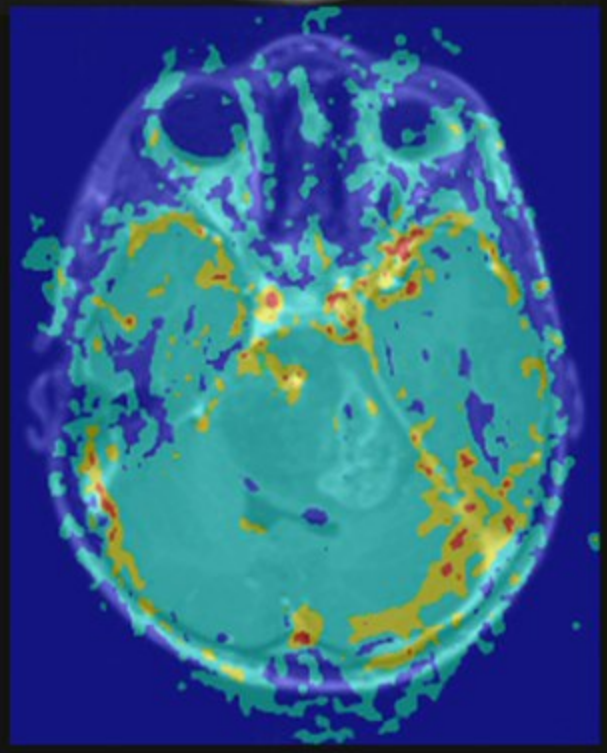
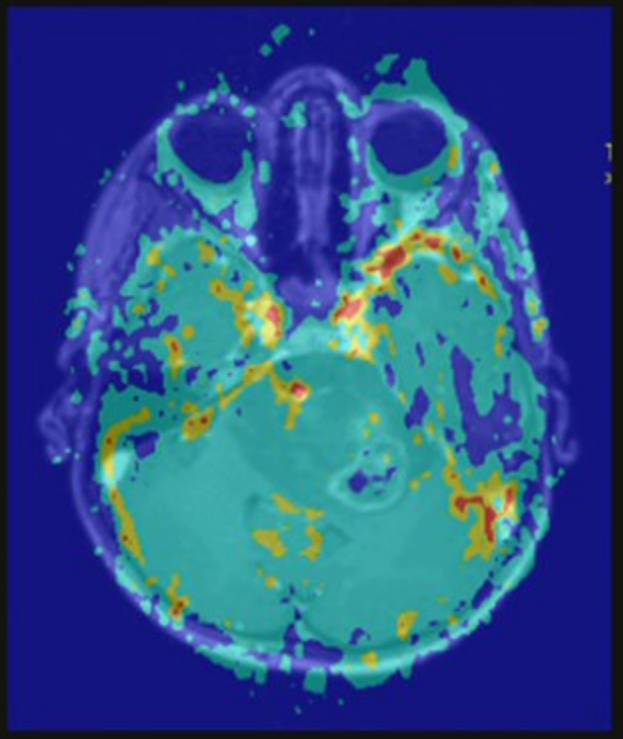
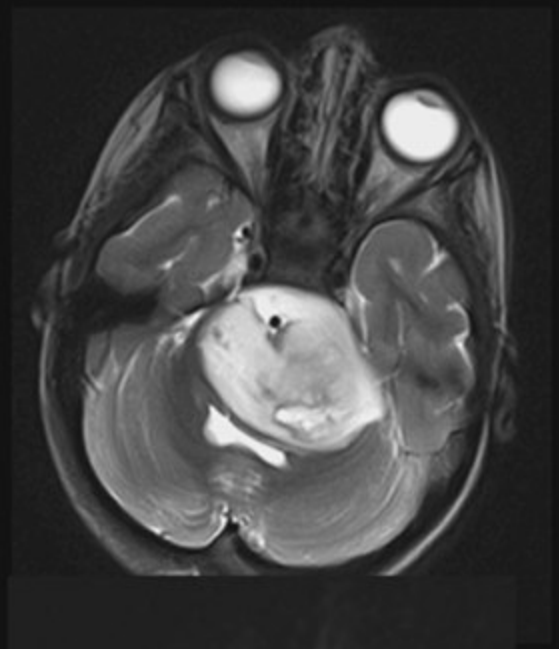
Bulantı-kusma

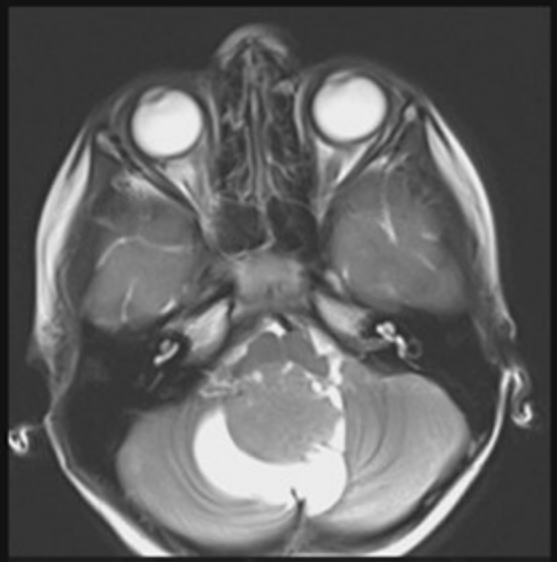
Dengesizlik

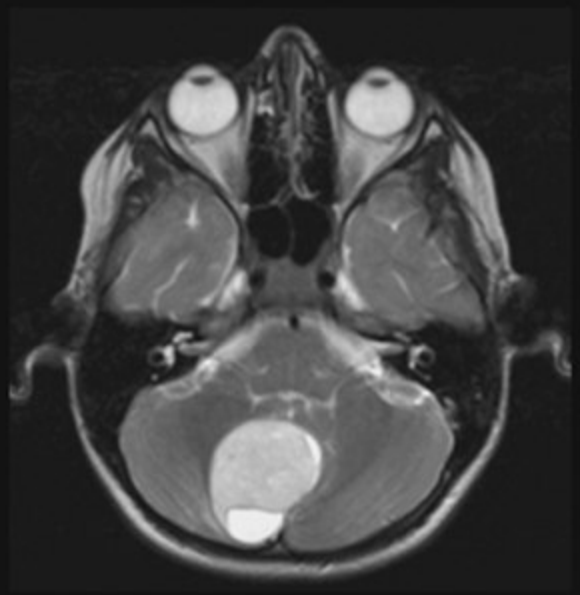


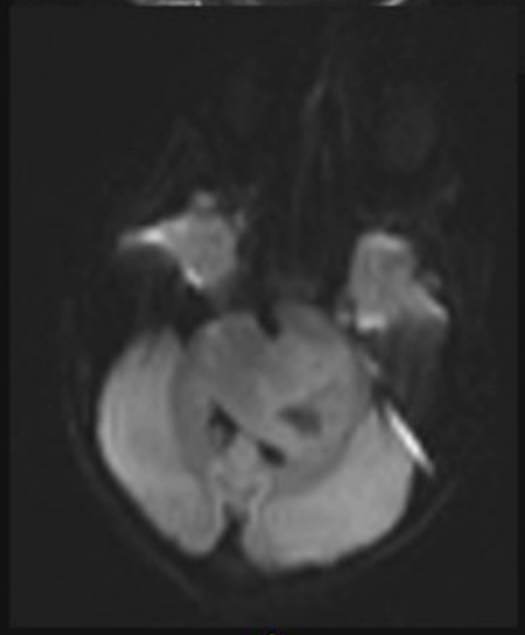







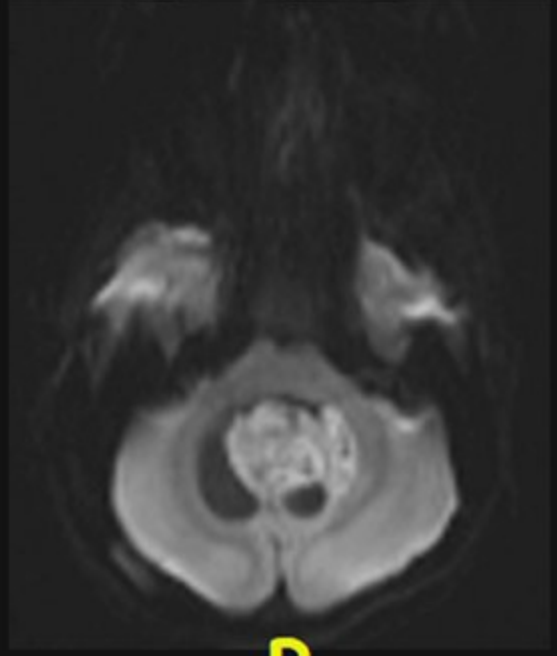
Hangisi Medulloblastom?

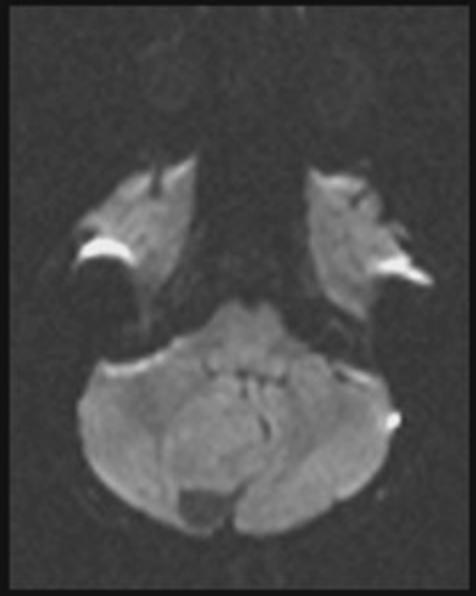










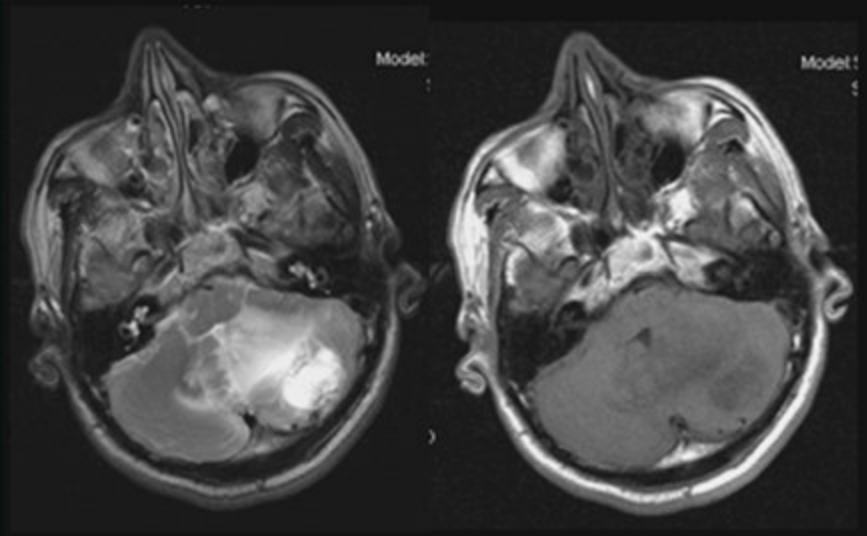


A

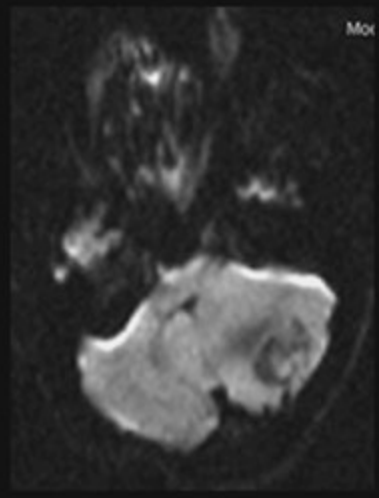
B

C

- Sol serebellar lezyon, belirgin periferal ödem,
- Anormal vasküler yapılar
- DAG kısıtlanma yok



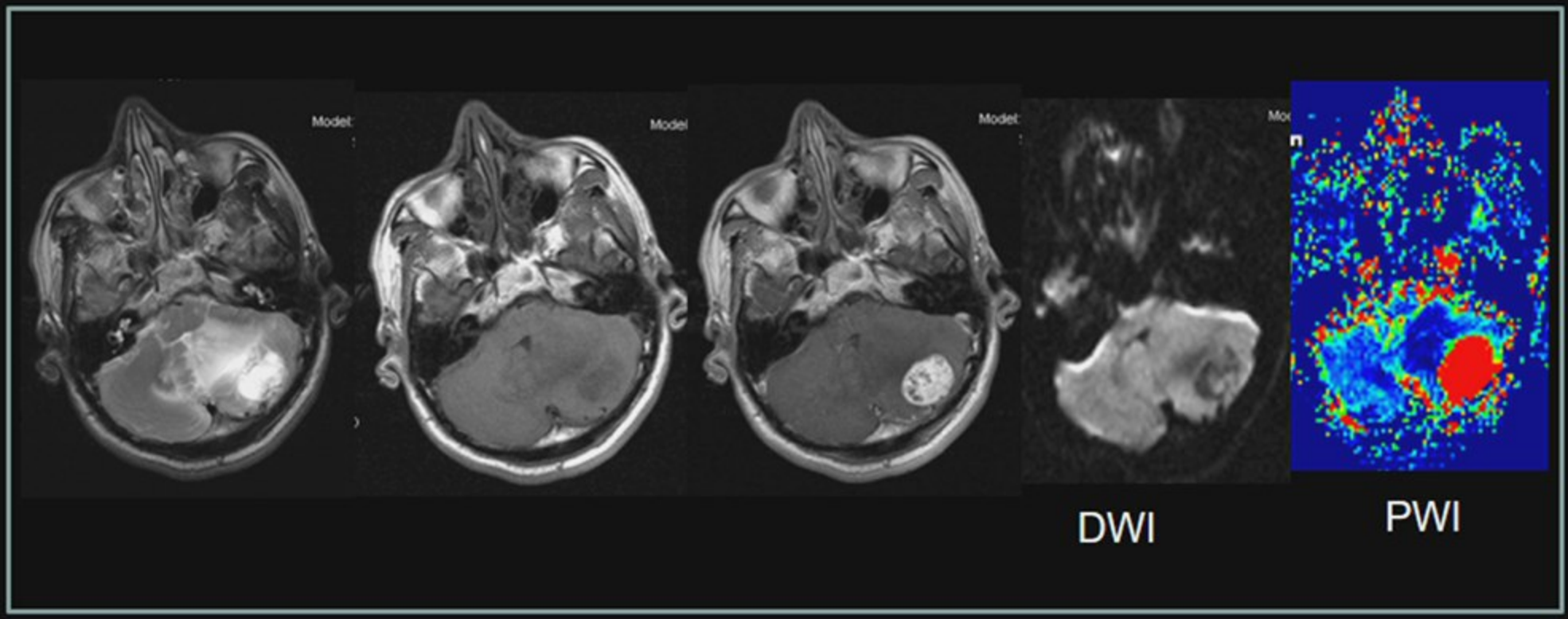
DWI



DWI

PWI

- Sol serebellar lezyon, belirgin periferal ödem,
- Anormal vasküler yapılar
- DAG kısıtlanma yok



- Sol serebellar lezyon, belirgin periferal ödem,
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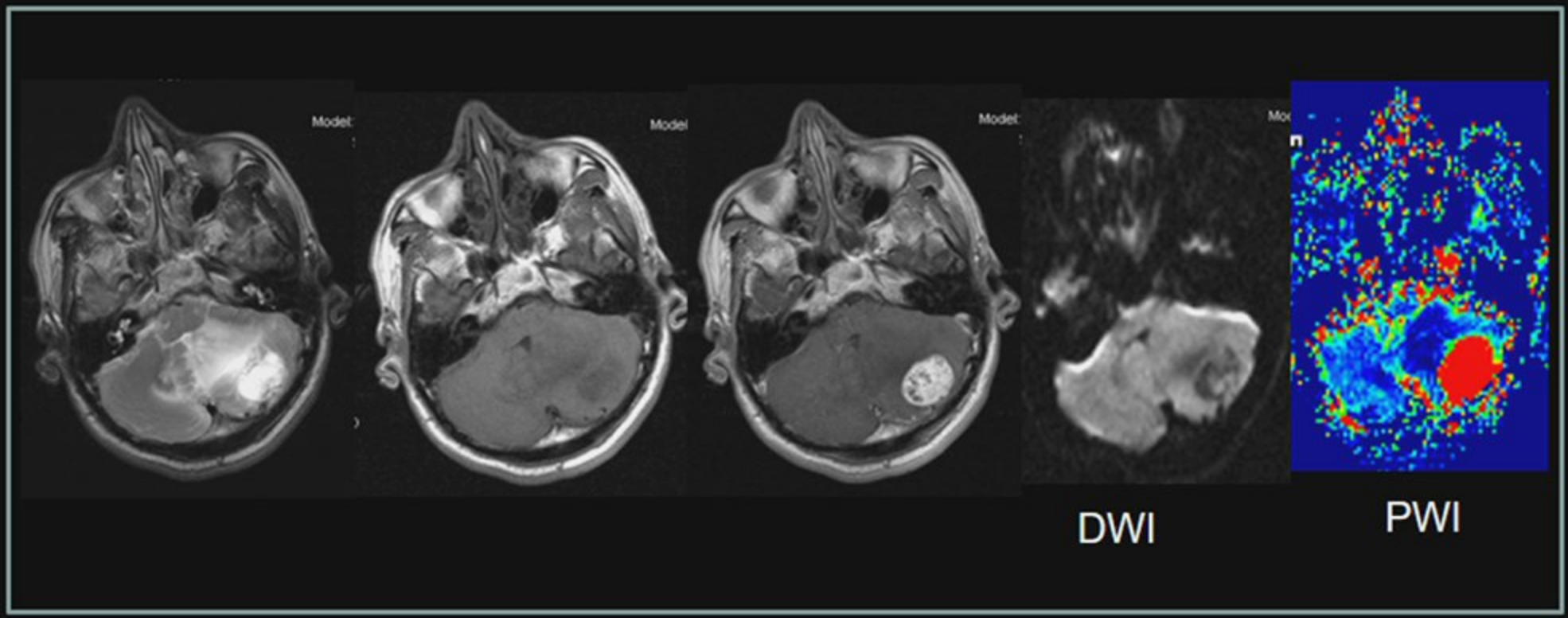
- DAG kısıtlanma yok



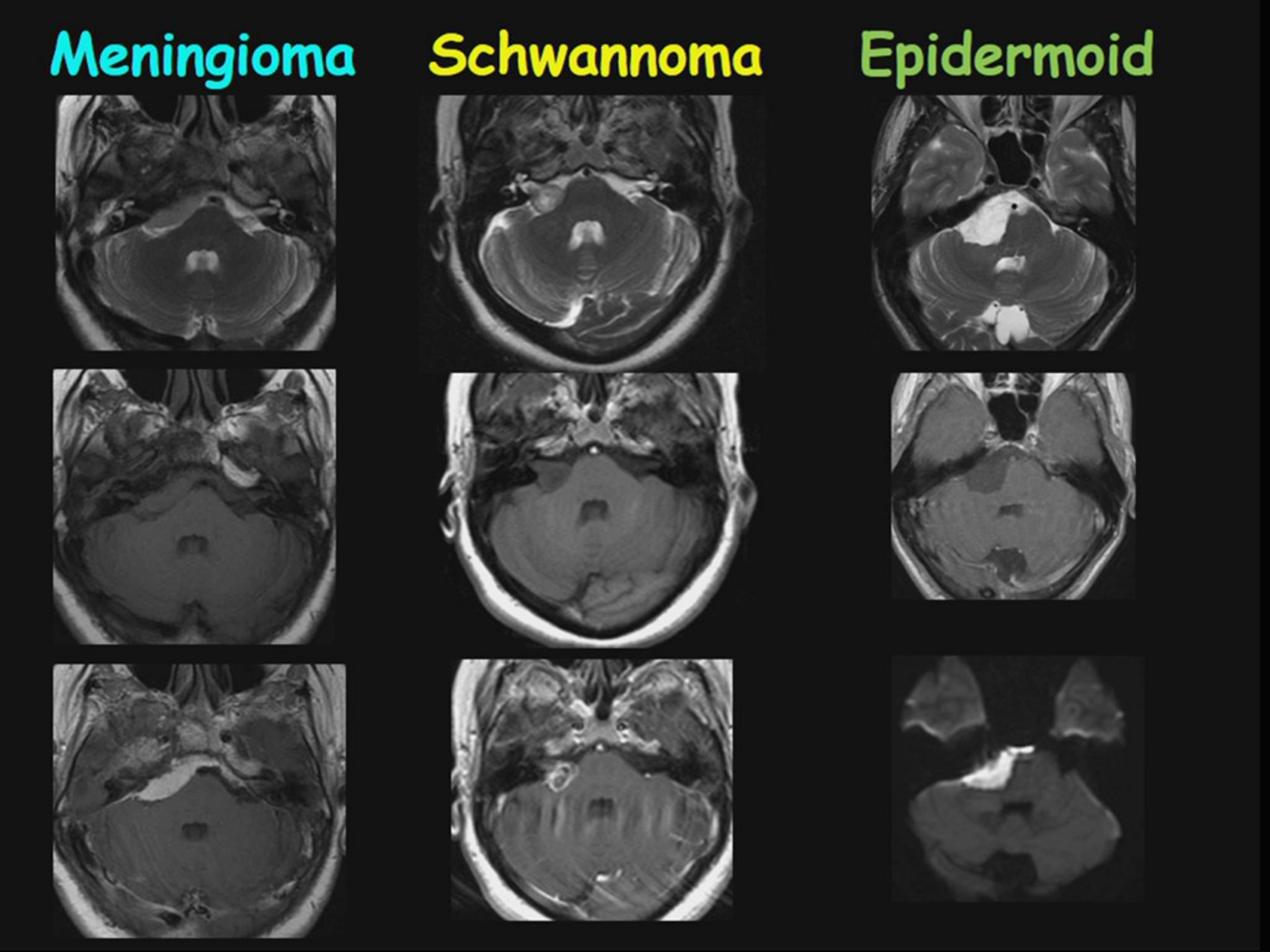
Hemangioblastoma

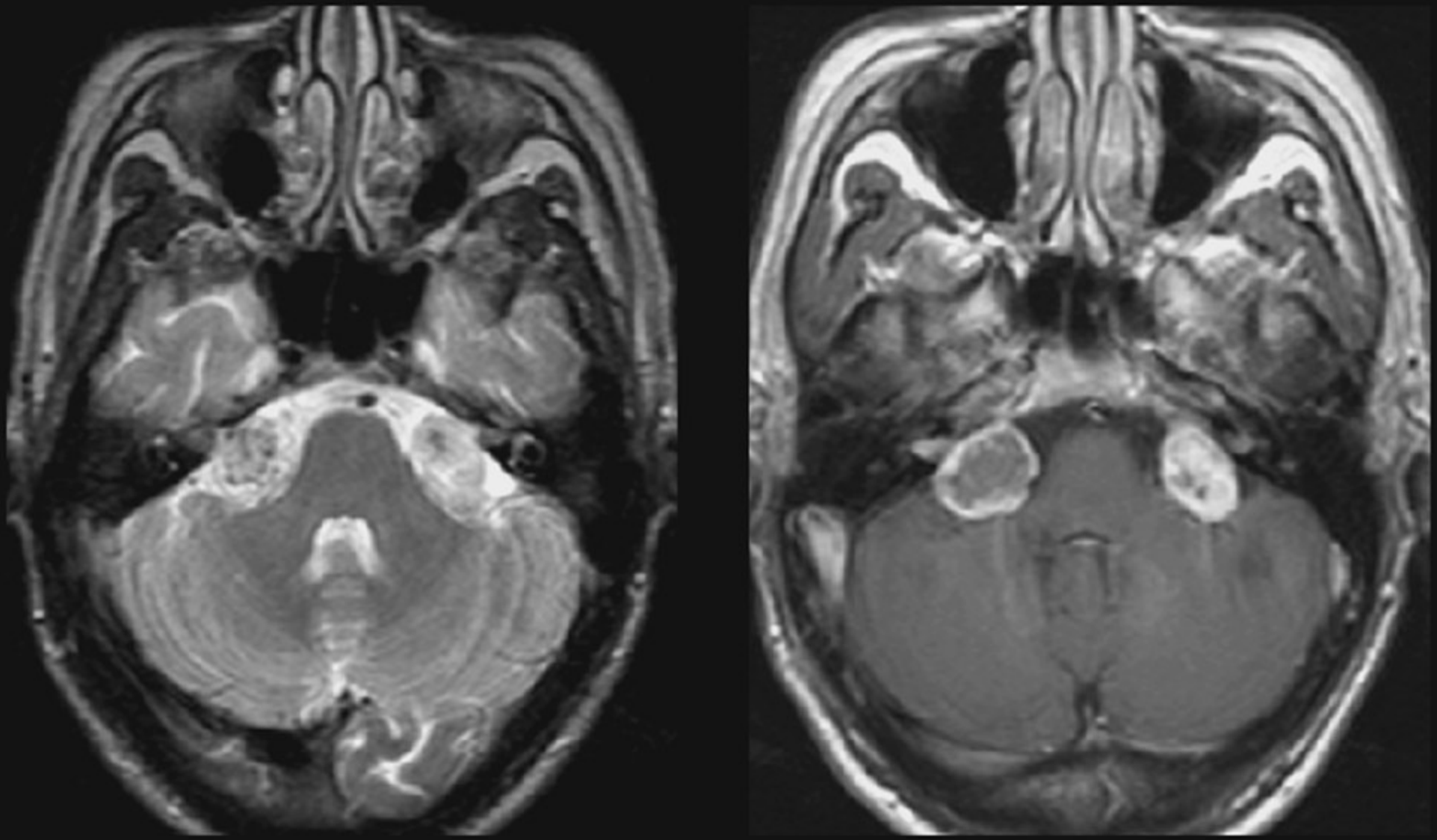
Hemangioblastom

- Vasküler kökenli tm
- %20 Von Hippel-Lindau sendromu ile birlikte
- En sık serebellum-vermis yerleşimli
- İyi sınırlı, minimal kitle etkisi
- MRG→ parlak mural nodül
  - → kistik tm
  - → anormal vaskülarite
- 40% tamamen solid

Pontoserebellar köşe tmleri

- **Akustik schwannom**
  - 70-90%
  - +C tutar, internal akustik kanal içinde
  - Unilateral (bilateral NF2)
- **Meningiom**
  - +C tutar
- **Metastasis**
  - +C tutar
- **Epidermoid**
  - +C tutmaz
  - T1- and T2 sekanslarda BOS sinyalleri (DAG gerekir)


Meningioma
Schwannoma
Epidermoid



NF2, bilateral akustik schwannomlar

SUPRATENTORIAL TÜMÖRLER

Supratentorial tümörler

- Beyinde parankimal
- Ekstra-aksiyel hemisferik
- Suprasellar/sellar
- Pineal
- İntraventriküler
- Dural / leptomeningeal

SUPRATENTORIAL Intraaksiyel TÜMÖRLER

Pediatrik:

- Astrocytoma
- Ependymoma
- DNET
- PNET
- Desmoplastic infantile ganglioglioma
- Ganglioglioma
- ATRT
- SEGA
- Metastasis

Erişkin:

- Astrocytoma
- Metastasis
- Lymphoma

SUPRATENTORIAL Intraaksiyel TÜMÖRLER

Pediatrik:

- Astrocytoma
- Ependymoma
- DNET
- PNET
- Desmoplastic infantile ganglioglioma
- Ganglioglioma
- ATRT
- SEGA
- Metastasis

İNFİLTRATİF ASTROSİTOM: (WHO grade 2)

* Hemisferik glial neoplazilerin %20-30u, sıklıkla 20-50 yaşlarda

- Yerleşim: frontal, temporal, parietal loblar
- MRG: Infiltratif, homojen lezyon
- Hiposelluler ve T2 hiperintens
- Peritumoral ödem yok ve +C +/- (varsa minimal)
- Yüksek grade glioma dönüşebilir (%50-75)

ANAPLASTIK ASTROSİTOM (WHO grade III)

- En sık 4-5. dekadlarda.
- BT / MRG bulguları GBM ile benzer
- +C sıklıkla (+) ancak (-) olabilir.

GLIOBLASTOMA MULTIFORME (WHO grade IV)

- SSSnin en malign glial tm
- Sıklıkla 5. dekad sonrası ortaya çıkar
- BT/MRG
  - Nekroz, kistler, peritumoral ödem
  - Solid komponentlerinde mutlaka +C (+)
  - Kanama

İNFİLTRATİF ASTROSİTOM: (WHO grade 2)

* Hemisferik glial neoplazilerin %20-30u, sıklıkla 20-50 yaşlarda

- Yerleşim: frontal, temporal, parietal loblar
- MRG: Infiltratif, homojen lezyon
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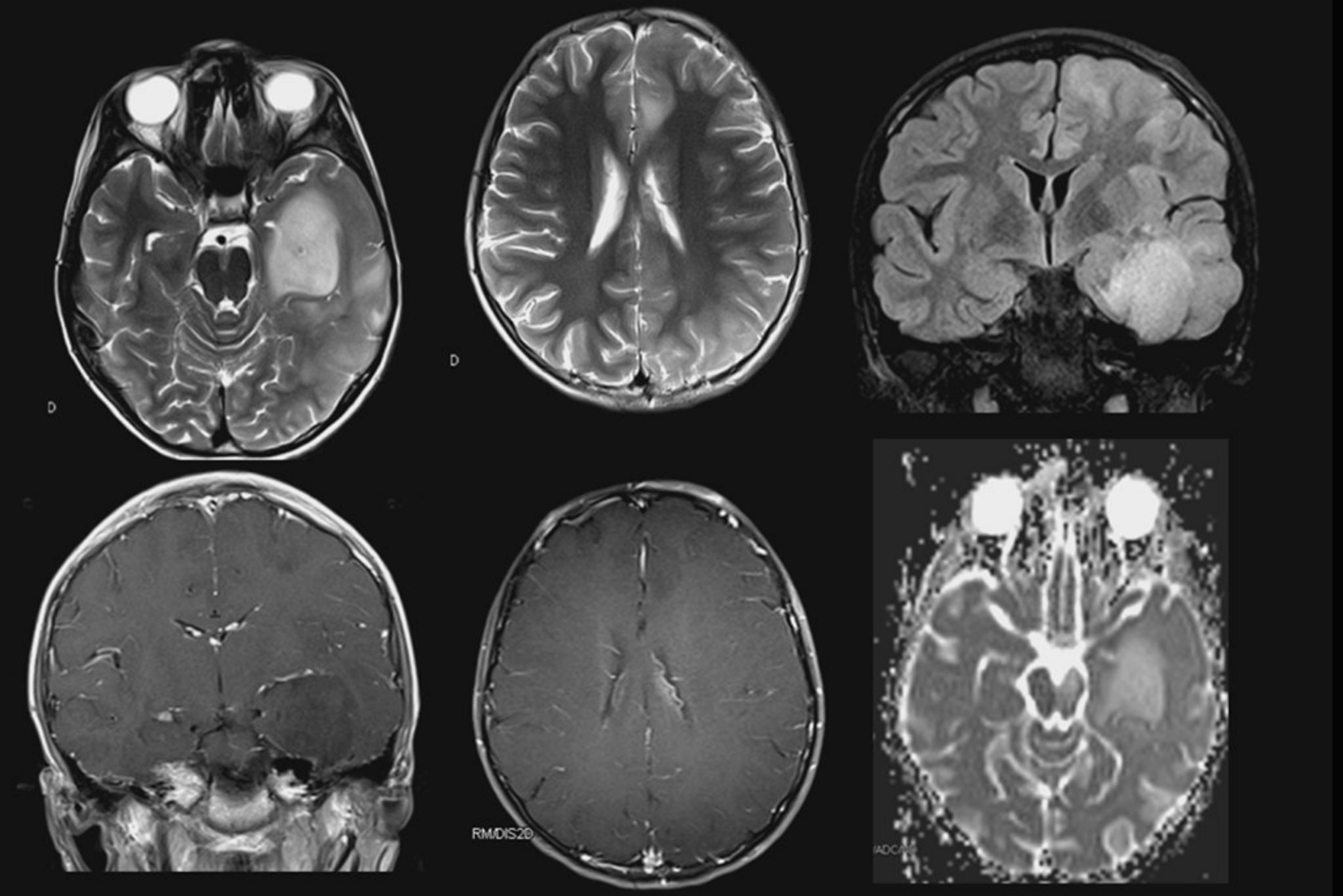
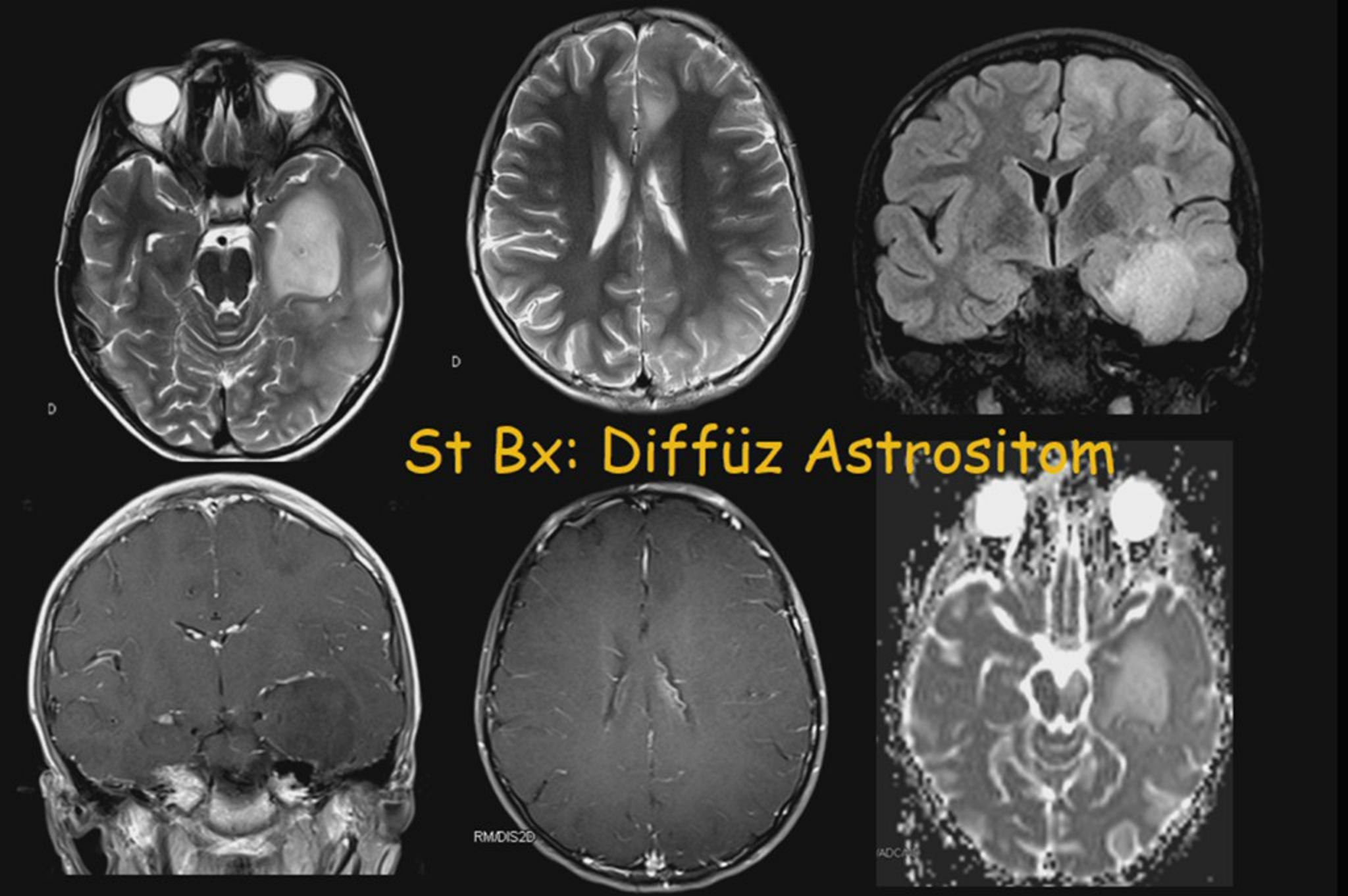
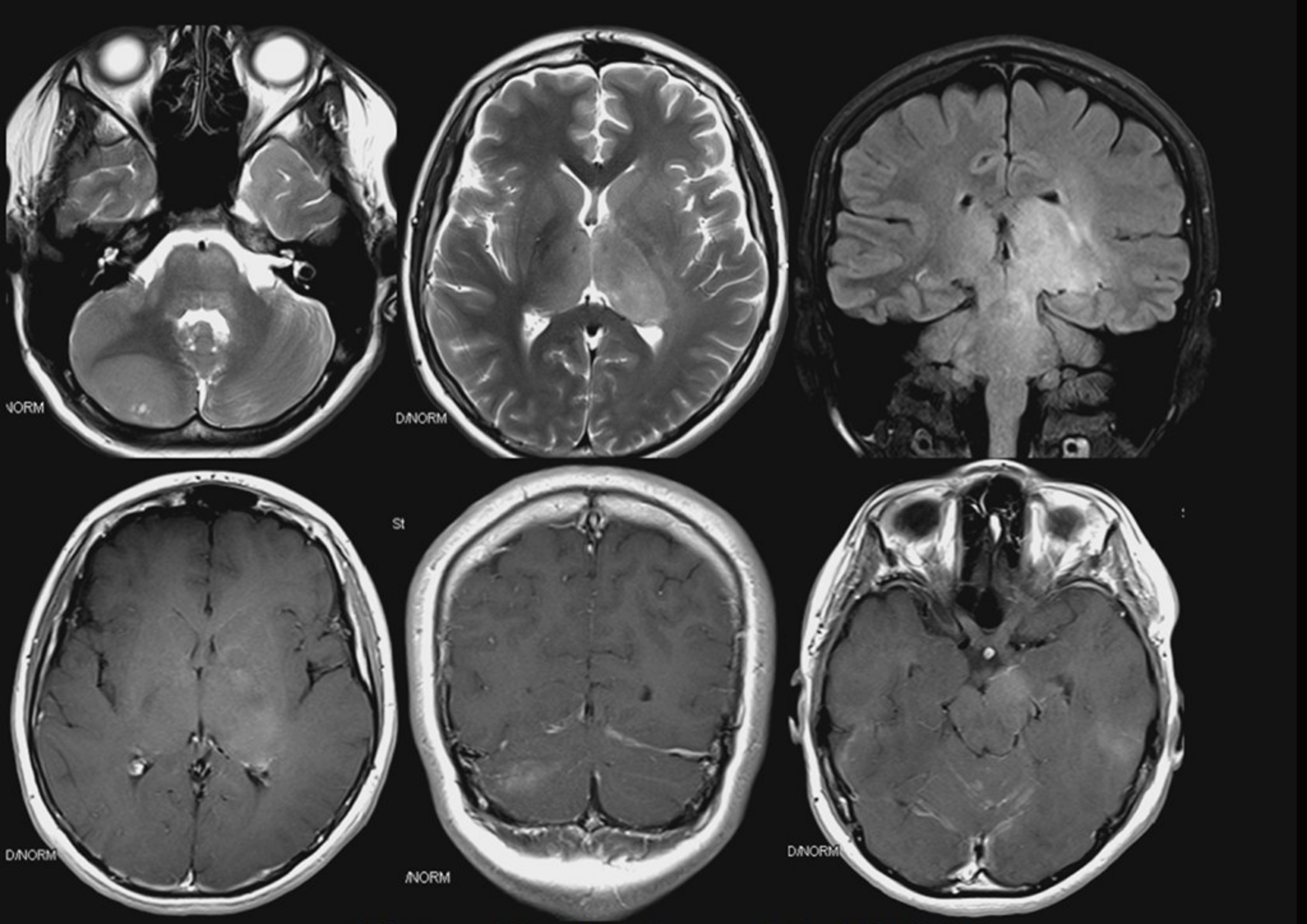


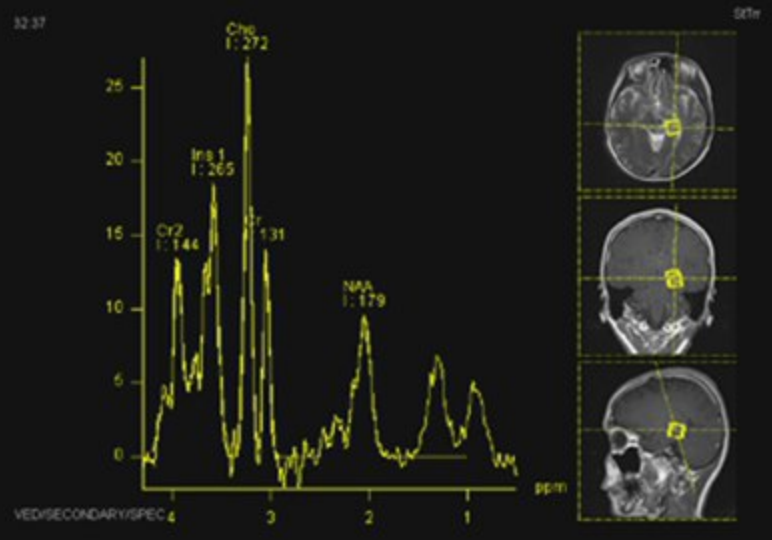
14 y, M/ Nöbetler

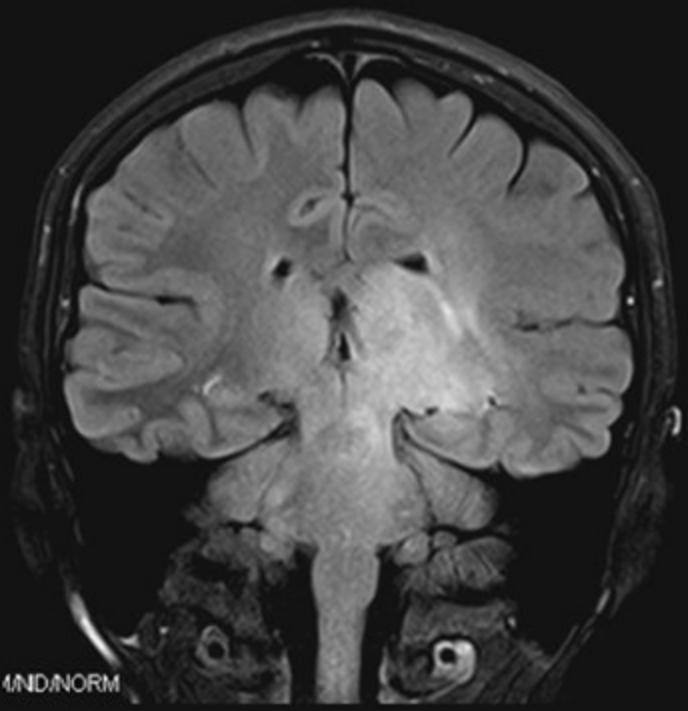

St Bx: Diffüz Astrositom
14 y, M/ Nöbetler

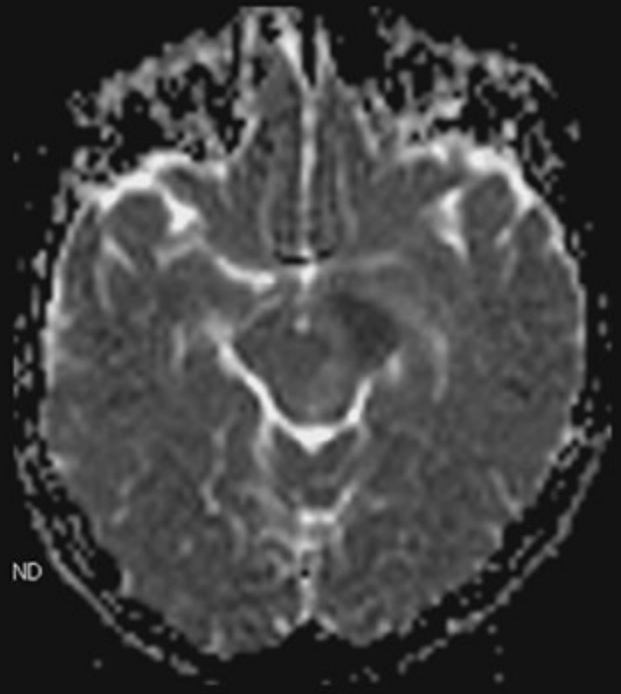


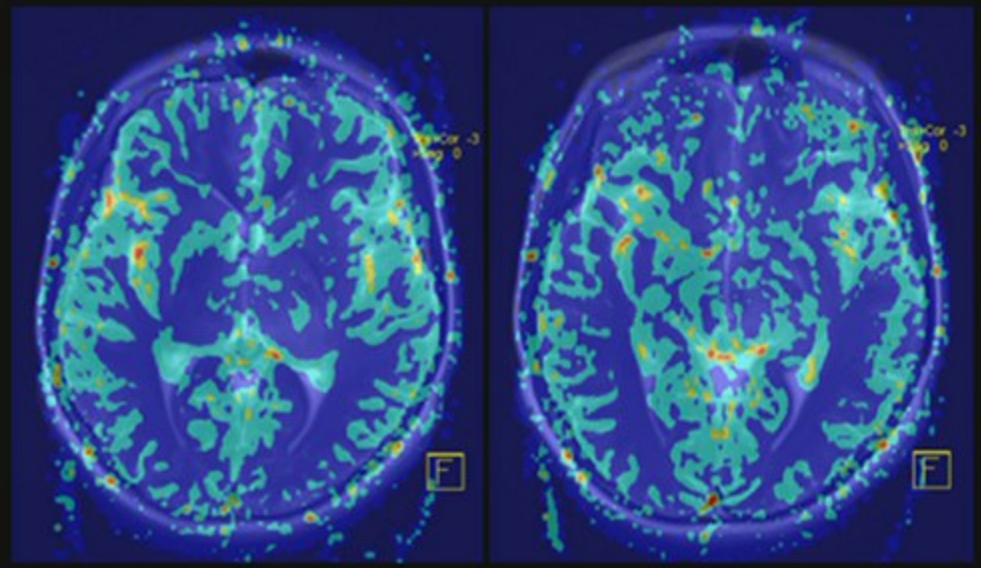
16 yaş E/ nöbetler, sol 3. KS felci

Gliomatosis serebri



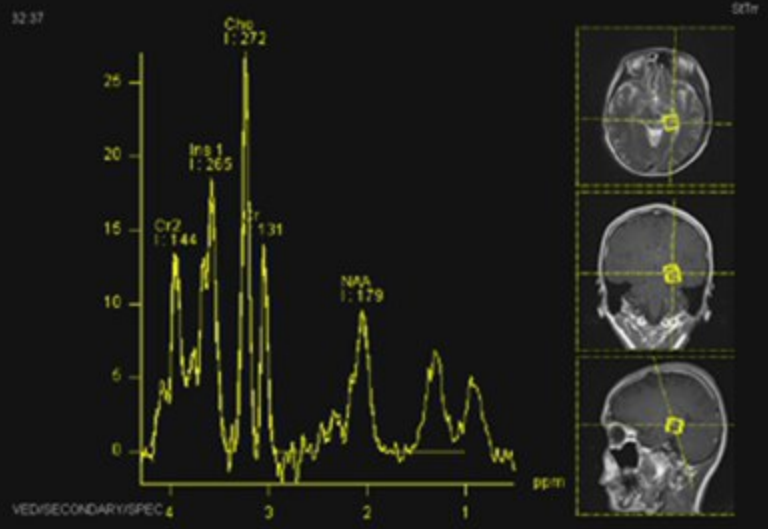


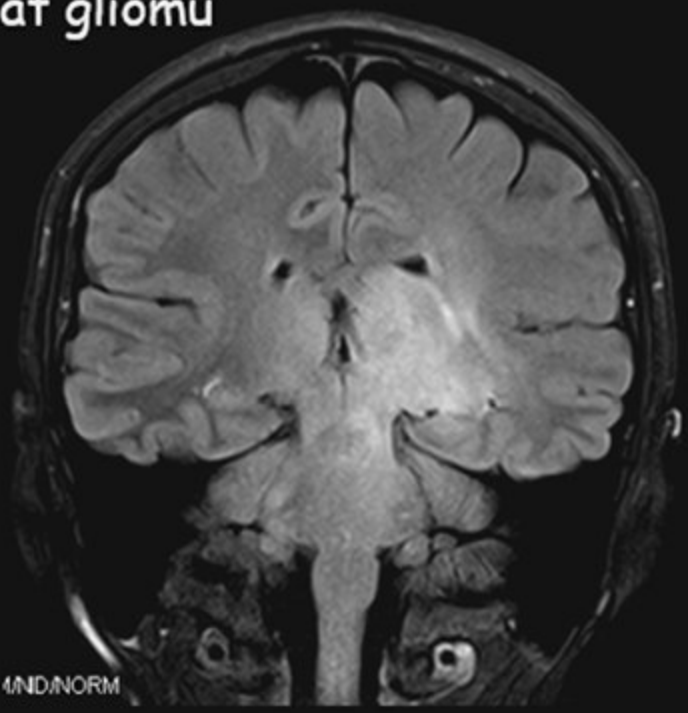


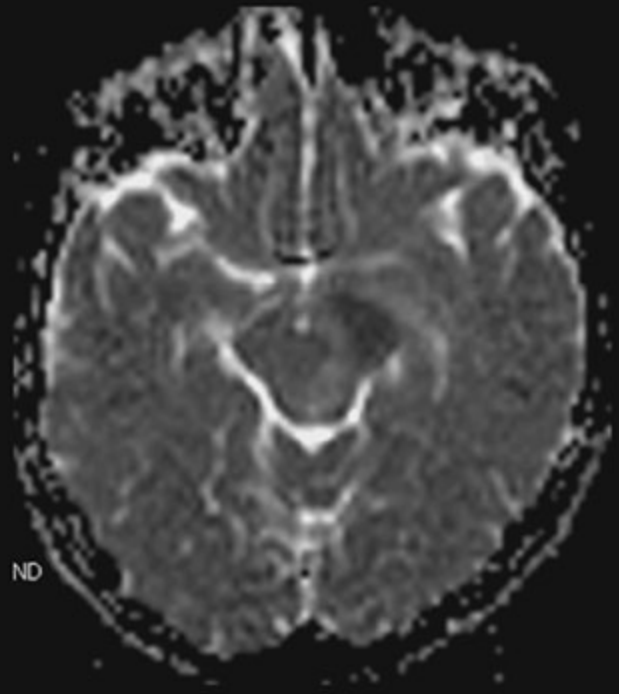


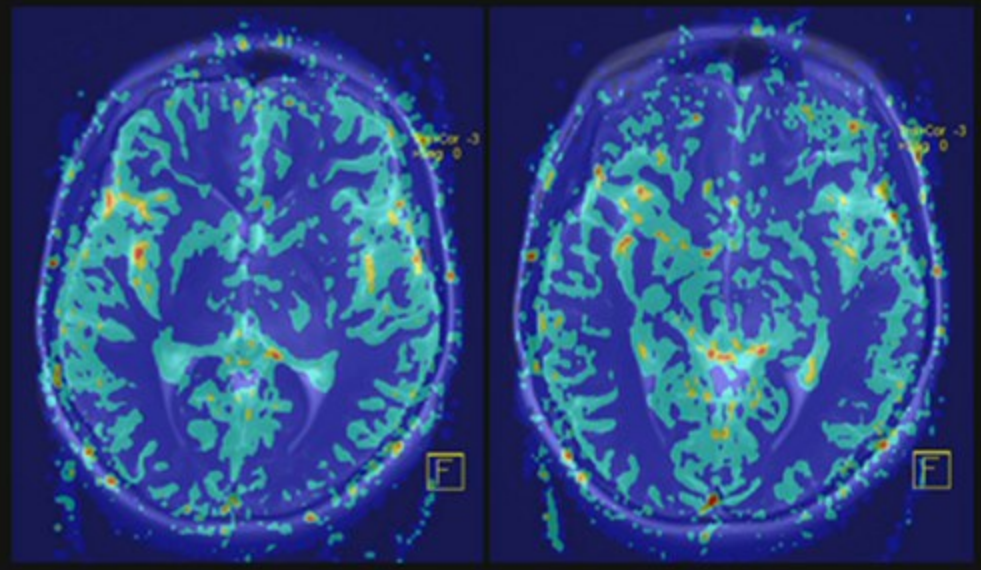
~~Gliomatosis serebri~~

Diffüz orta hat gliomu



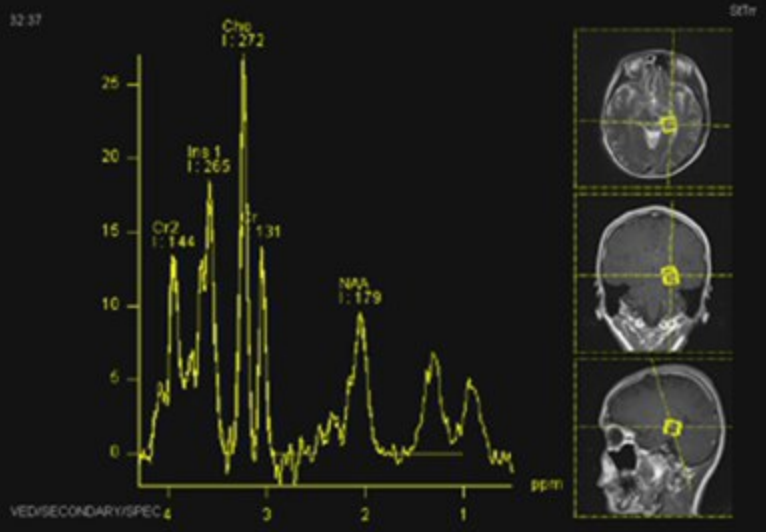


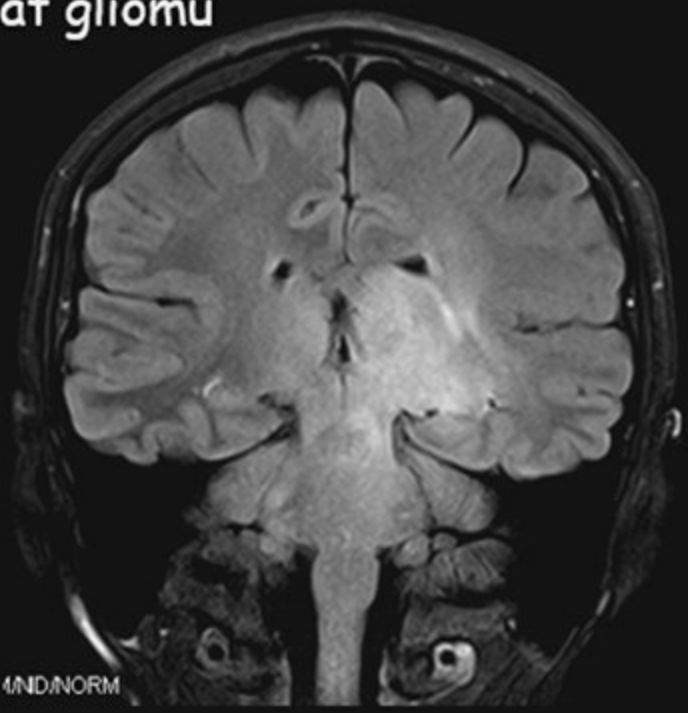


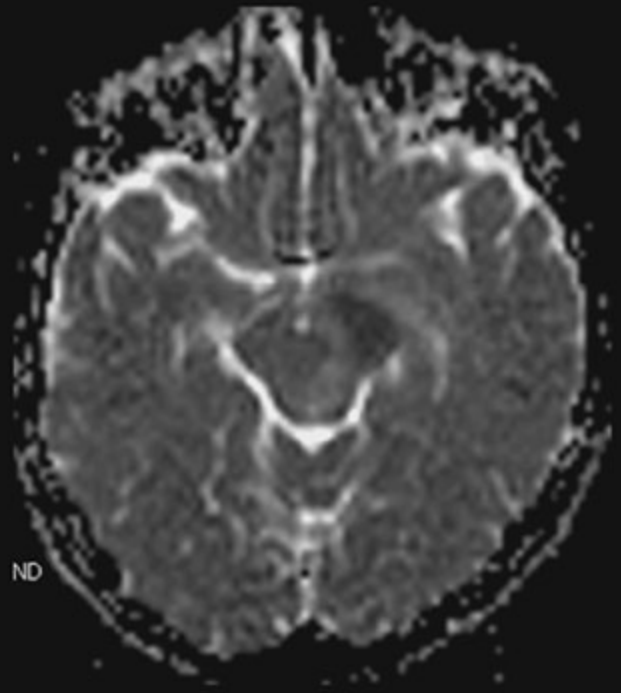


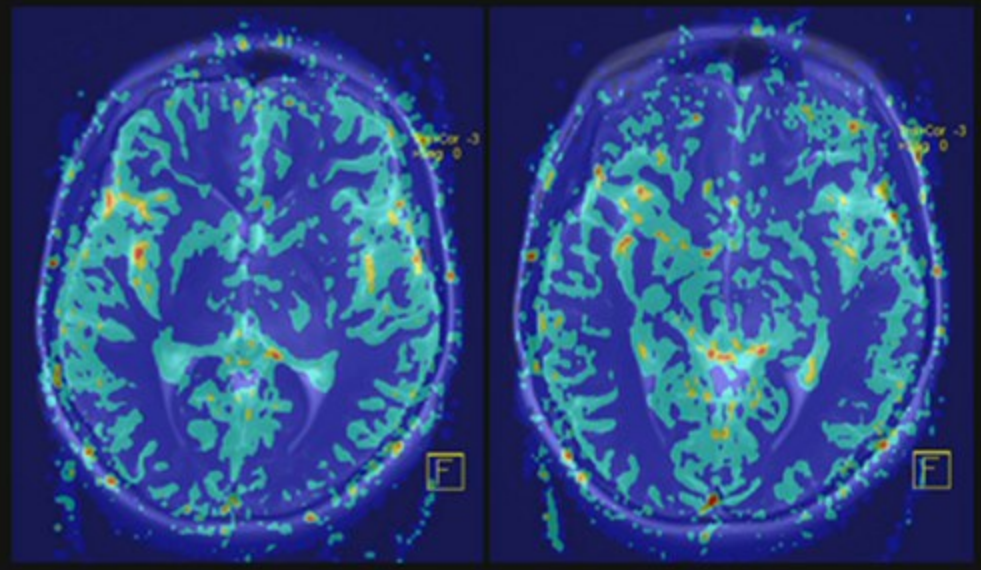
~~Gliomatosis serebri~~

Diffüz orta hat gliomu



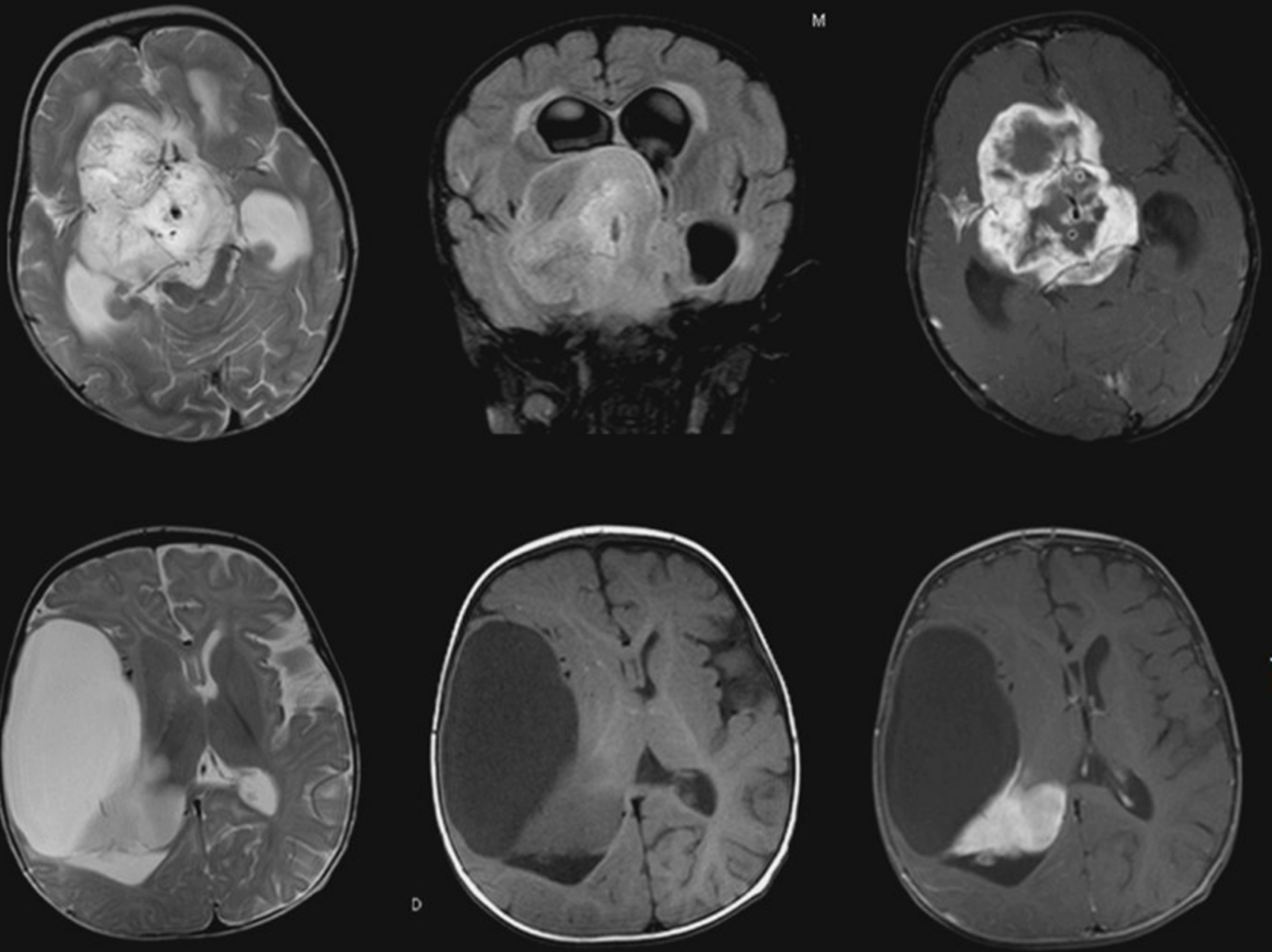






Glioblastoma Multiforme

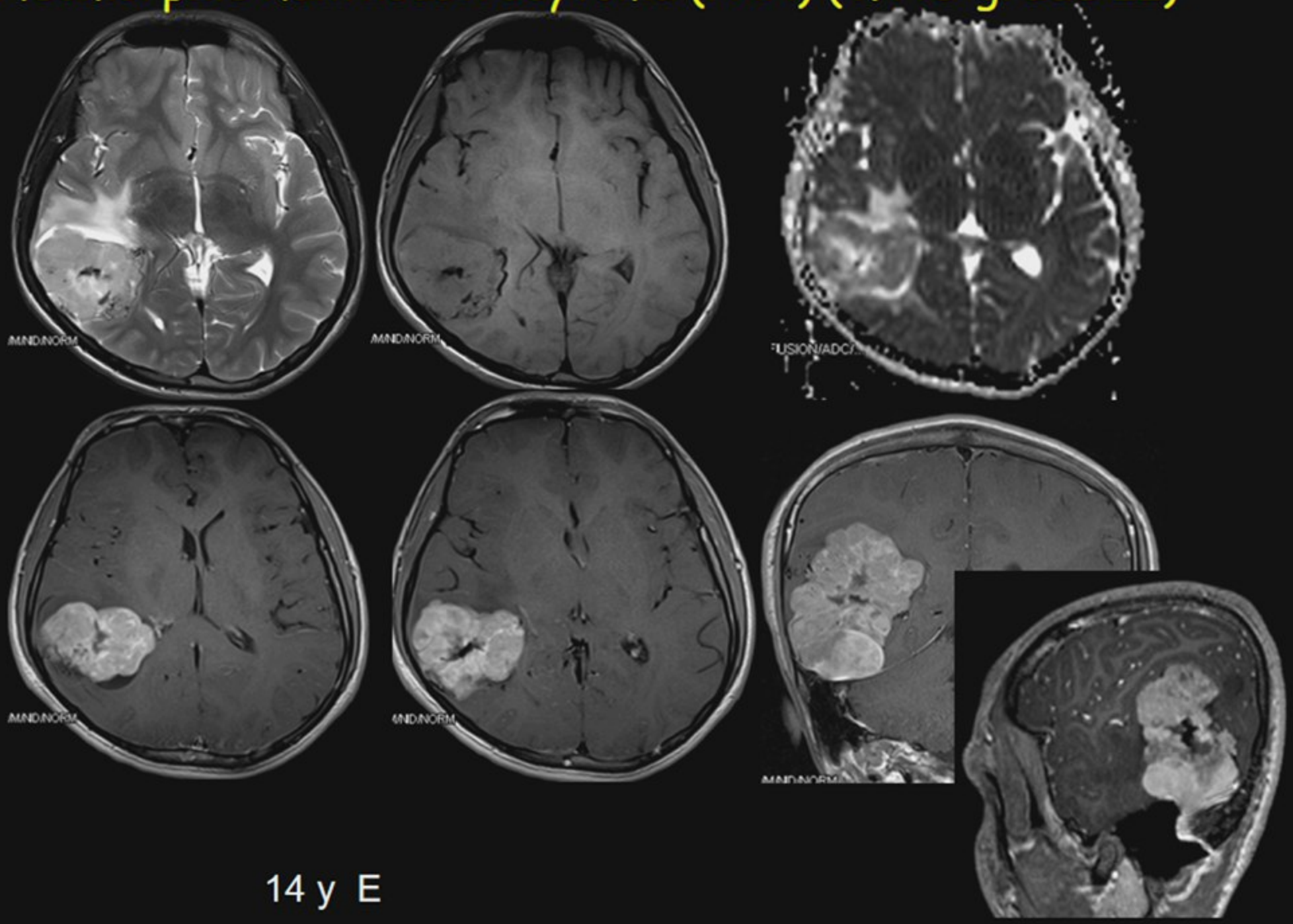
Pilomiksoid Astrositom (WHO grade II)



16 aylık

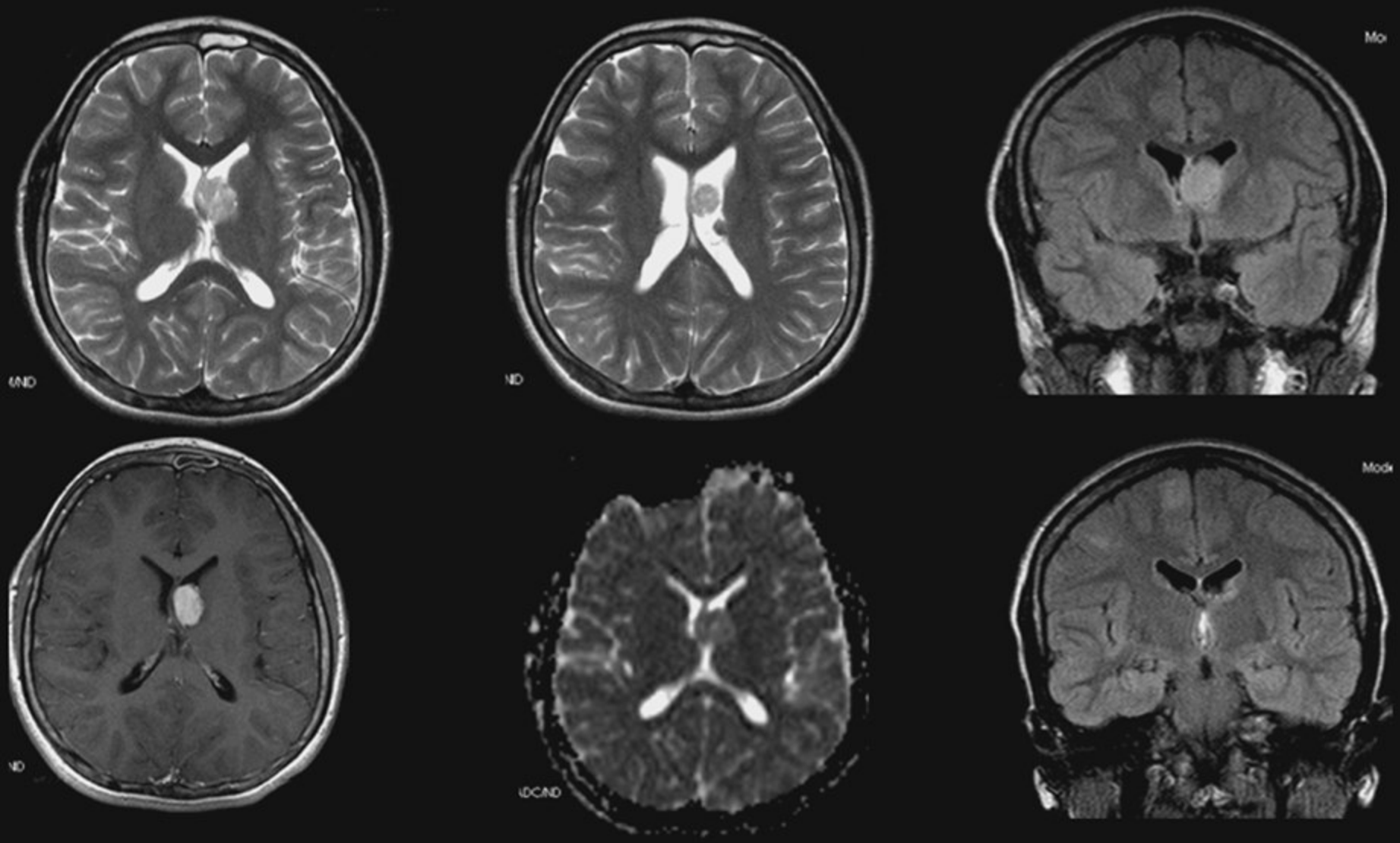
7 aylık

Pleomorphic xanthoastrocytoma (PXA) (WHO grade II)



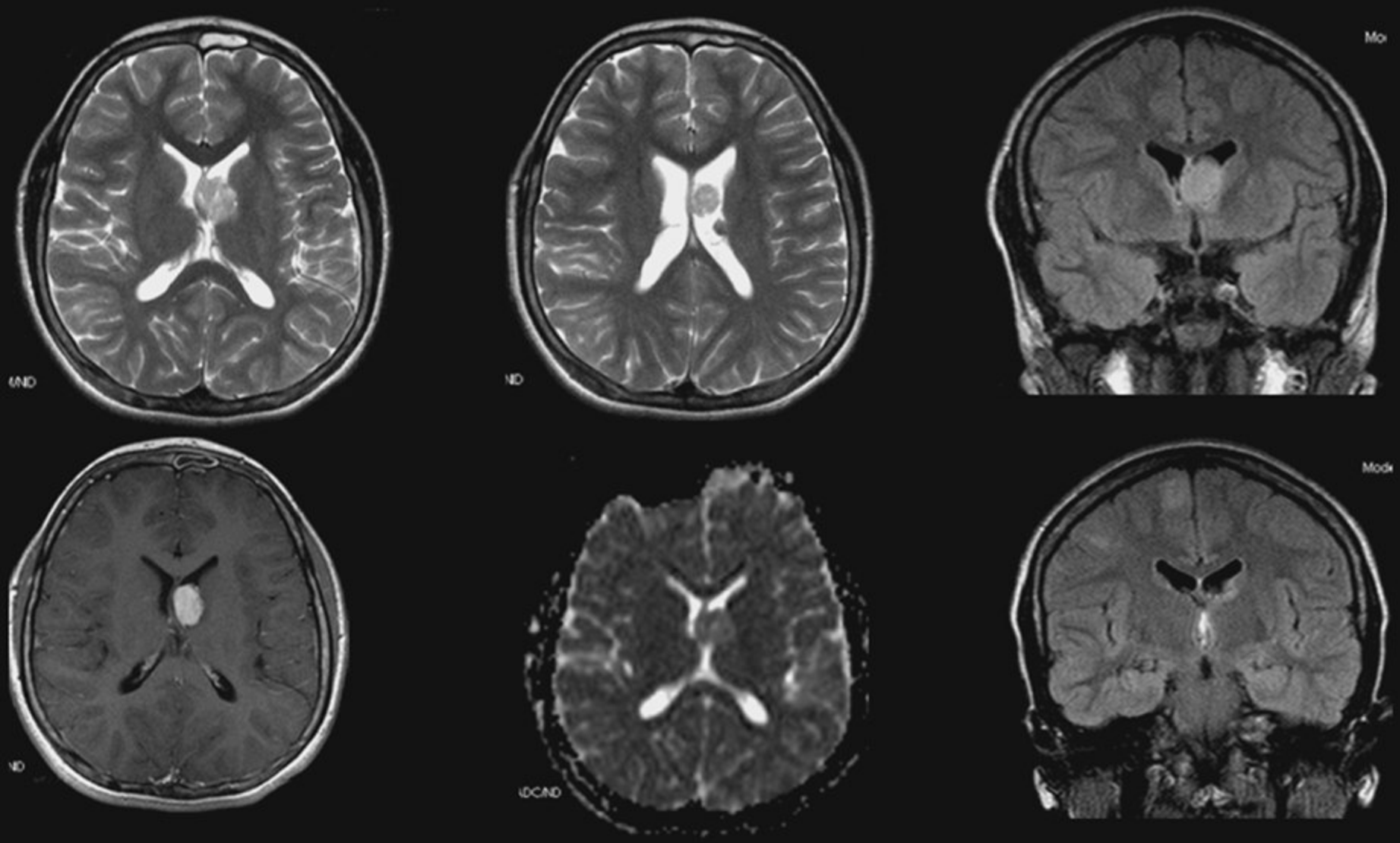
14 y E

Subependimal Dev hücreliAstrositom (SEGA) (WHO grade II)



12 y, K

Subependimal Dev hücreliAstrositom (SEGA) (WHO grade II)

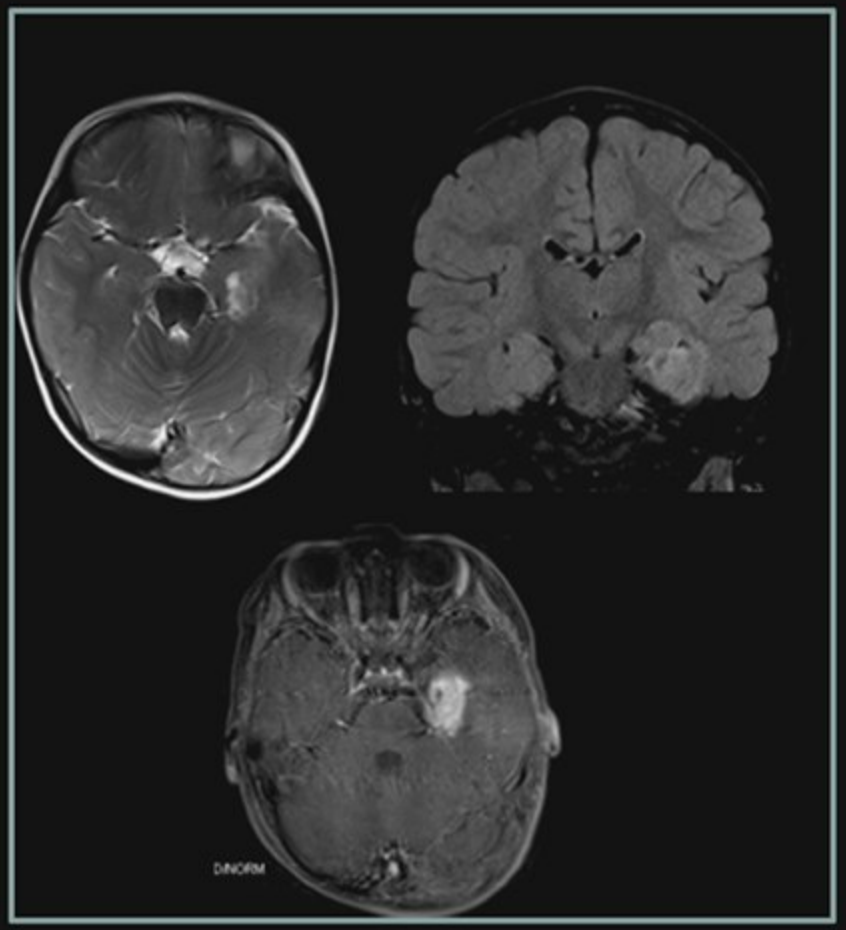


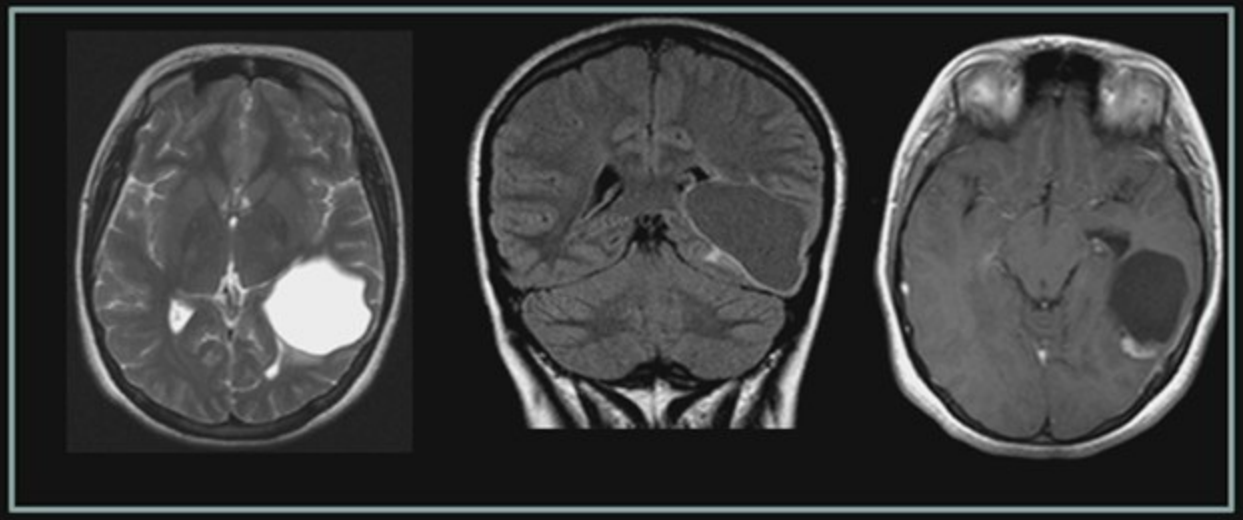
12 y, K

Tuberous Sclerosis

Gangliogliom

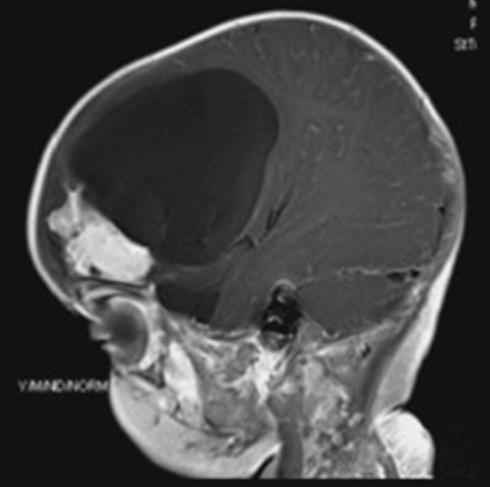
- Çocuk ve genç erişkinde
- Glial - neuronal tm
- WHO Grade I – II
- Heterojen görüntüleme bulguları
- Kontrastlanma (+ / -)

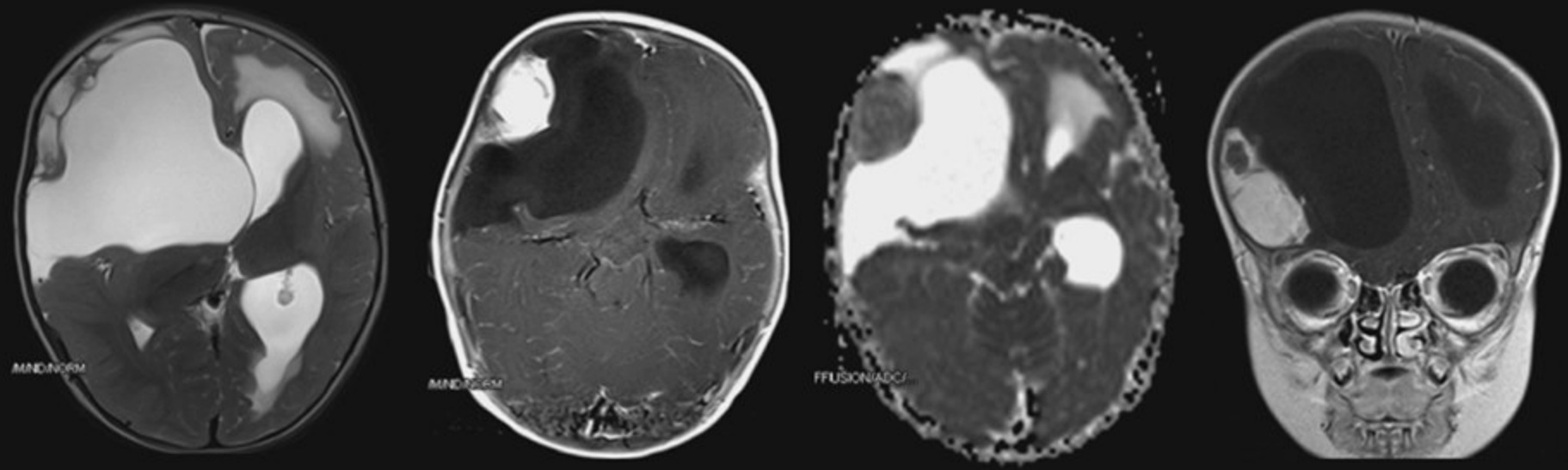




Desmoplastik Infantil Gangliogliom

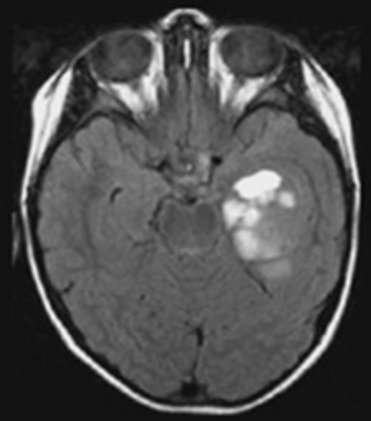
- 1 yaş altı çocuklarda
- Dural tabanlı
- Solid kistik

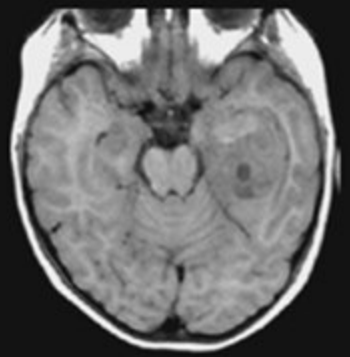


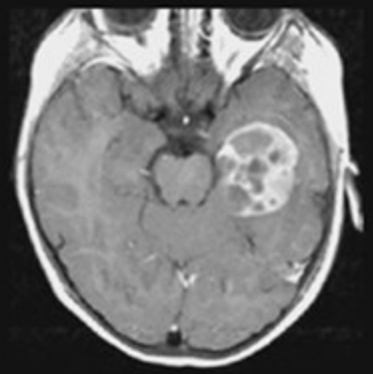


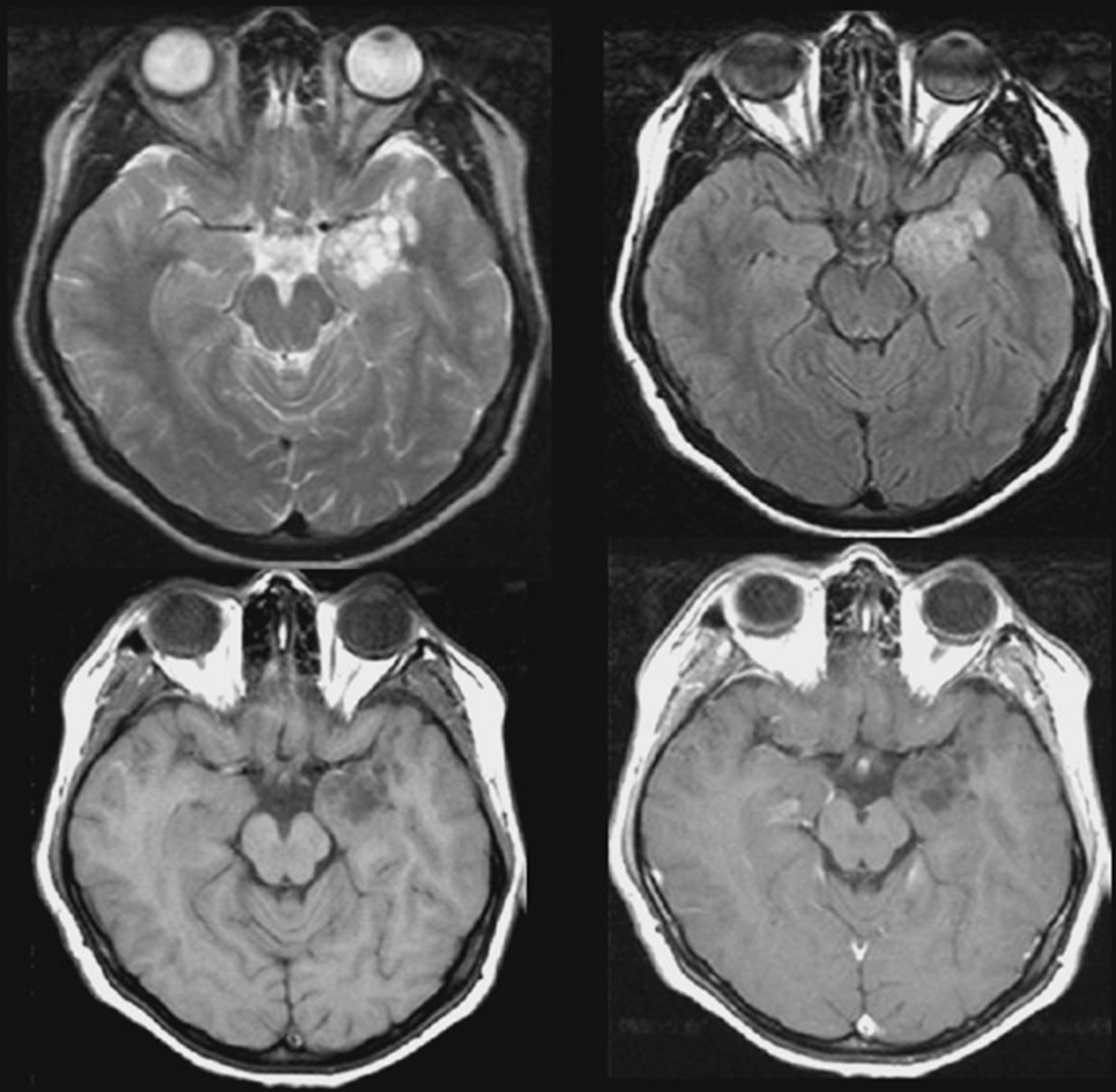
Disembriyoblastik Nöroepitelial Tümor (DNET)

- Solid, iyi sınırlı, lobule, benign tm
- %30 kist and kalsifikasyon
- Kortikal yerleşim
- Temporal ve frontal
- Kitle etkisi yok
- Epilepsi ve kortikal displazi ile birliktelik
- BT → hipodens
- MRG → T1W hipointens
  → T2W hiperintens
- +C (-)



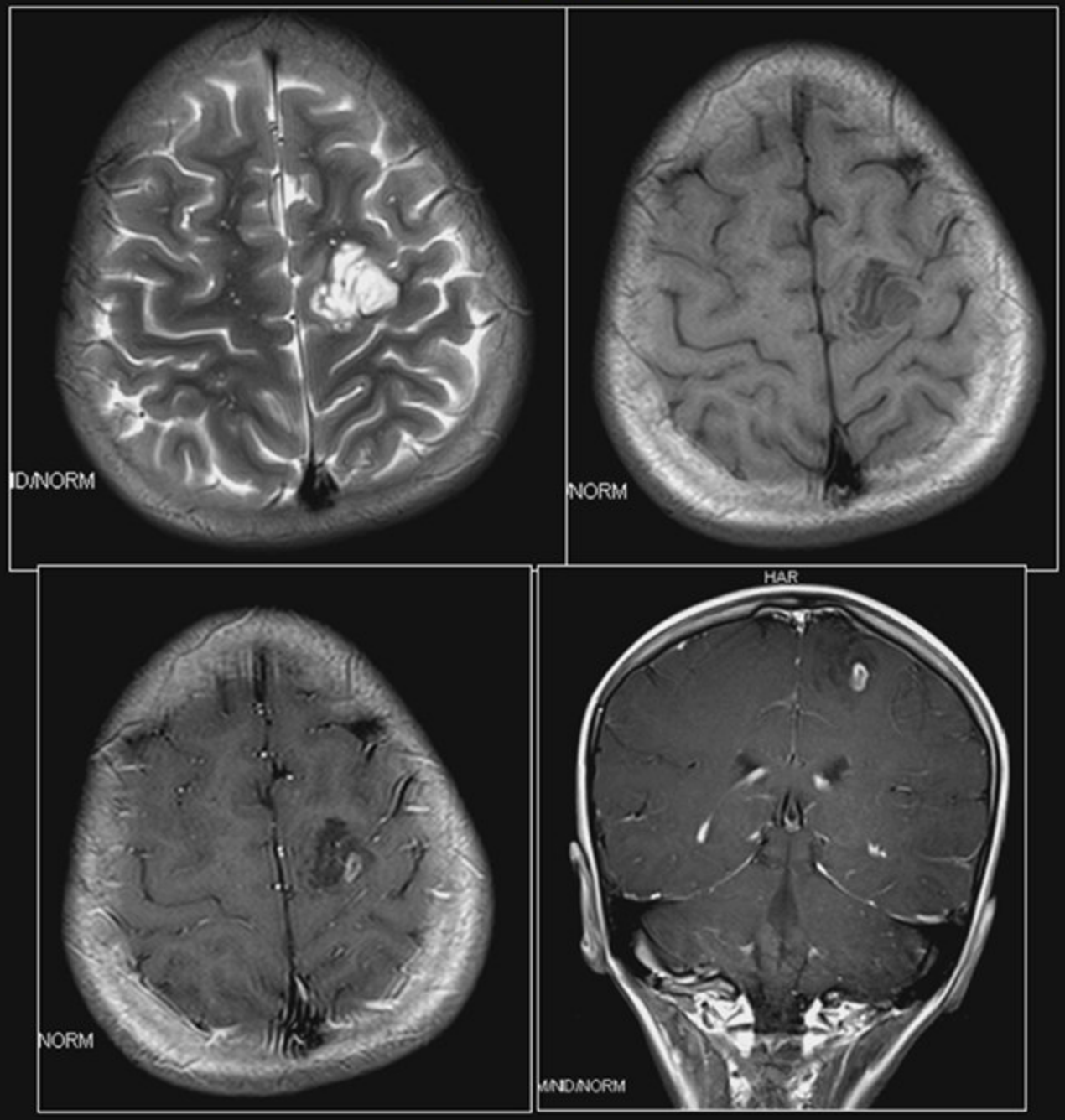


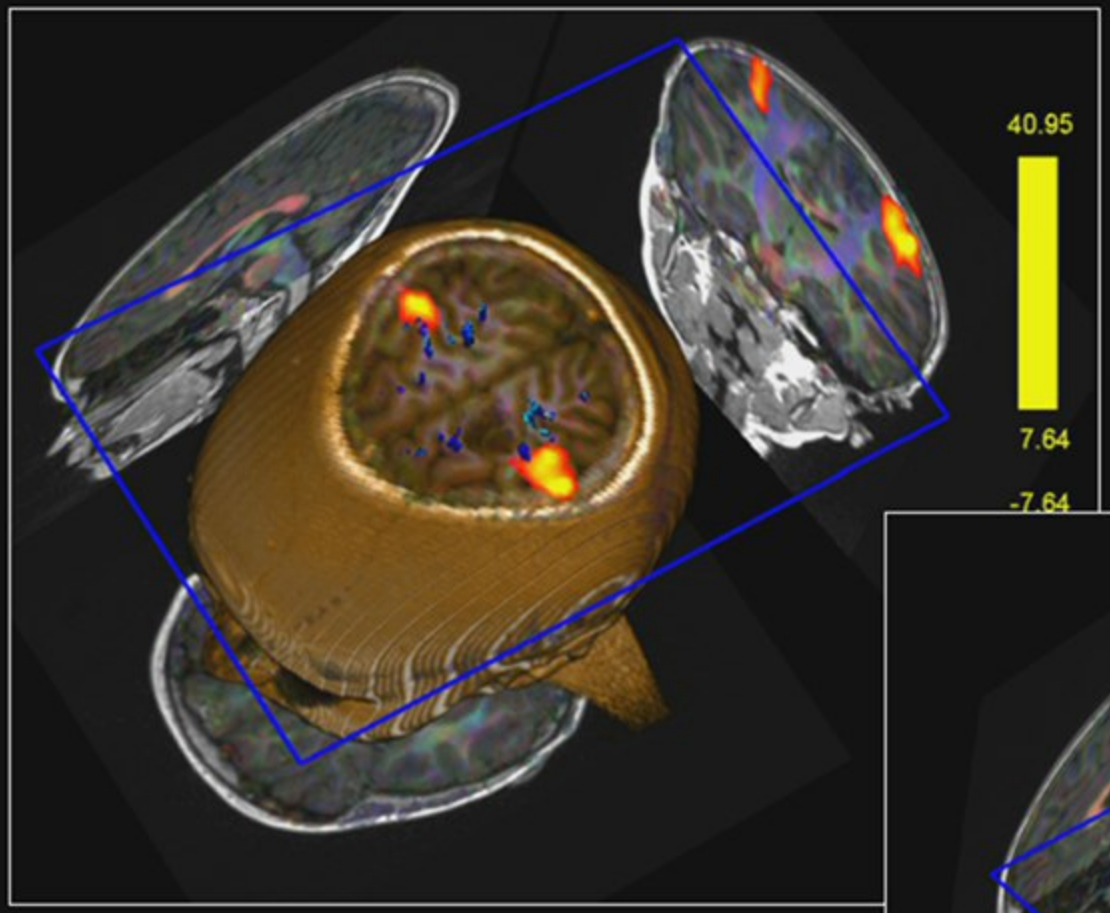




DNET

DNET

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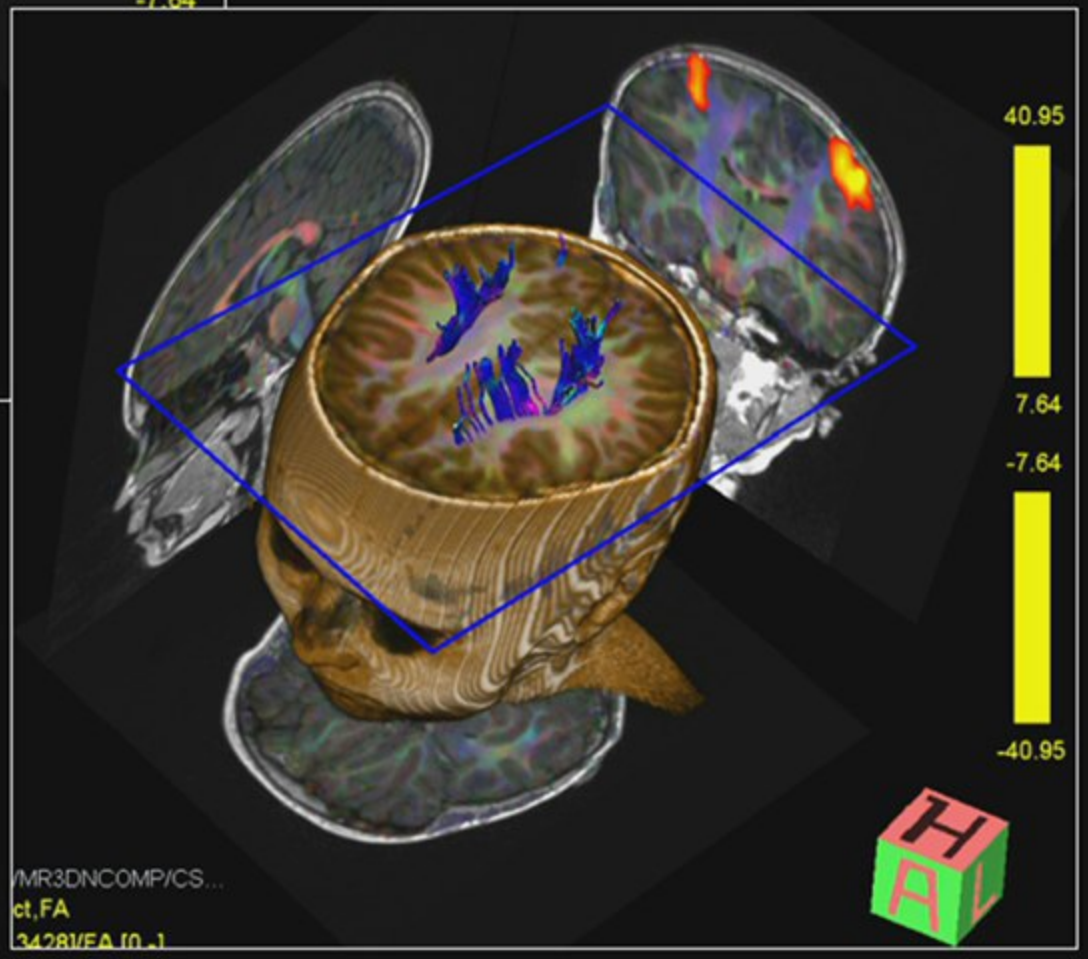
7.64
-7.64


40.95
7.64
-7.64
-40.95
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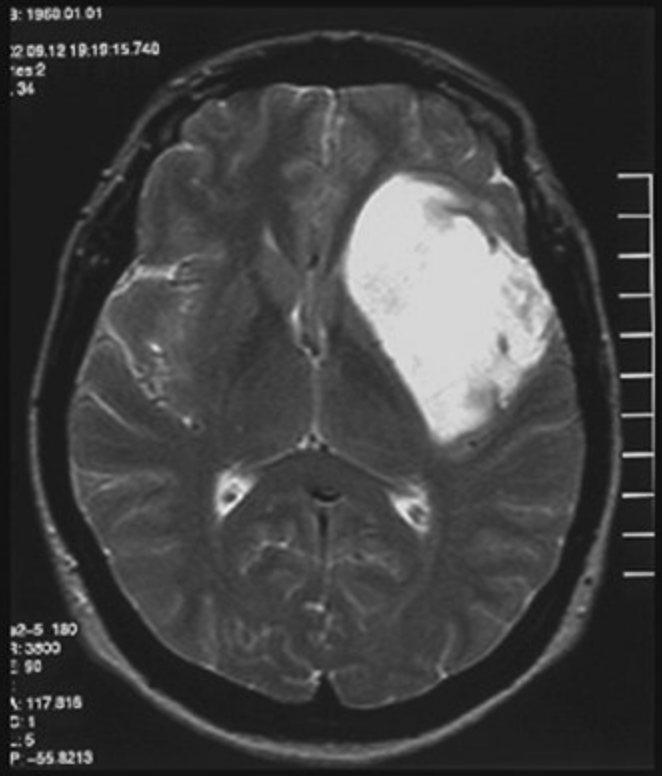
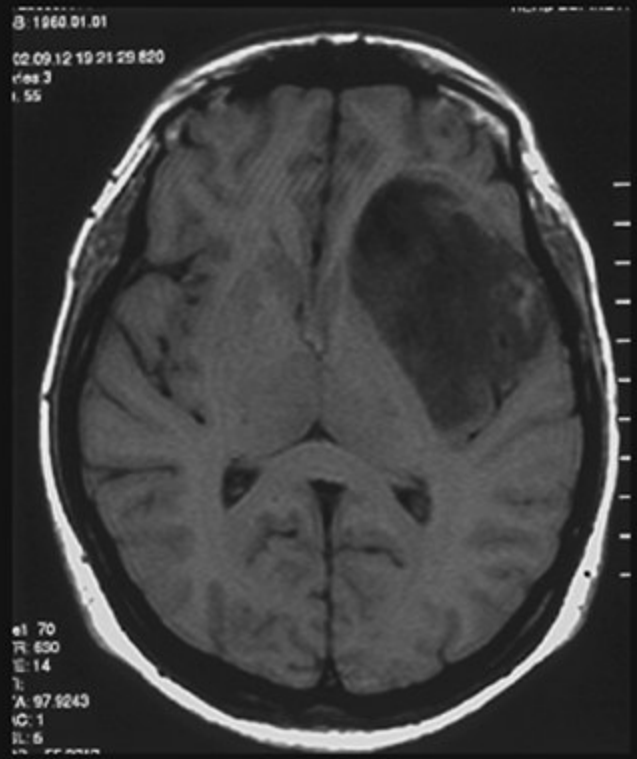
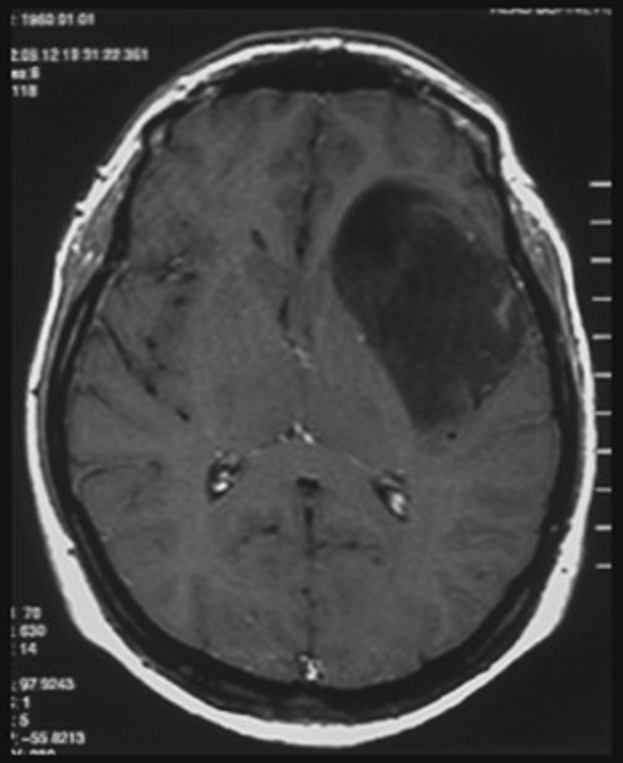
SUPRATENTORIAL Intraaksiyel TÜMÖRLER

Erişkin:

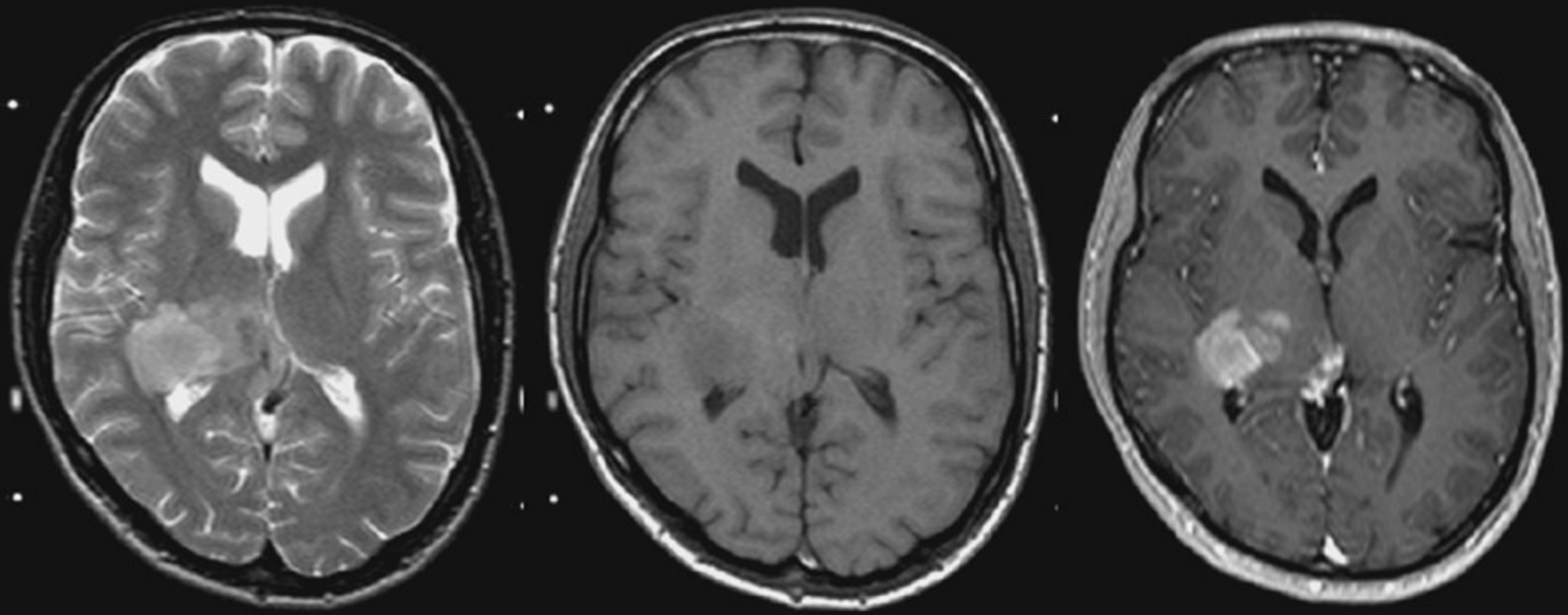
- Astrocytoma
- Metastasis
- Lymphoma



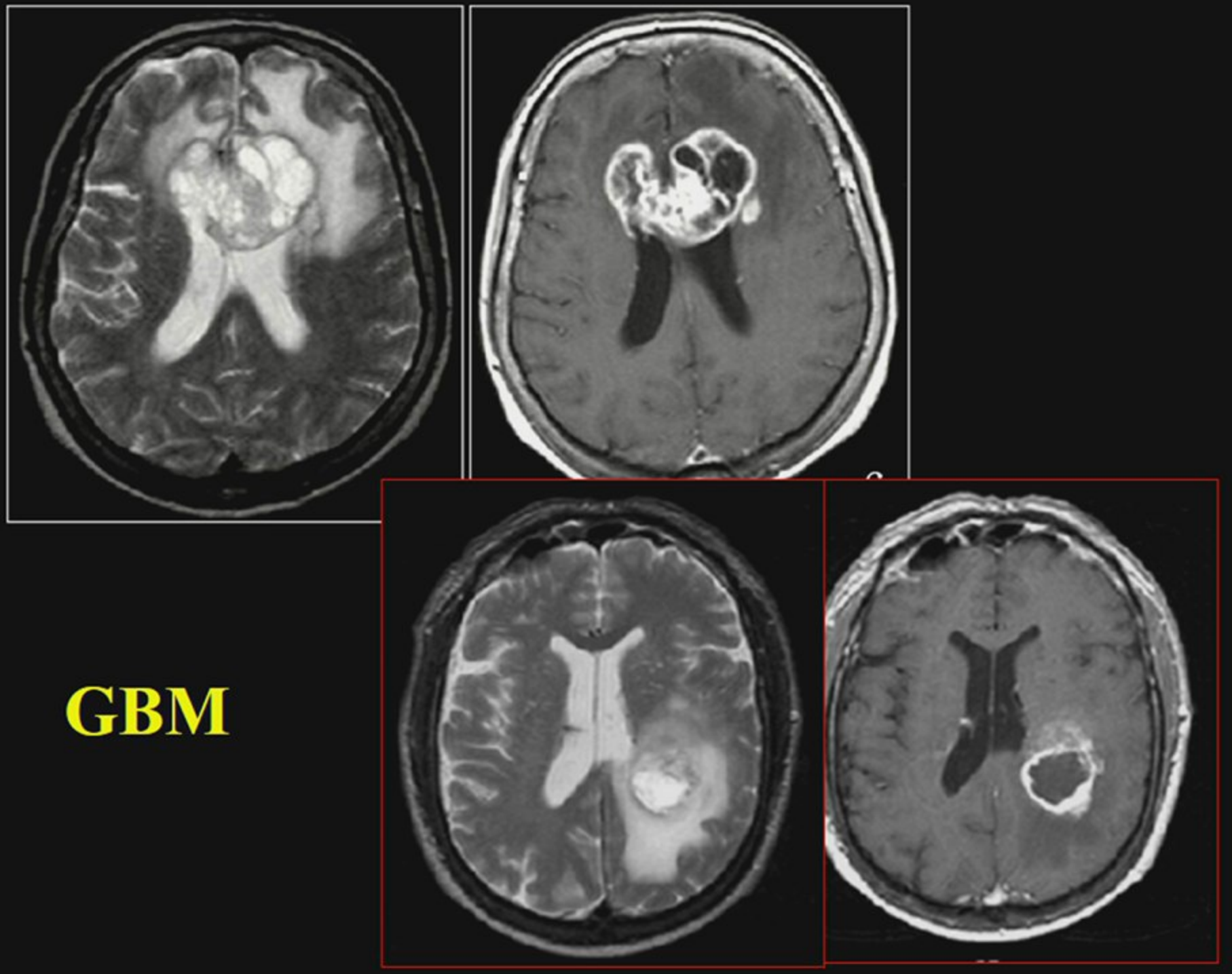




Grade II Astrositom



Anaplastik Astrositom



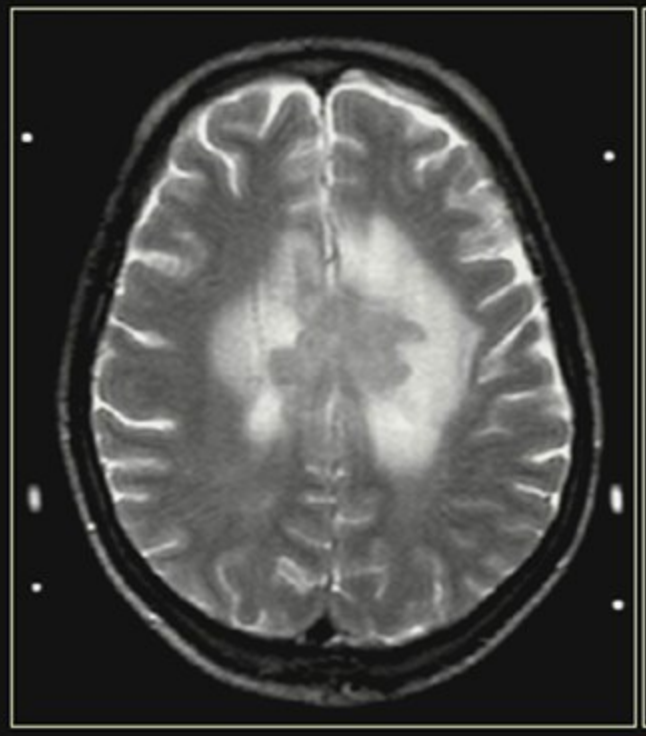
GBM

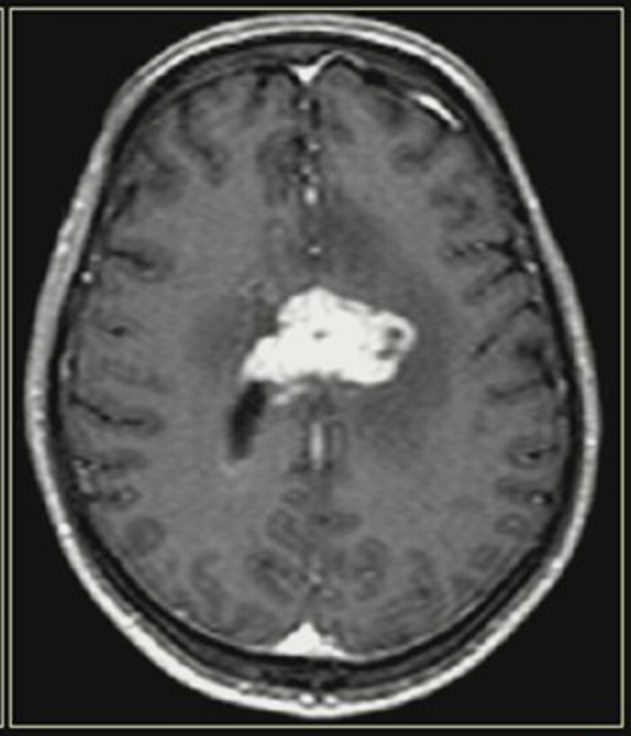
LENFOMA

- İntrakranyal tümörlerin 1-2%
- İmmun yetmezlik sendromları ile birlikte artan insidans, AIDS
- Primer: Derin gri madde, korpus kallozum tutulumu
- Sekonder: meningeal tutulum
- MRG: Gri madde ile izointens.
- +C : belirgin kontrastlanma

Lenfoma:

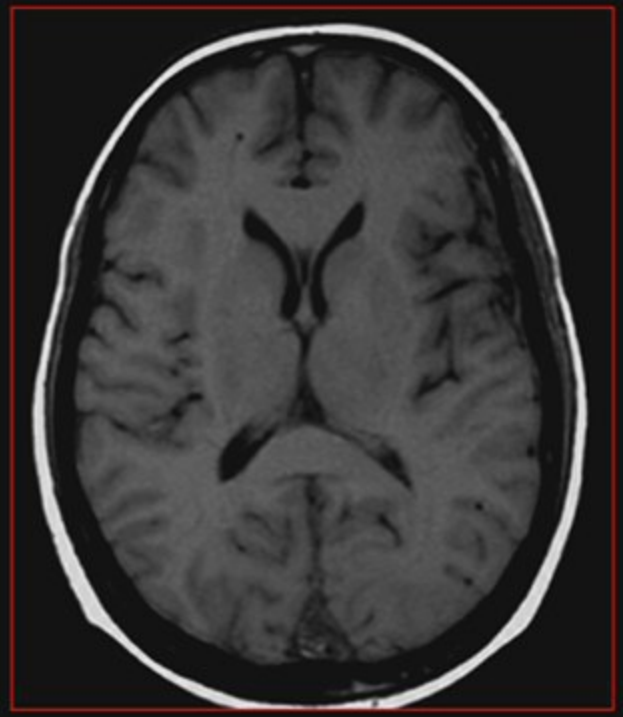
- Karakteristik konvansiyonel MRG bulgularına rağmen bazen yüksek grade glial tmden ayırım zordur.
- Ancak Glial tmden ayırmak çok önemlidir, çünkü tedavisi tamamen farklıdır.

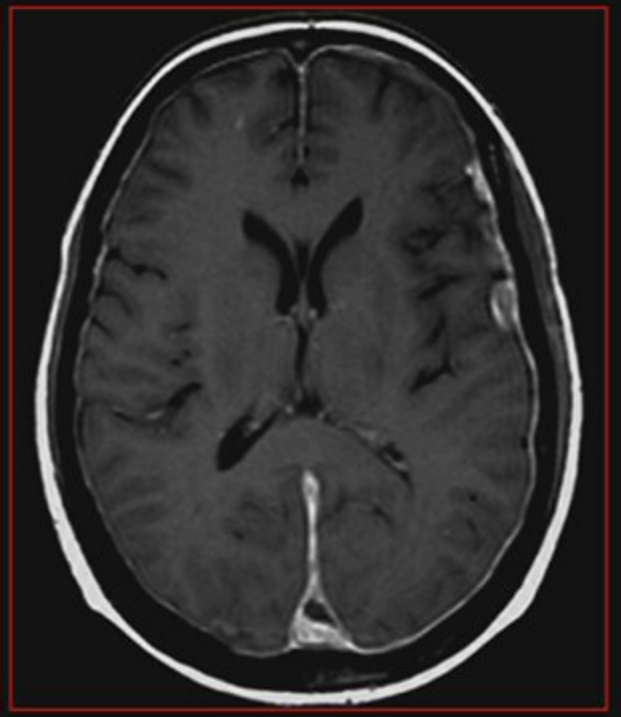


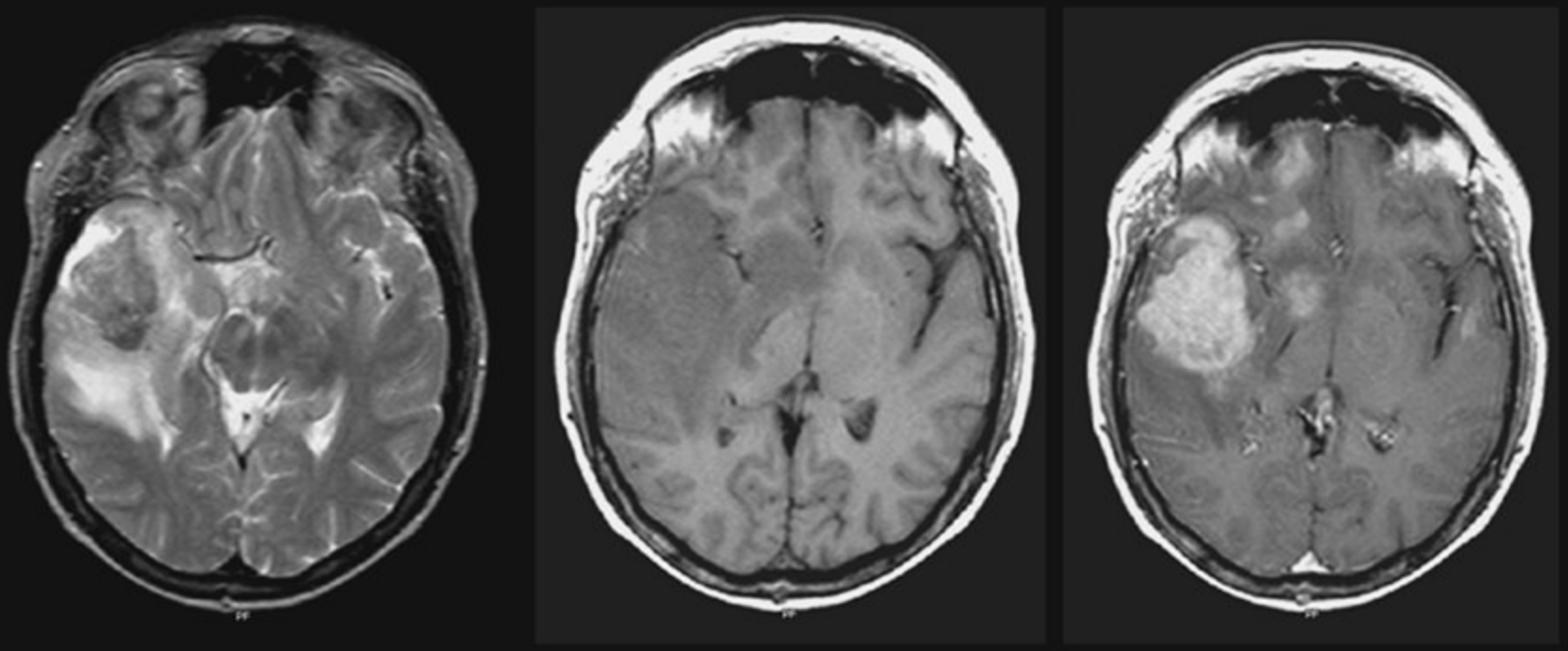


Primer lenfoma

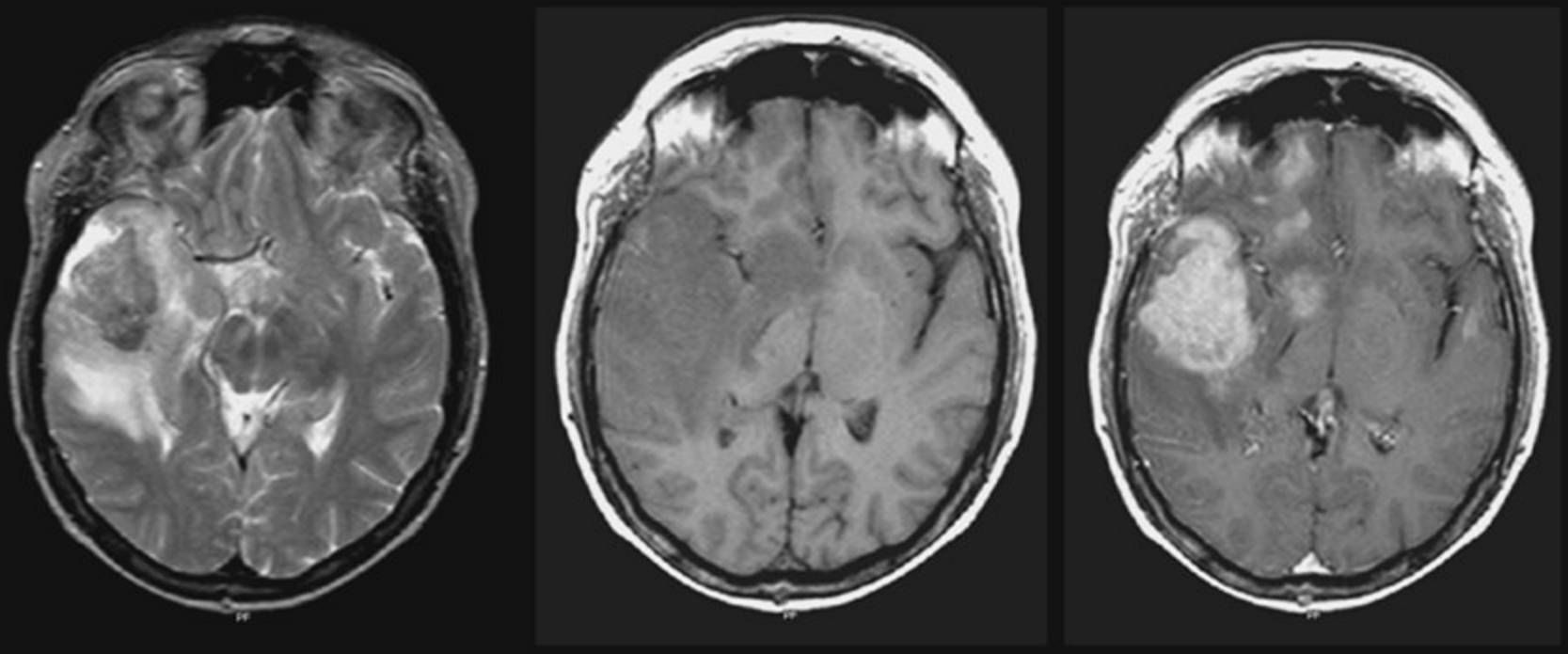
Sekonder lenfoma





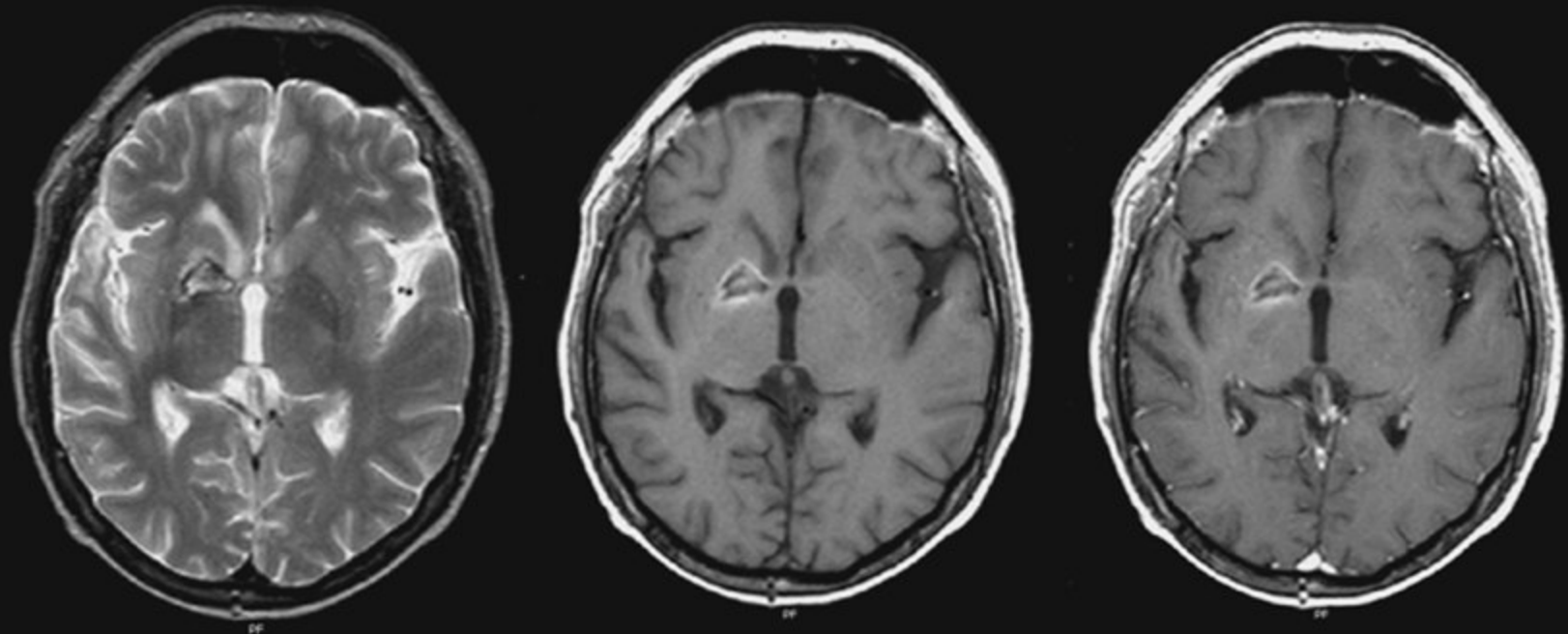


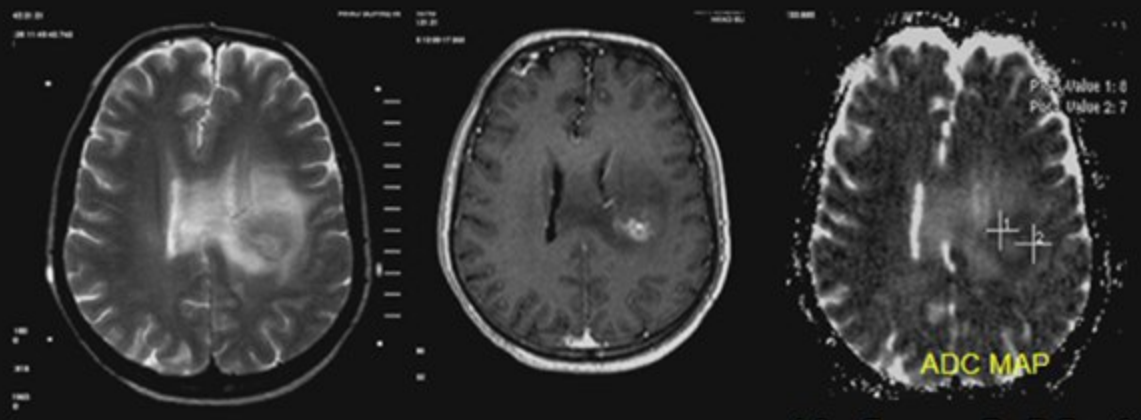
Lenfoma



Lenfoma

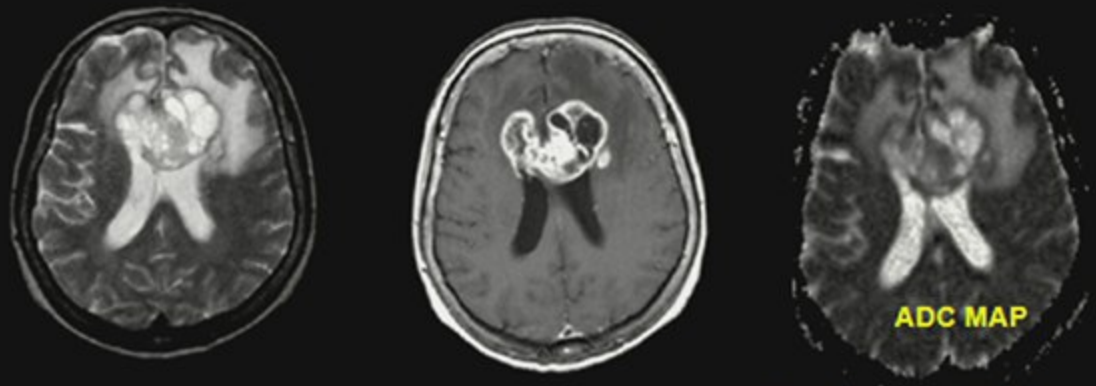
RT sonrası





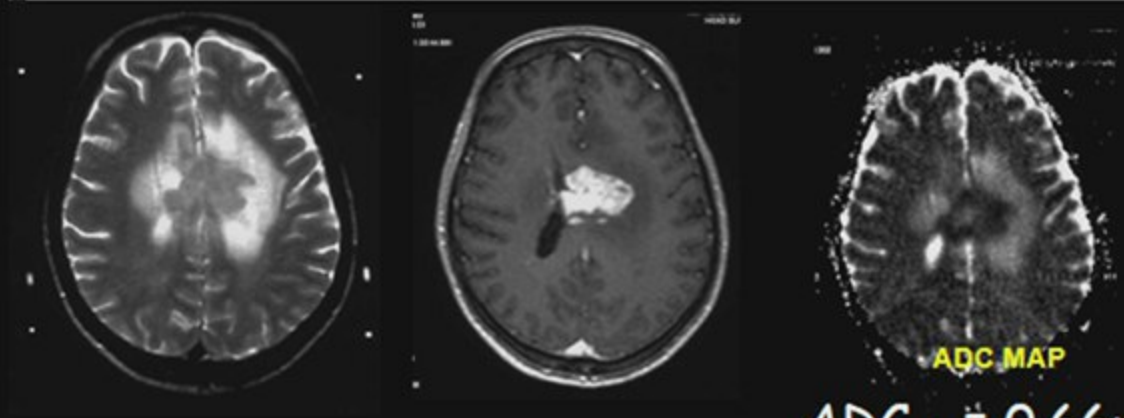
Grade III Glial tm.
Anaplastic Astrocytoma

ADC_{min}= 0.80x10^{-3}

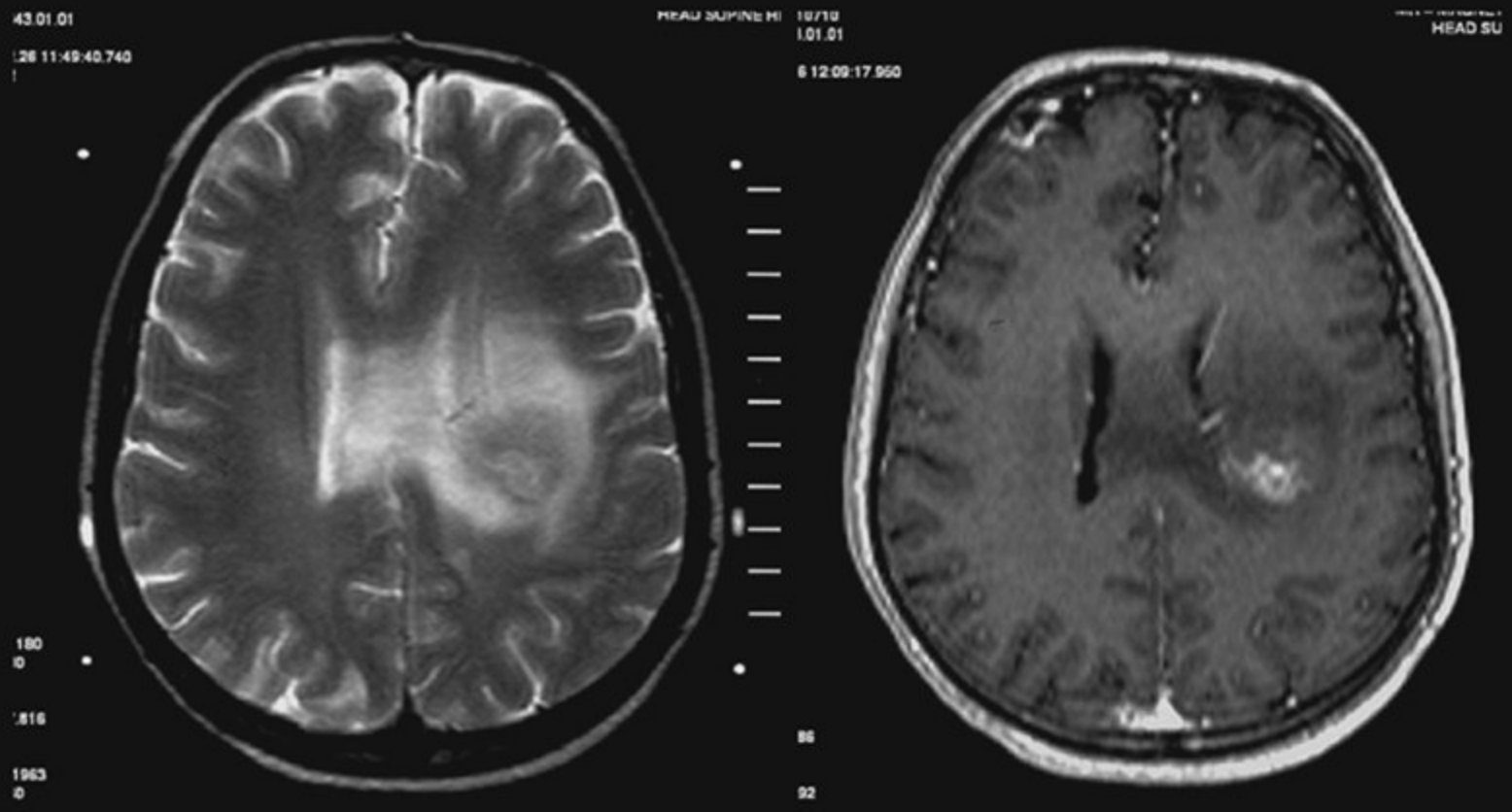


Grade IV Glial tm.
Glioblastoma

ADC_{min}= 0.80x10^{-3}

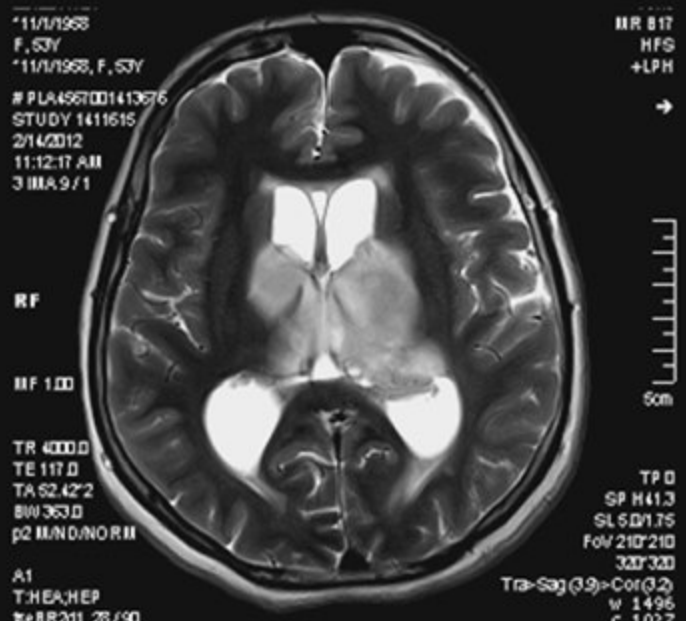


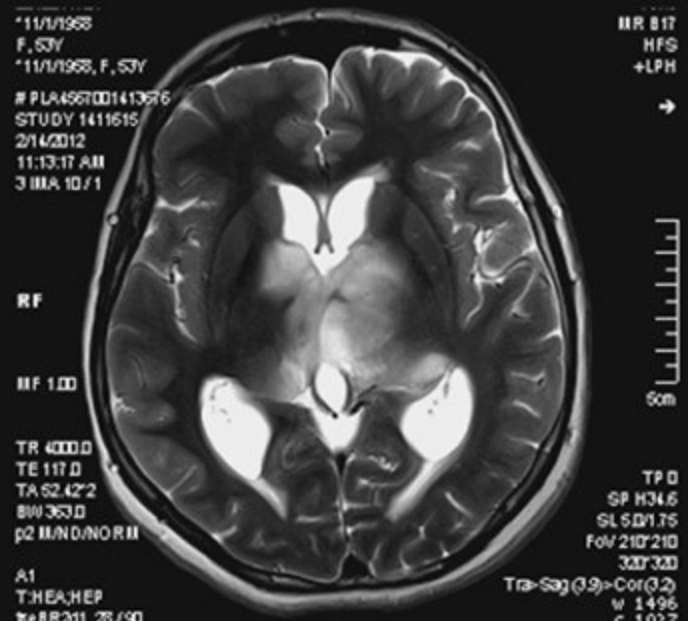
ADC_{min}= 0.66x10^{-3}

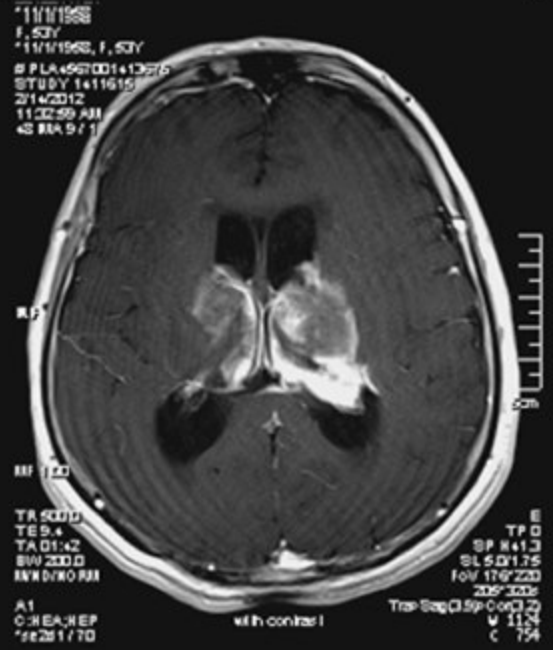


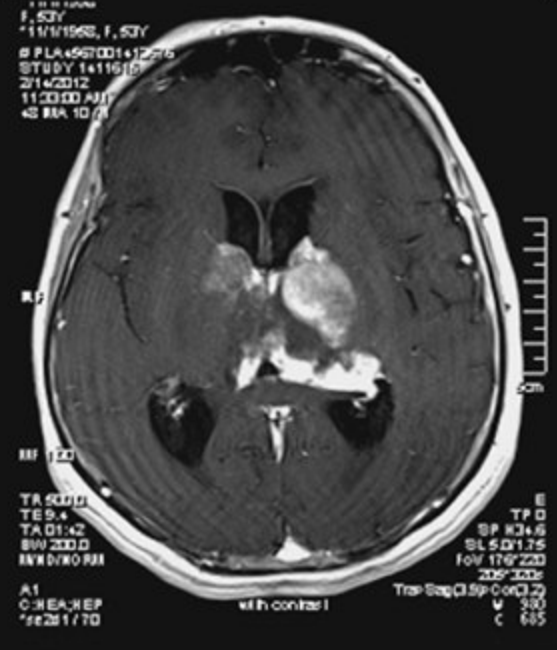
Anaplastic Astrositom?
Glioblastom?
Lenfoma?
Metastaz?

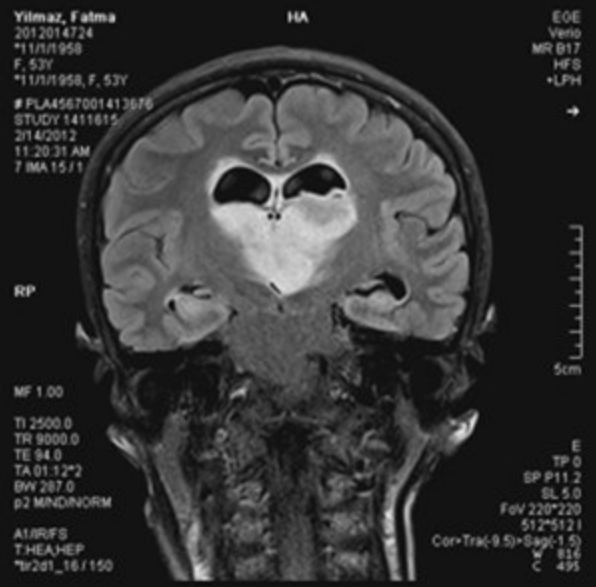
Primer SSS lenfoma







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F, 53Y
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2/14/2012
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EGE
Verio
MR B17
HFS
+LPH
RP
5cm
MF 1.00
TI 2500.0
TR 9000.0
TE 84.0
TA 01:12*2
BW 287.0
p2 MINDINORM
A1/IR/FS
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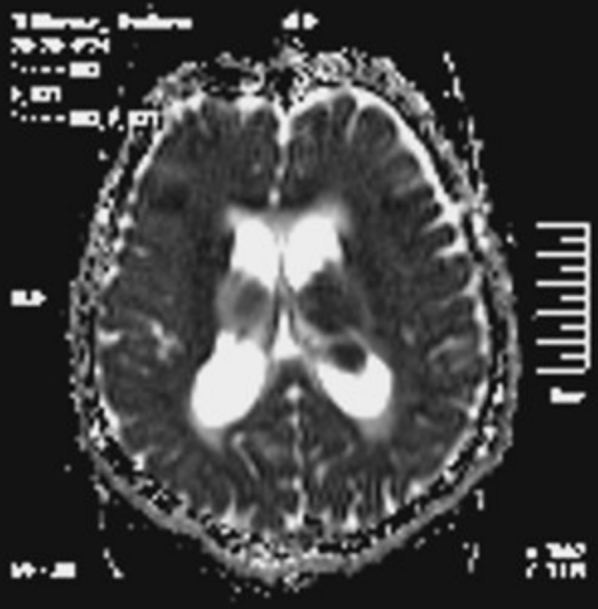

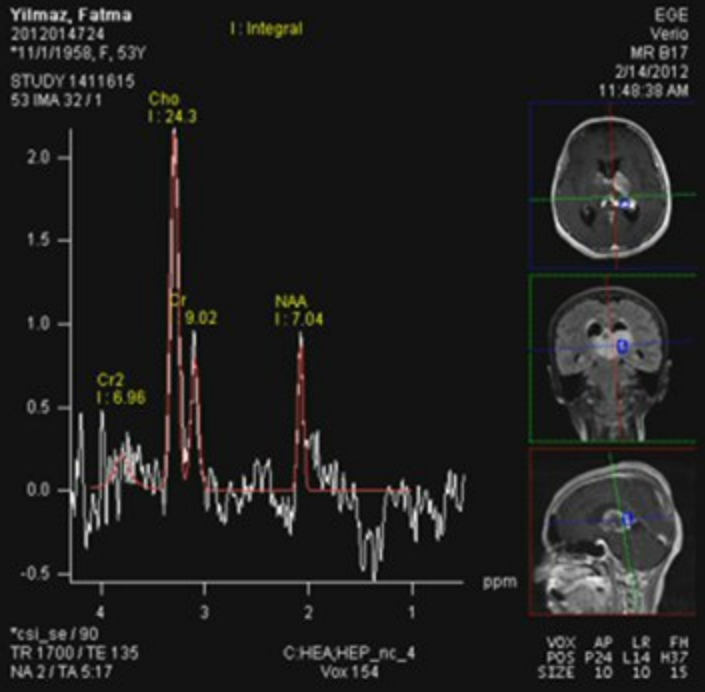
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I : 9.02
NAA
I : 7.04
Cr2
I : 6.96
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1.5
1.0
0.5
0.0
-0.5
4
3
2
1
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Verio
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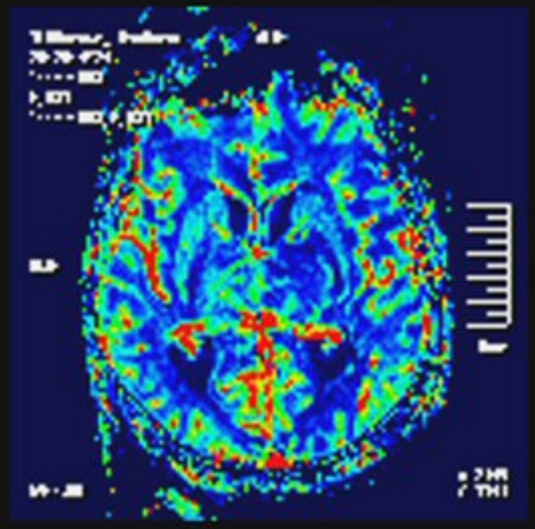
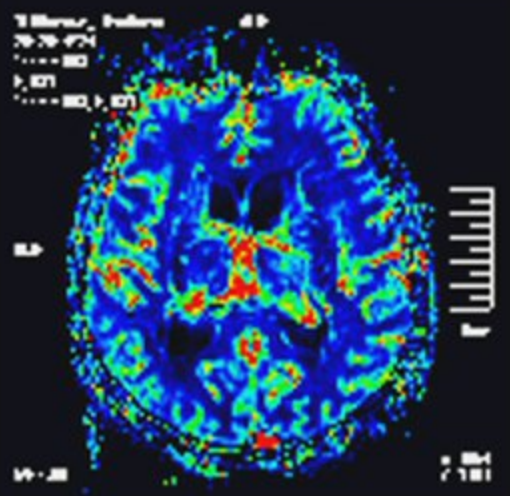
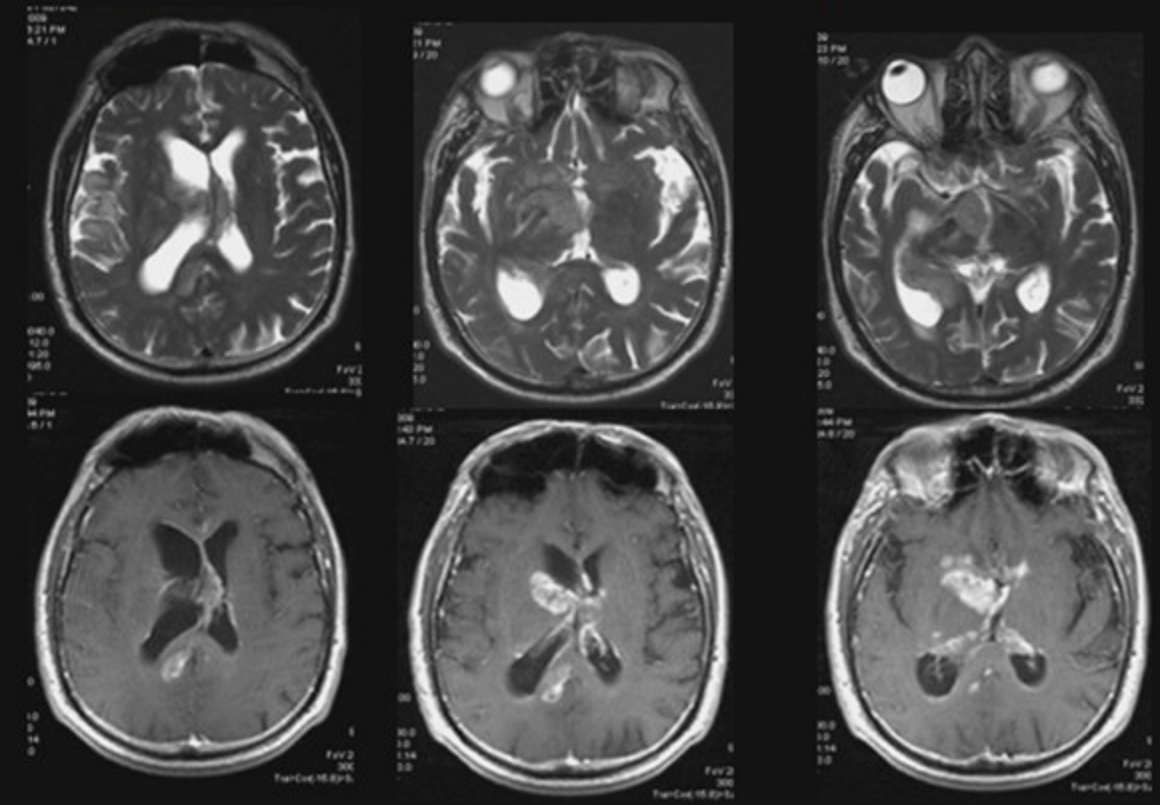
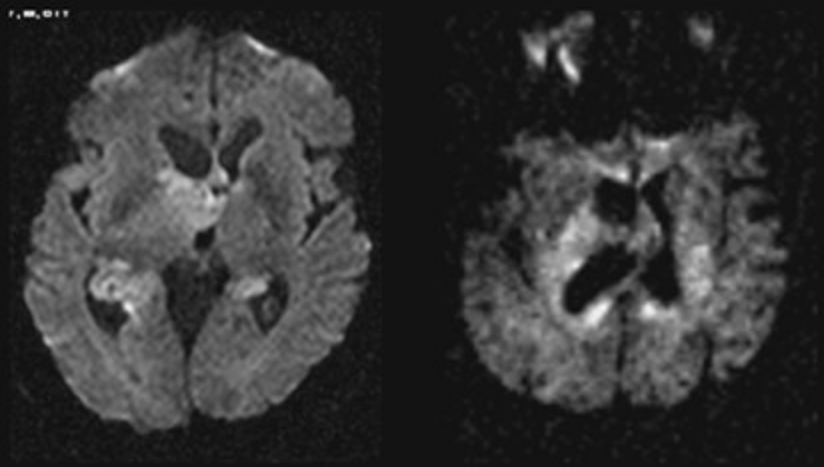




61y E, 10 gündür konfüzyon





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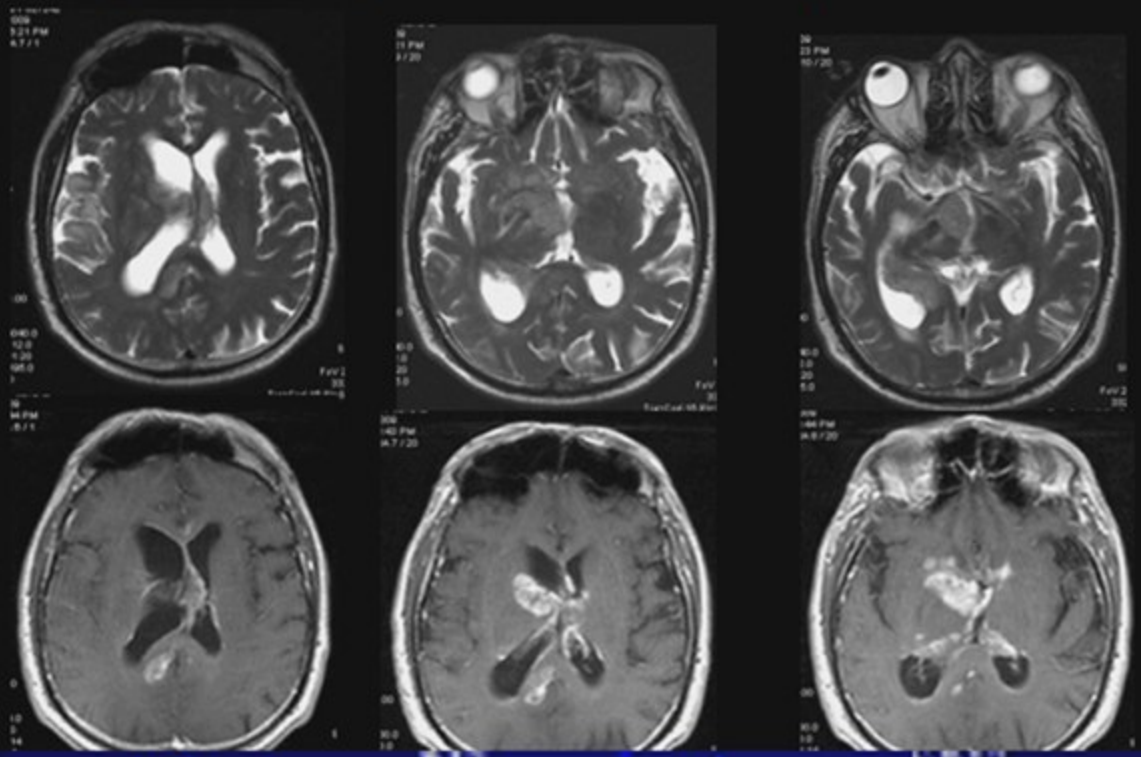
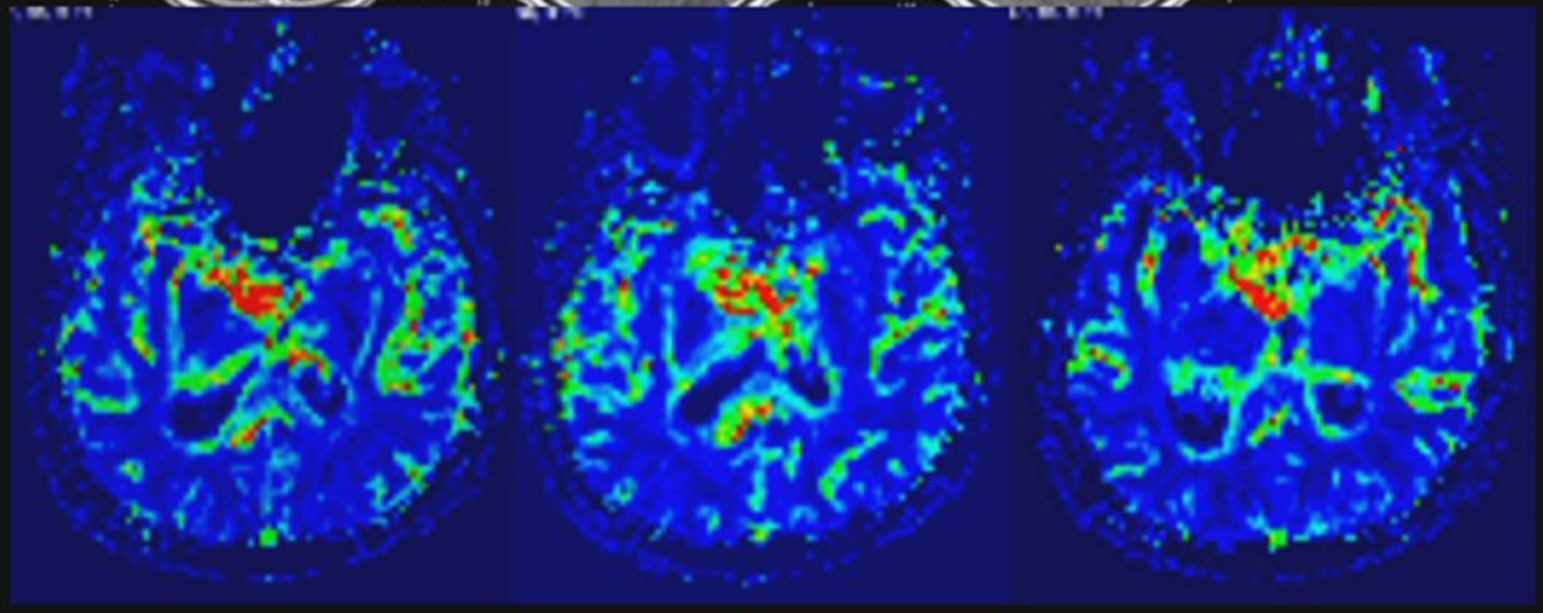
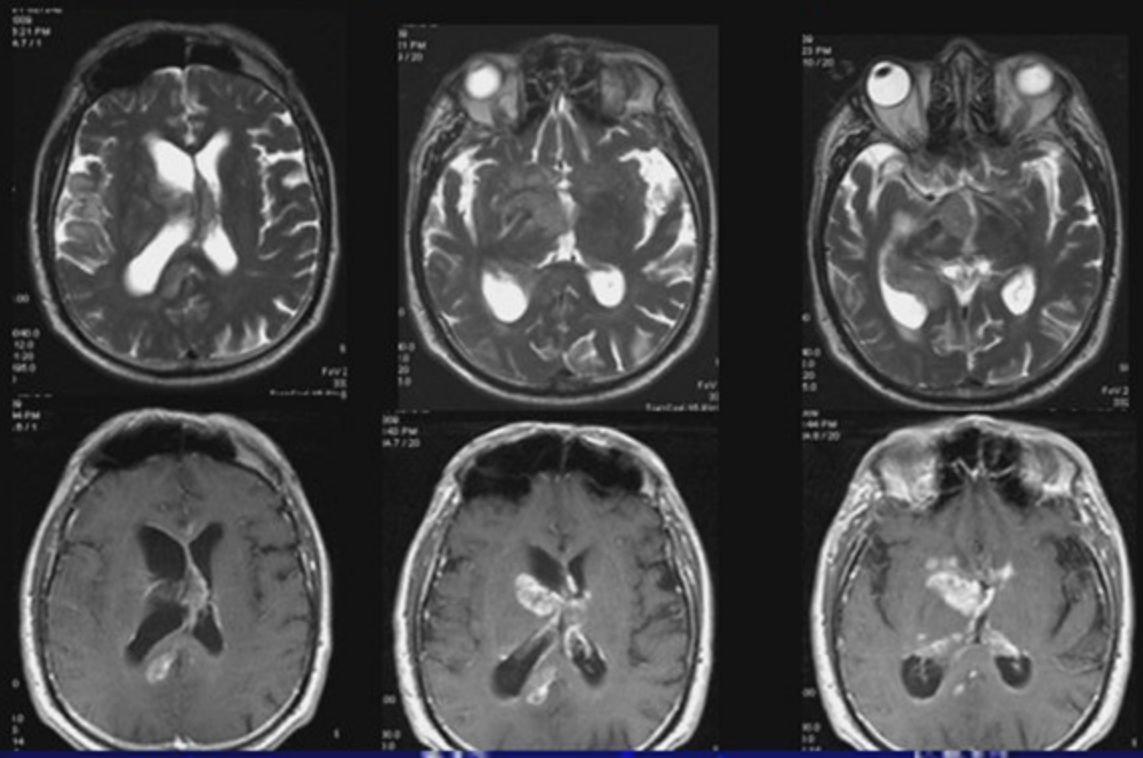


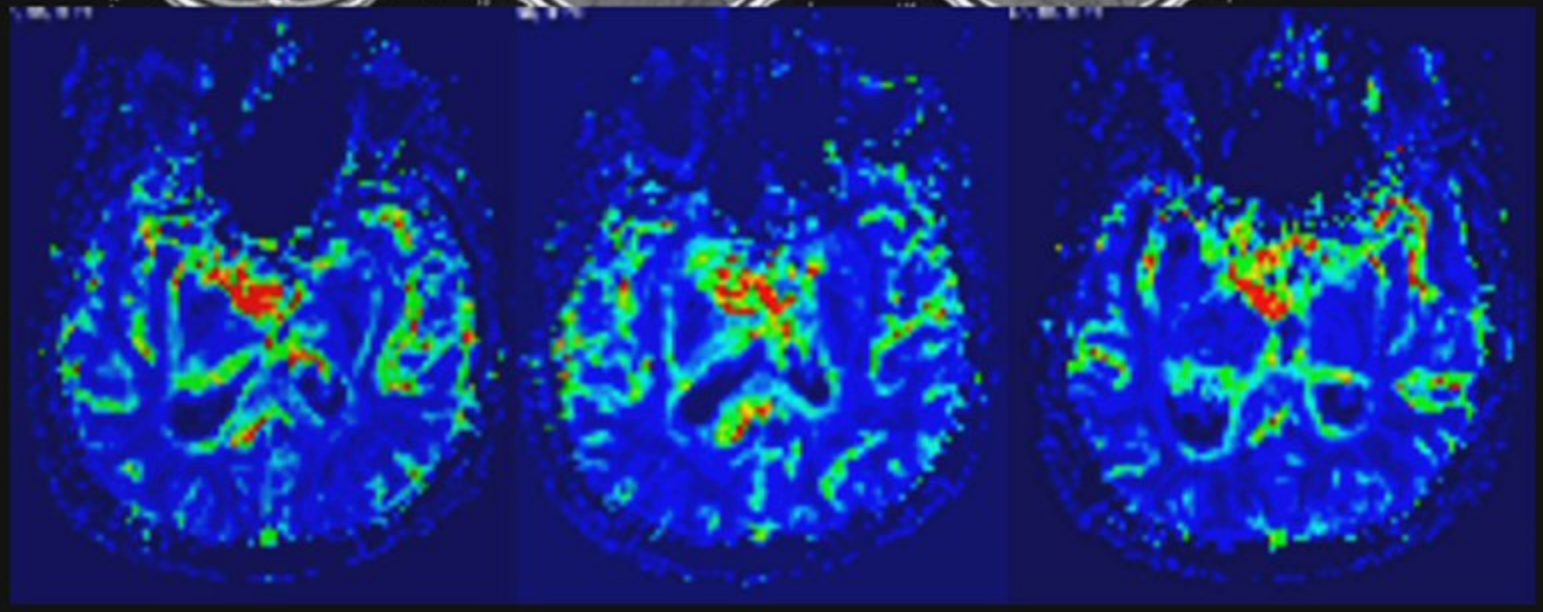


Lenfoma

61y E, 10 gündür konfüzyon

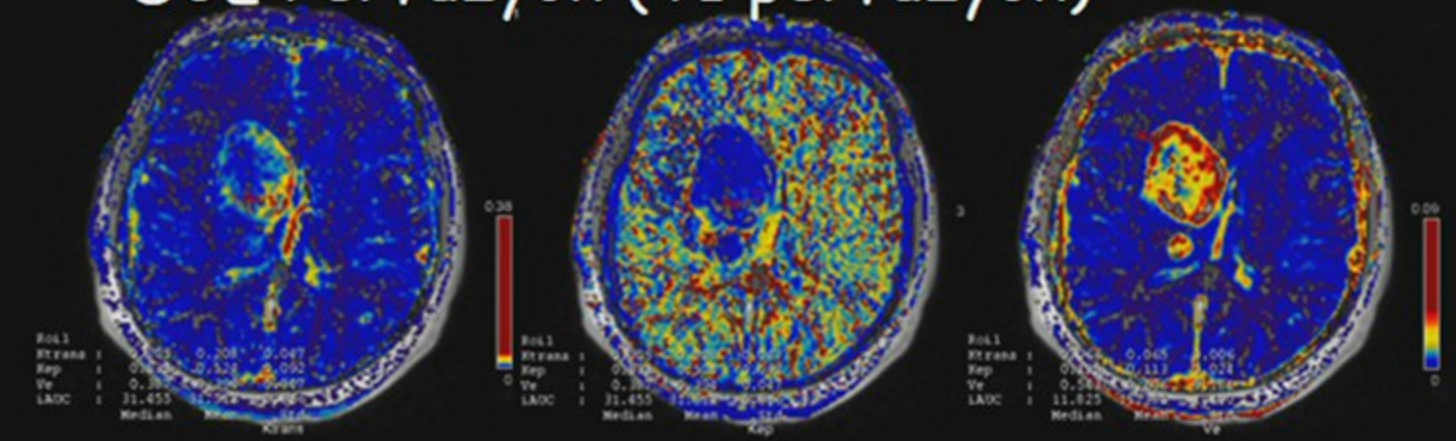


~~Lenfoma~~

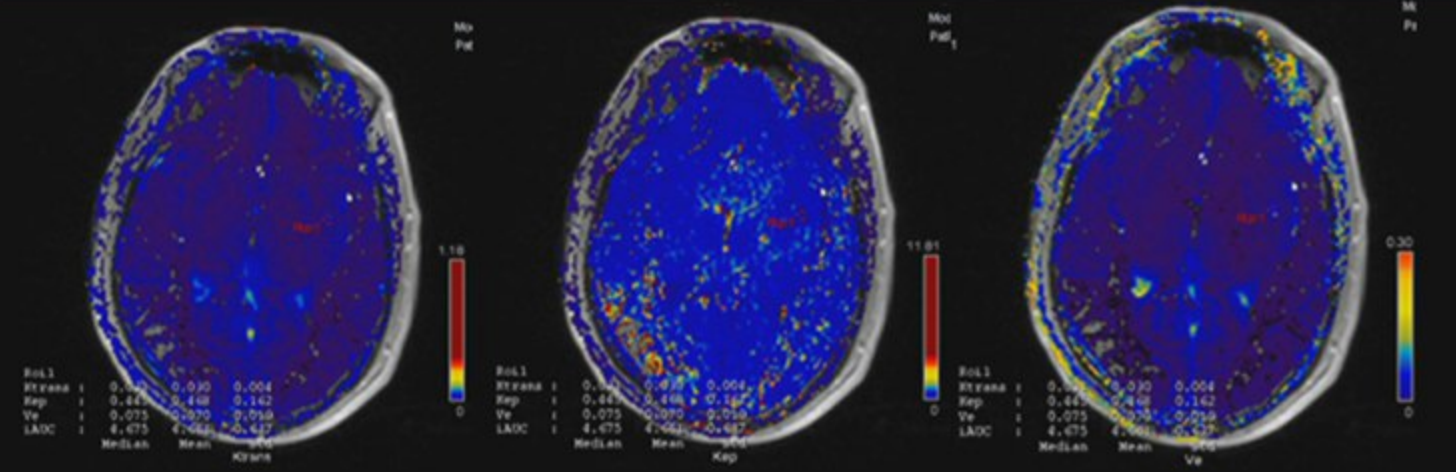


GBM

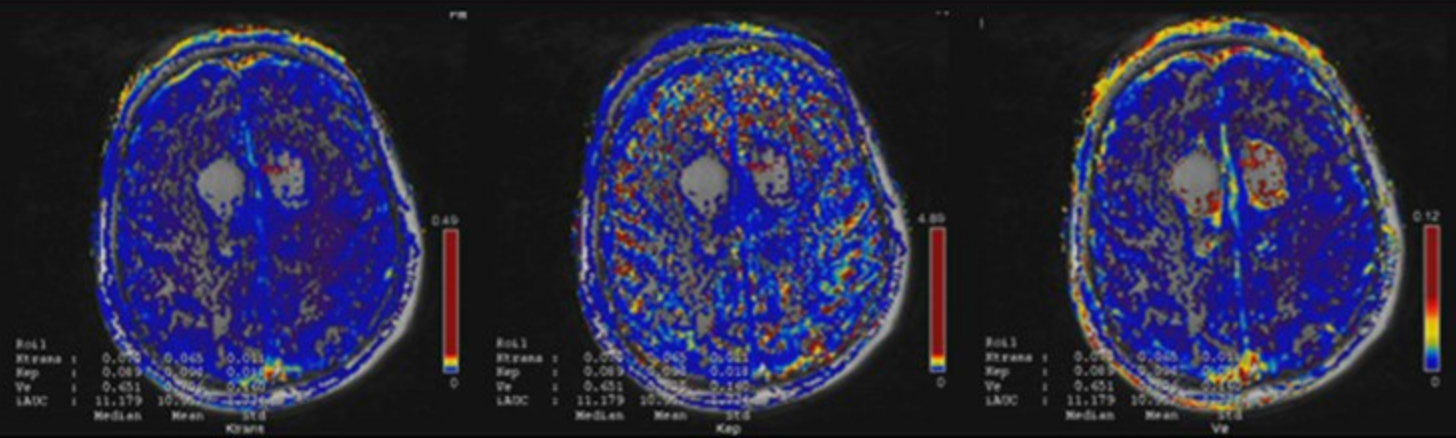
DCE Perfüzyon (T1 perfüzyon)



GBM



Astrositom
Grade 2
Grade II



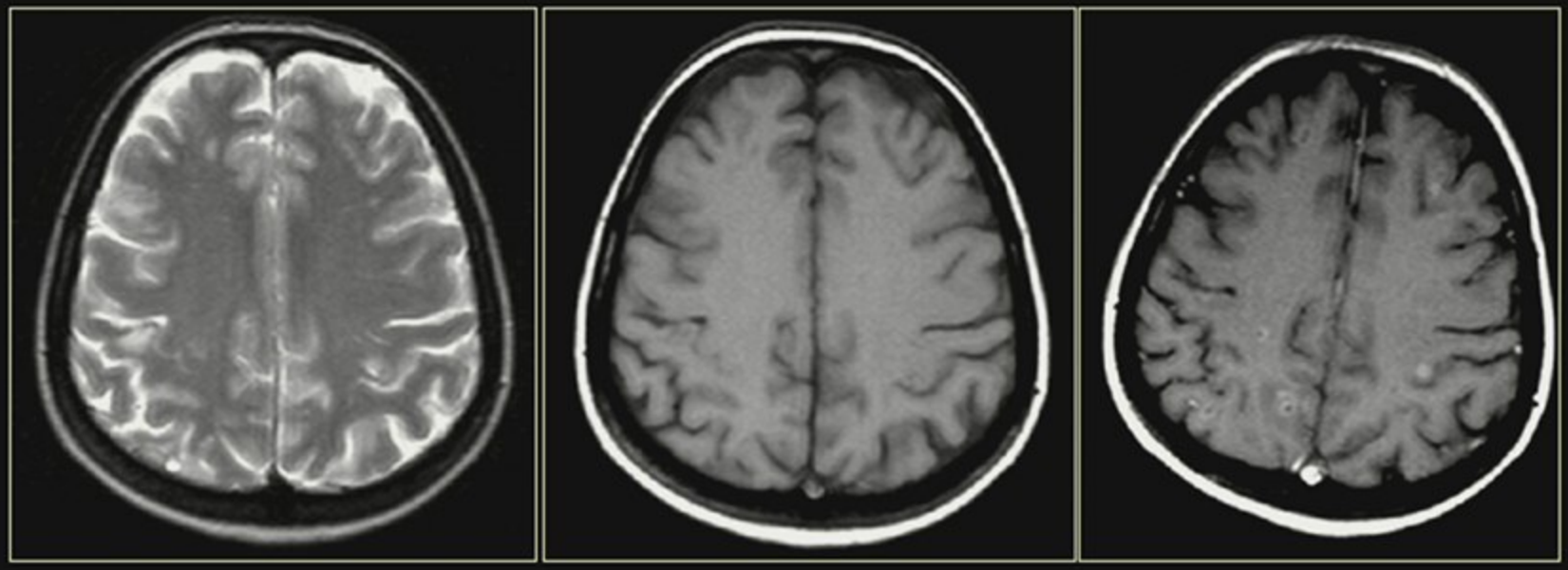
Lenfoma

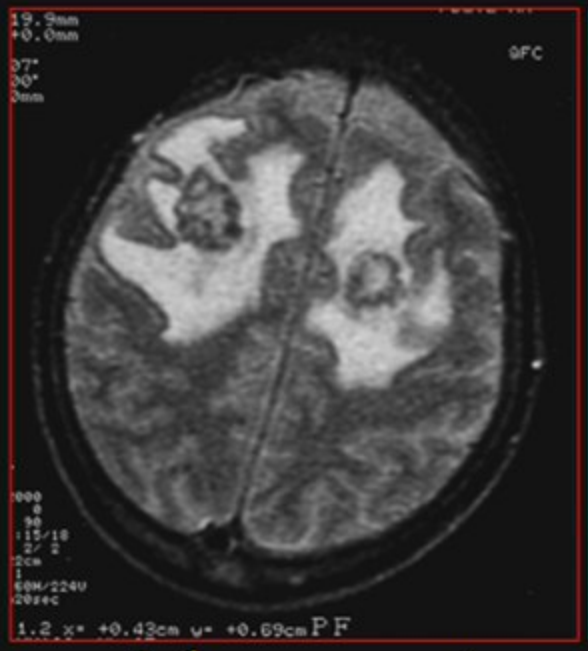
METASTATIK TMler

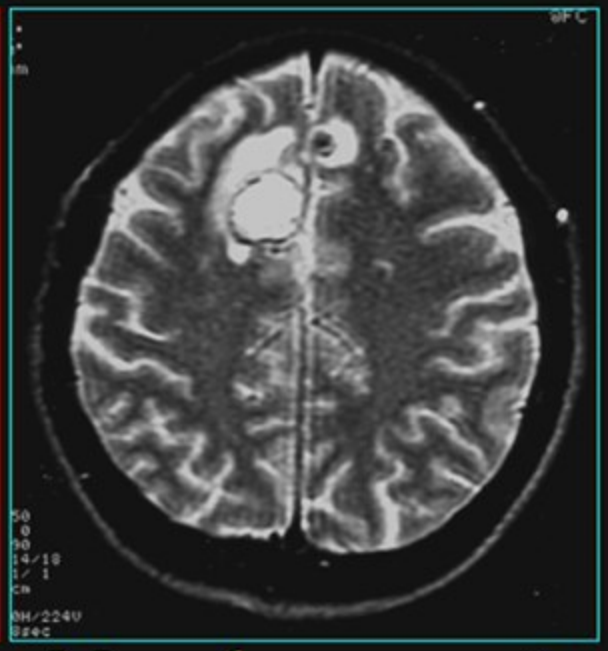
- Beyin 4-37% olasılıkla met hedefidir
- Akciğer, meme Ca, melanoma, GIS & GUS maligniteleri
- 30-50% soliter met
- MRG BTden daha iyi
- Belirgin +C tutulumu
- T2A hiperintens / izointens, belirgin periferal ödem
- Kanama gösterebilir
- Ödem GBM aksine KK'u pek geçmez

Metastaz

- Konvansiyonel MRG de metastaz tanısında tanısal sorun yoktur, eğer ki:
  - Hastanı bilinen primer tmü varsa,
  - Lezyonlar multipl ise
- Ancak bilinen primer tm yok ise AA veya GBMden ayırım bazen zor olabilir.

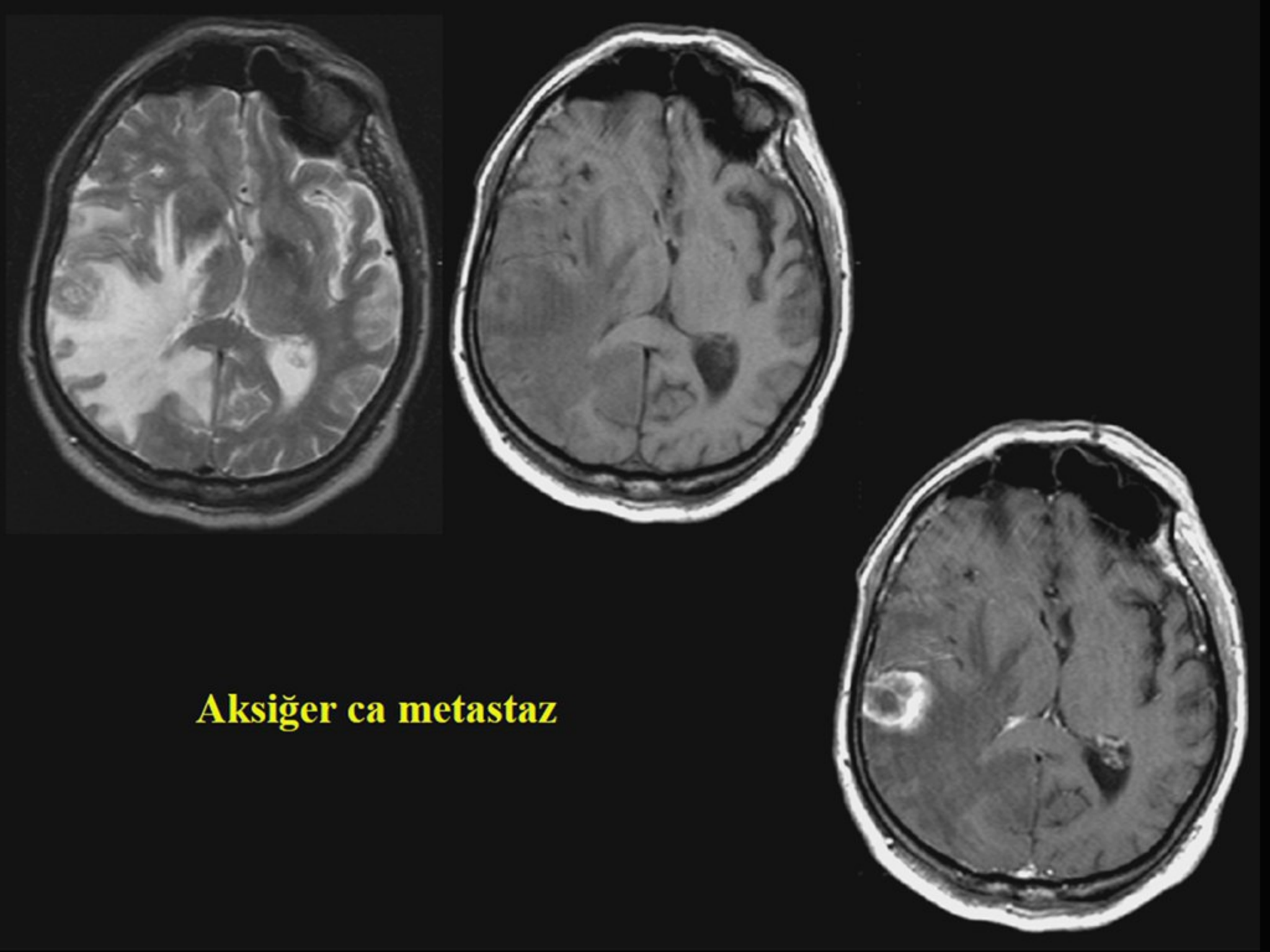






Adenoca met.

M. melanoma met.


Aksiğer ca metastaz

Ekstra-aksiyel tümörler:

- Kemik
- Meninks / Dura
- İntraventriküler
- Pineal
- Sellar – parasellar
- Diğer

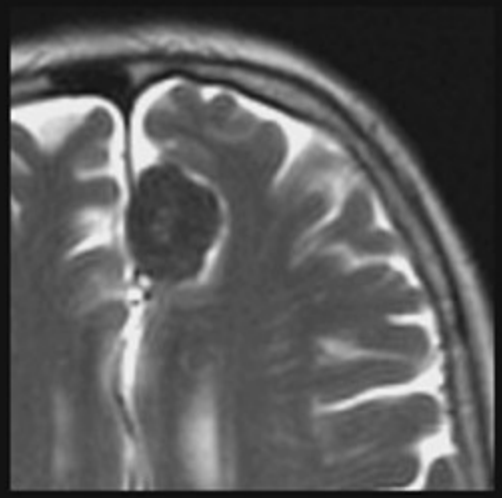
Ekstra-aksiyel tümörler:

- Kemik
- Meninks / Dura
- İntraventriküler
- Pineal
- Sellar – parasellar
- Diğer

- Koroid pleksus tm
- Meningeal tm
- Lenfoma / lösemi
- Epidermoid / dermoid
- Araknoid kist
- Kalvaryal tm

Ekstra-aksiyel yerleşim bulguları

- BOS klefti
- İtilmiş subaraknoid damarlar
- Beyaz madde ile arada kortikal gri madde
- Komşu subaraknoid mesafede genişleme
- Geniş dural taban
- Kemikte reaksiyon??



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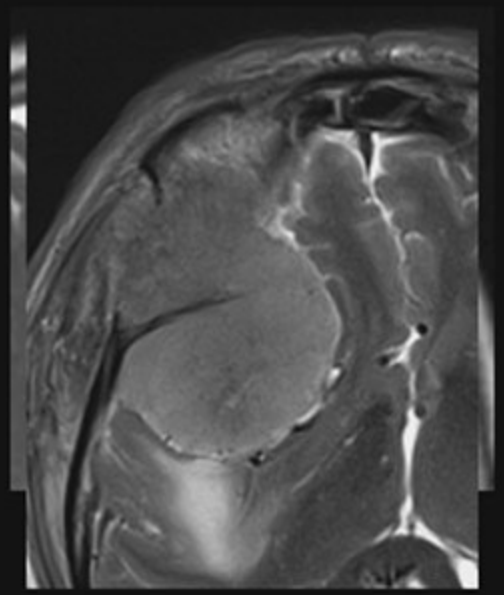

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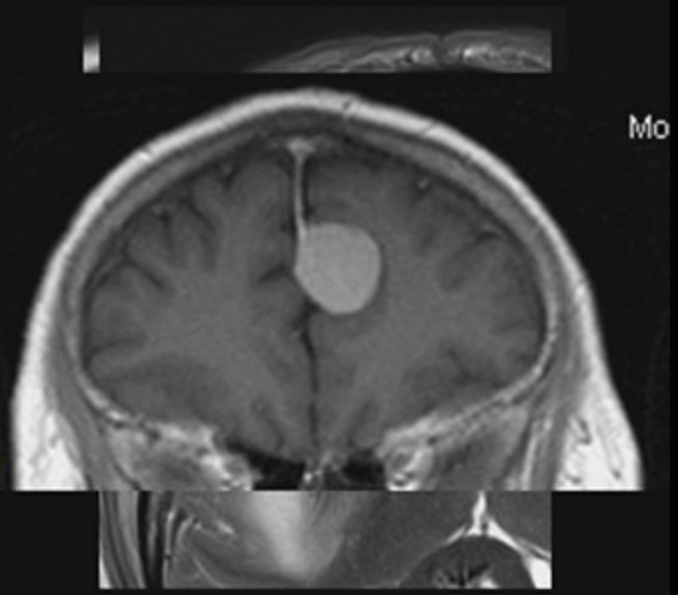

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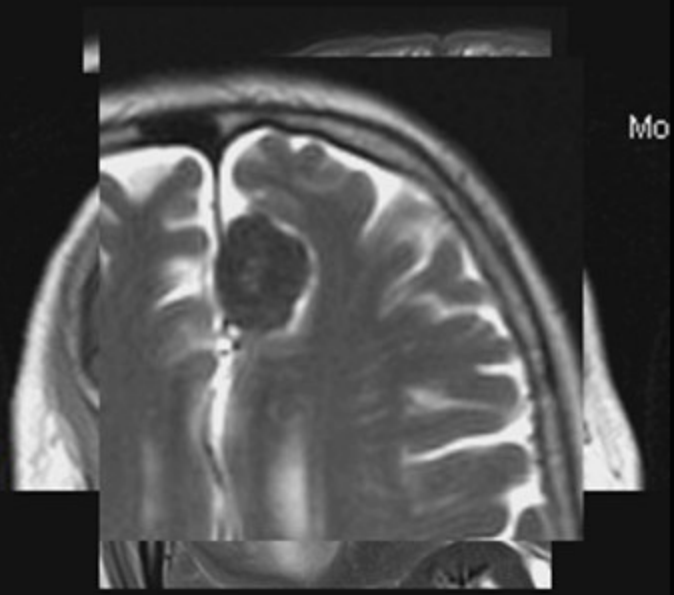

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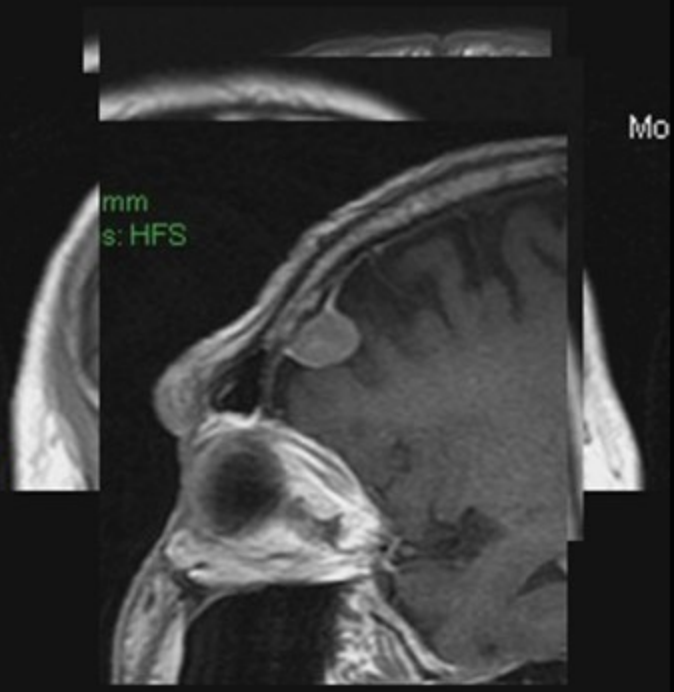


Meningiom

WHO 2007	WHO grade I
Meningothelial	
Fibrous (Fibroblastic)	
Transitional (Mixed)	
Psammomatous	
Angiomatous	
Microcystic	
Secretory	
Lymphoplasmacyte-rich	
Metaplastic	
Chordoid	
Clear Cell	
Atypical	WHO grade II
Papillary	
Rhabdoid	
Anaplastic (Malignant)	WHO grade III

MENİNGİOM

Erişkin intrakranyal tmlerin 15%'i

Kadınlarda 2 kat daha sık,

Yerleşim:

50% falks, parasagital, lateral konveksitede

40% bazal, subfrontal, olfaktor, sfenoid kanat ve suprasellar

10% falks-tentorial bileşke, intraventriküler intraorbital, pineal

MENİNGİOM

Ekstra-aksiyel tm;

Dural tabanlı, subaraknoid mesafede genişleme

Hiperostoz / kalvariumda erozyon

Dural kuyruk

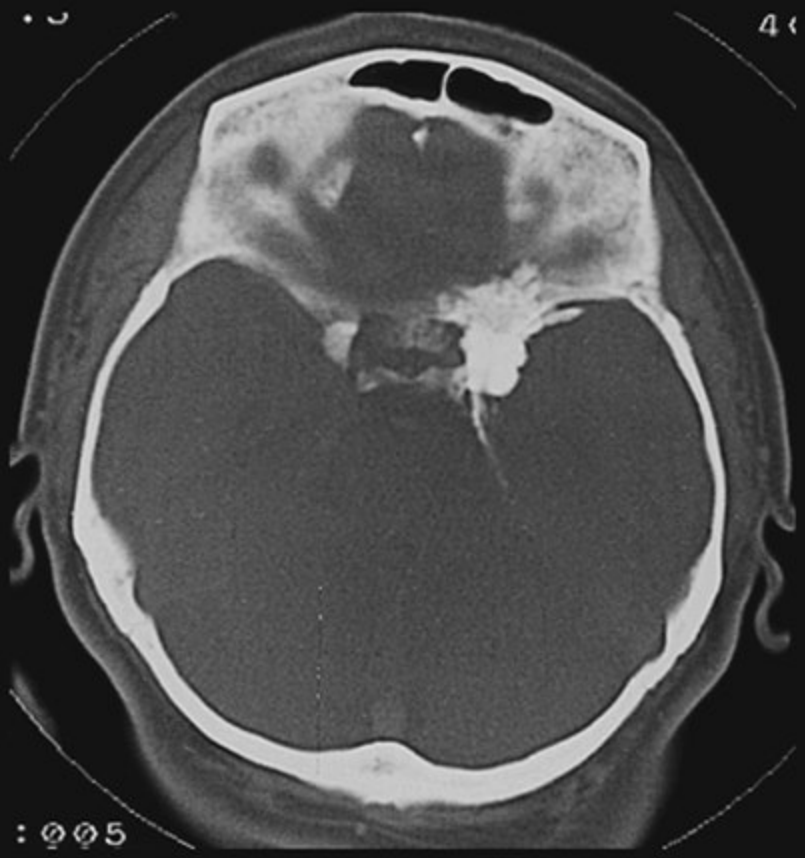
Benign formlarda kalsifikasyon sık

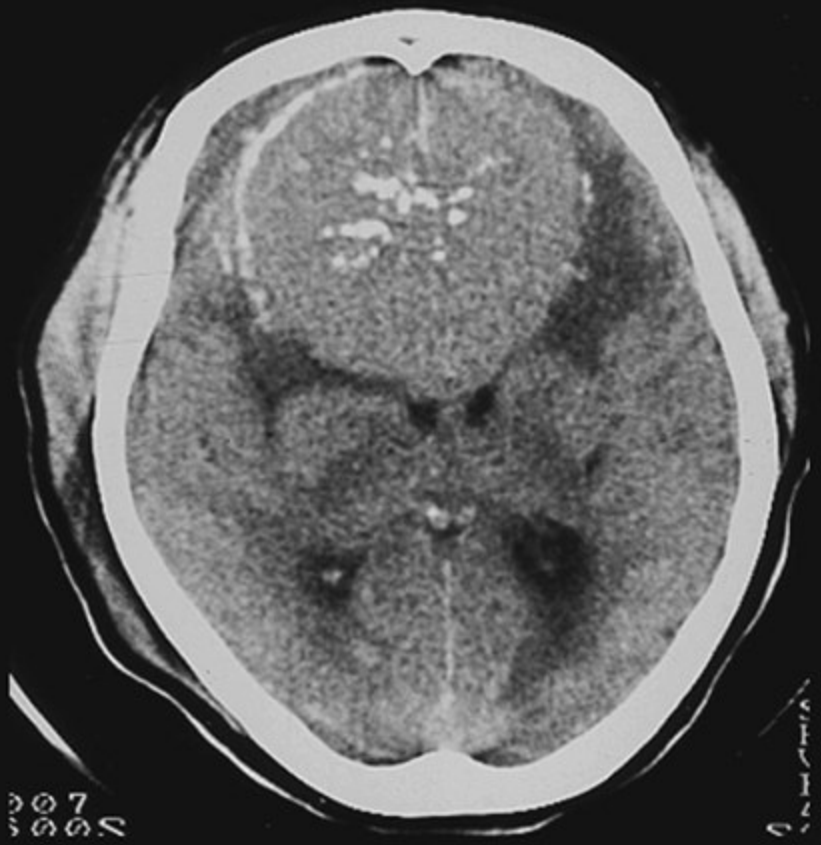
Kanama nadir

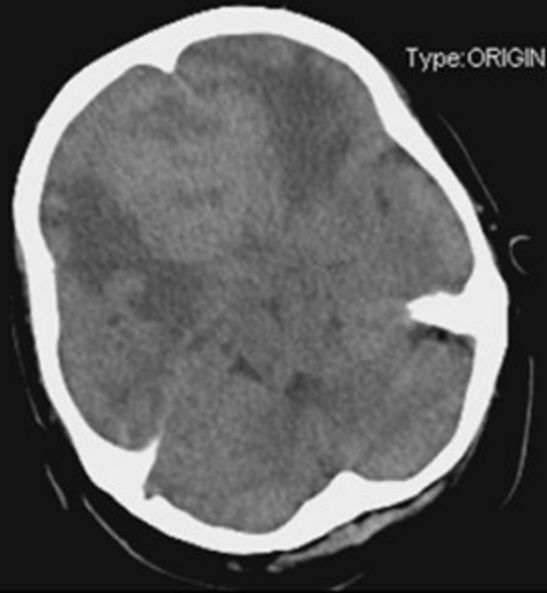
BT: hiperdens

MRG: solid, +C tutulum, T2A gri maddeye izointens

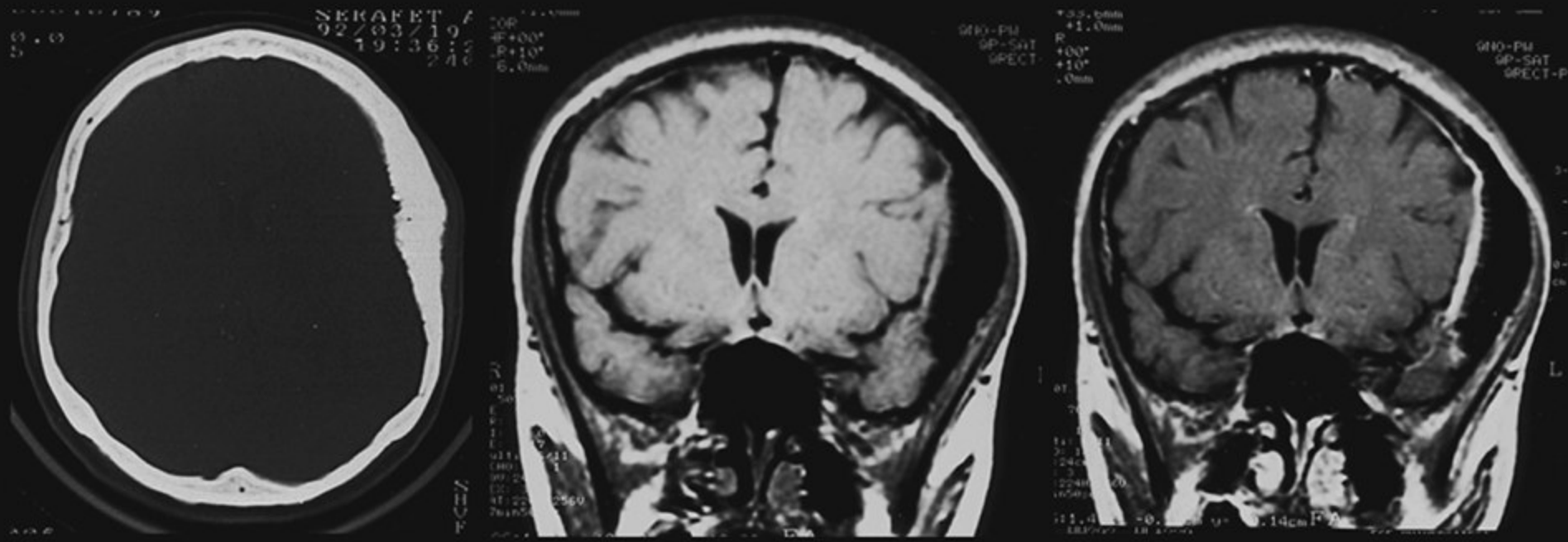
Komşu beyin parankiminde ödem oluşturabilir.



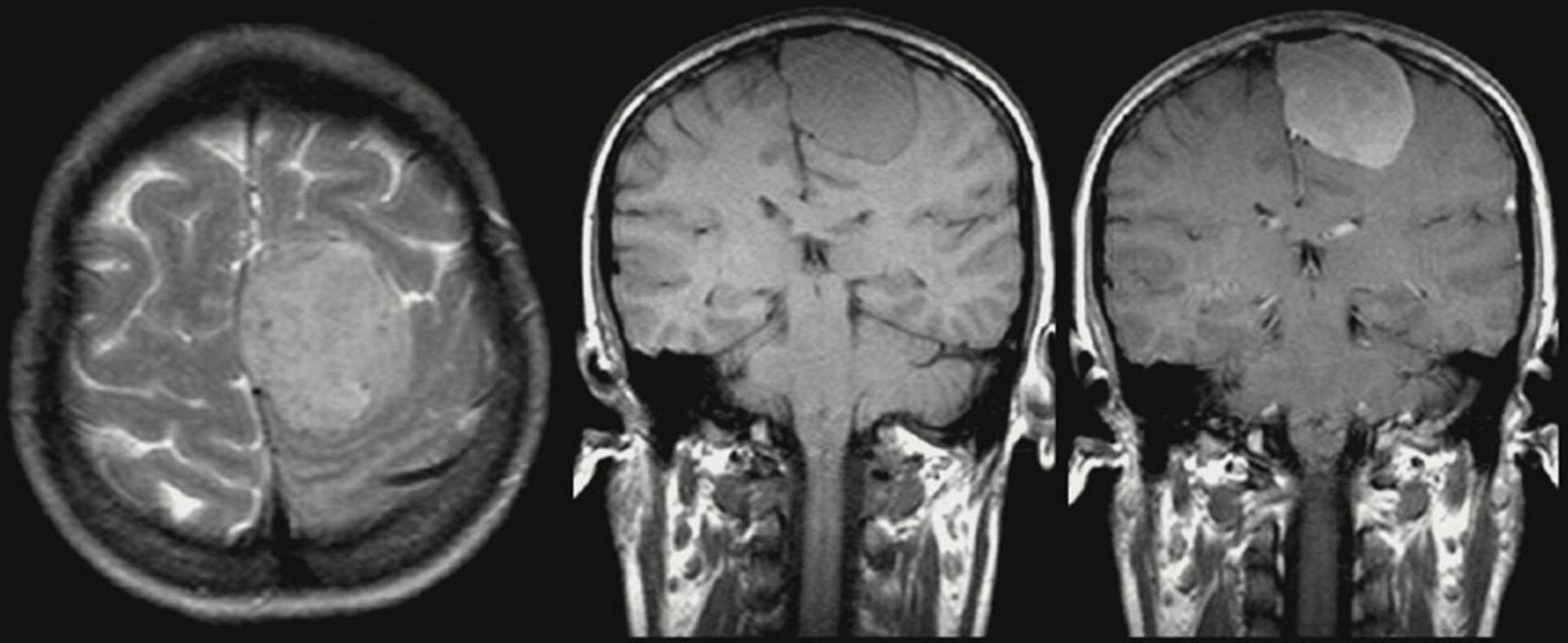




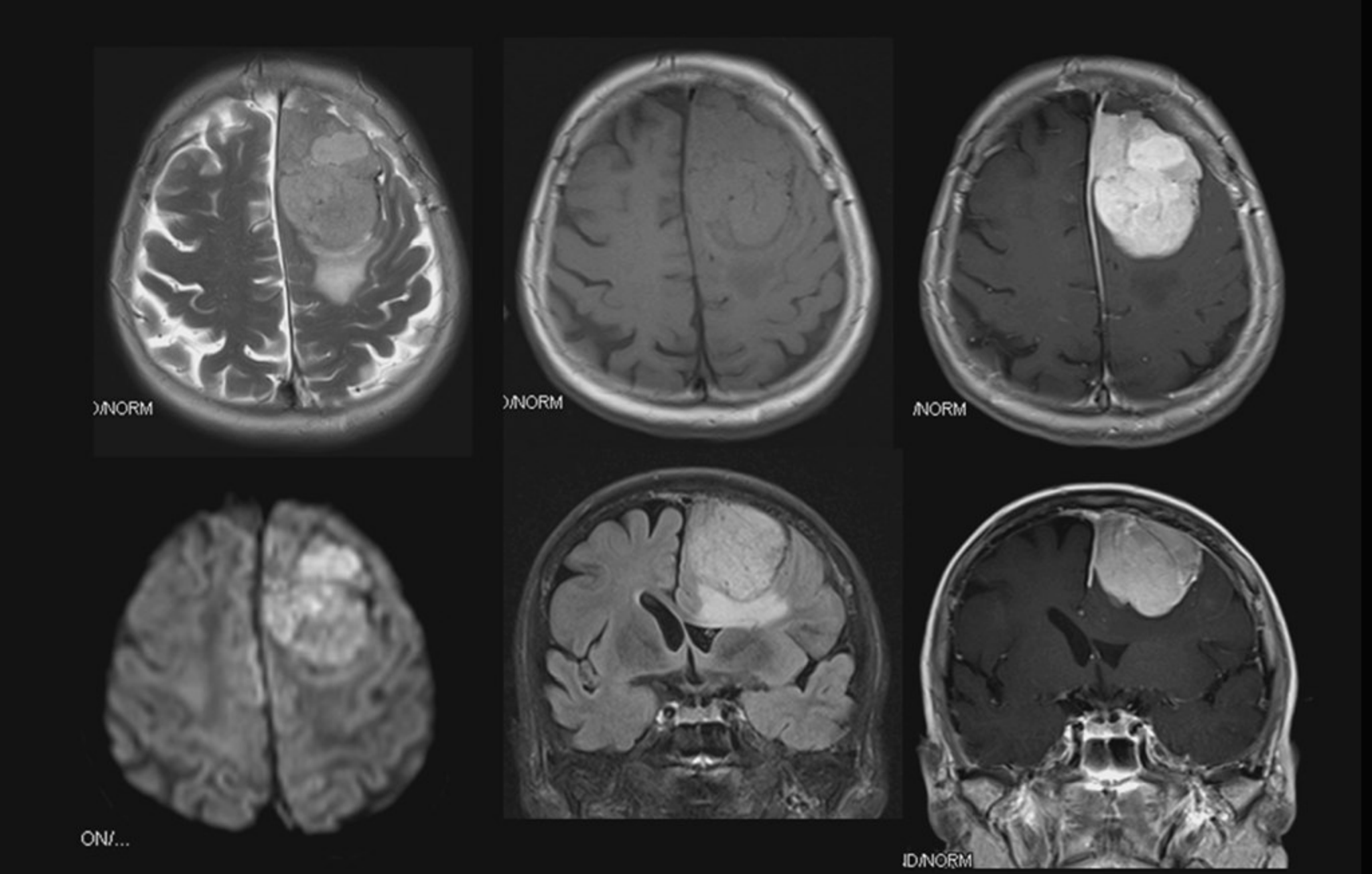
- Hiperostoz, kemik erozyonu
- Kalsifikasyon (20%)
- BT hiperdens



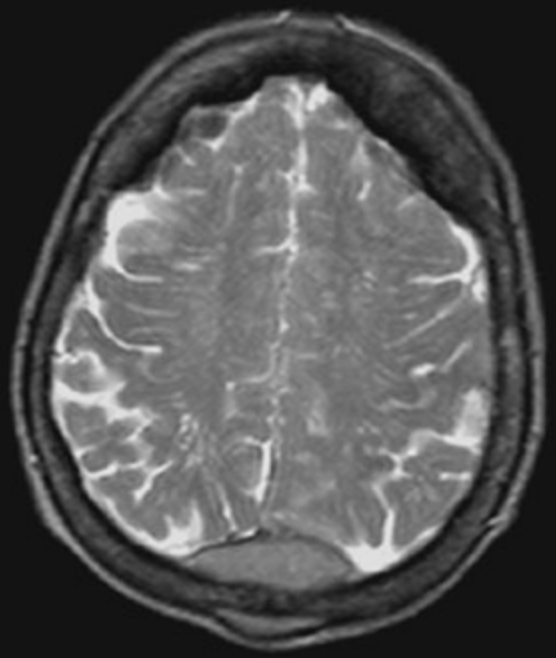
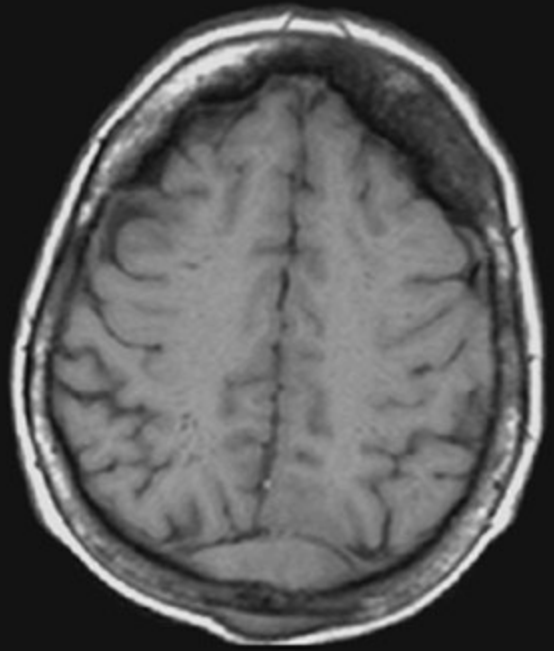
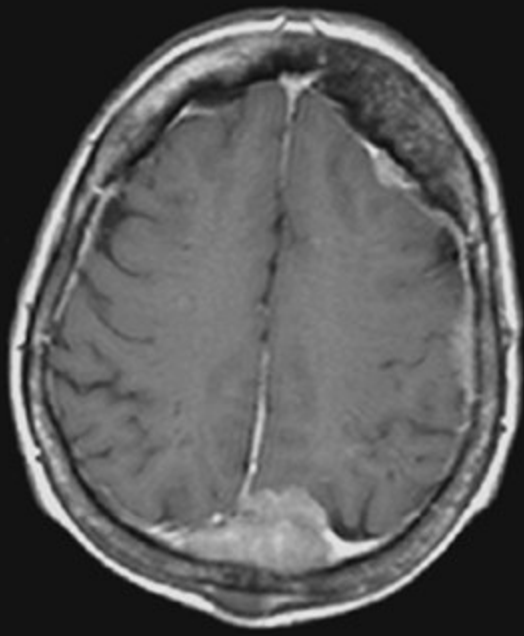
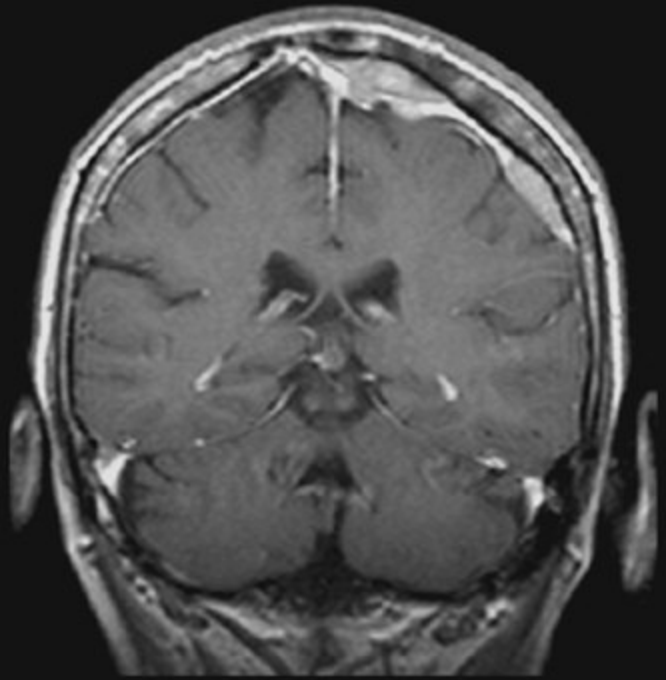
En-plaque meningiom, hiperostoz

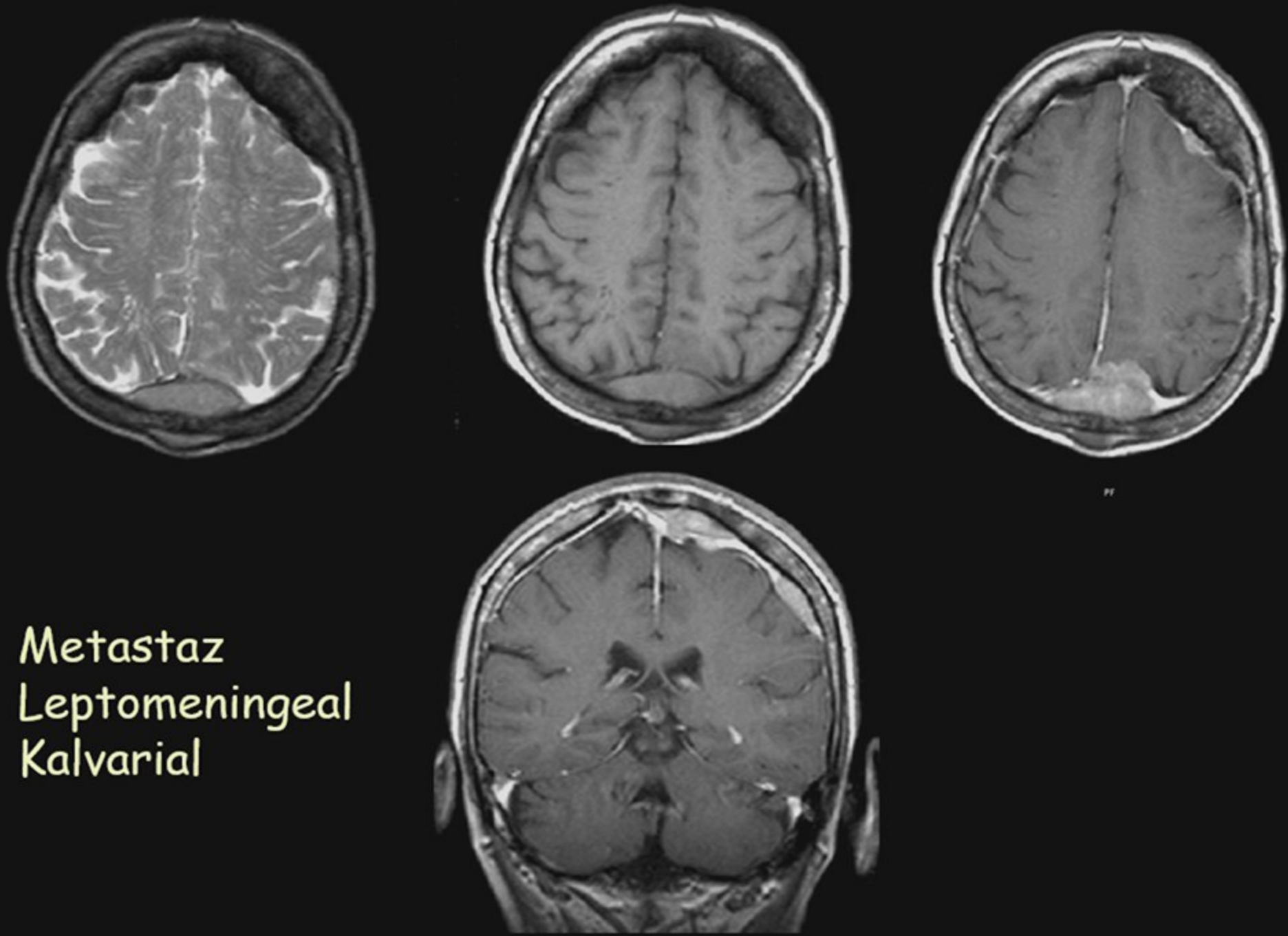


Transisyonel meninjiom



Atipik meningiom

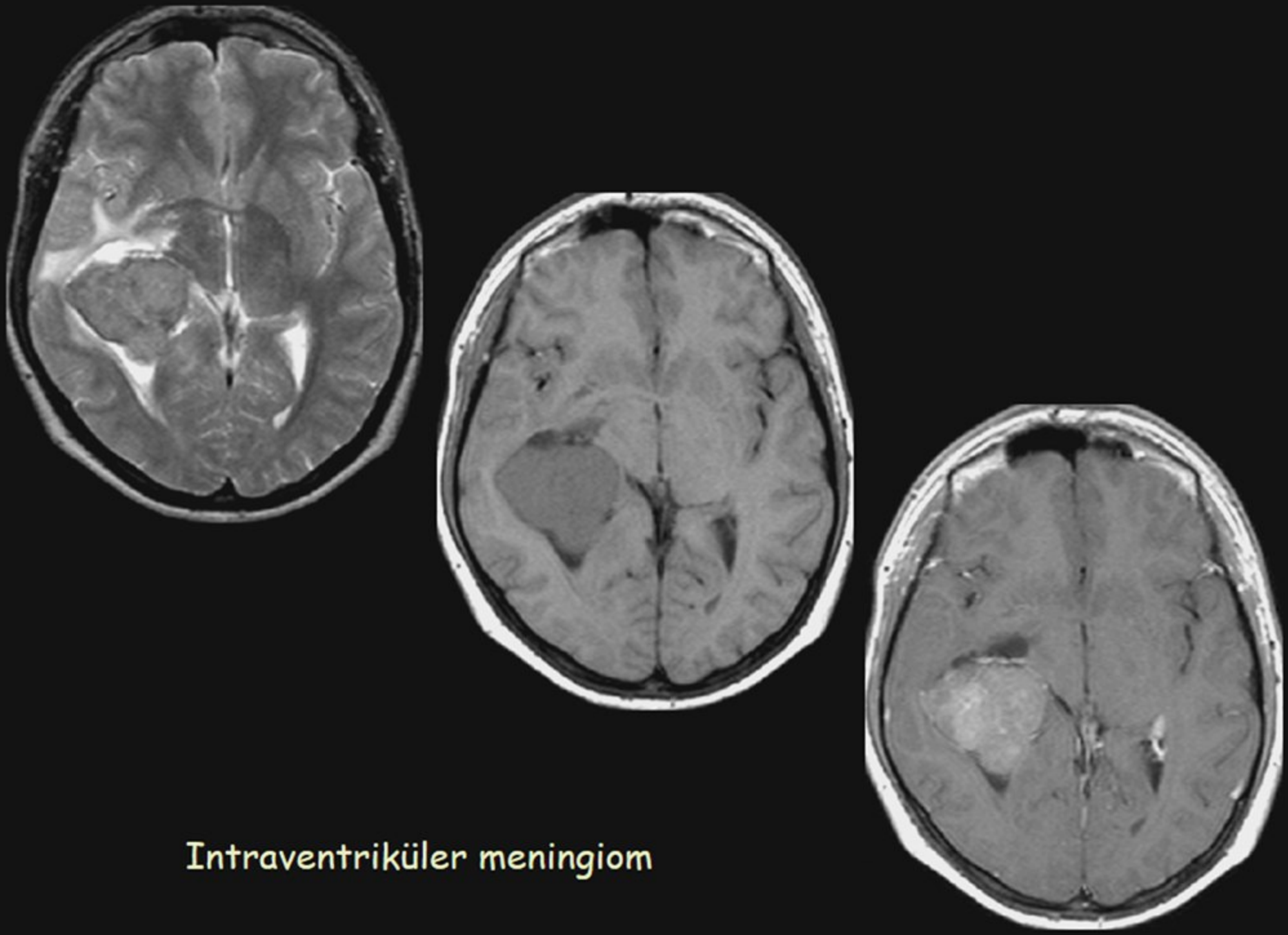







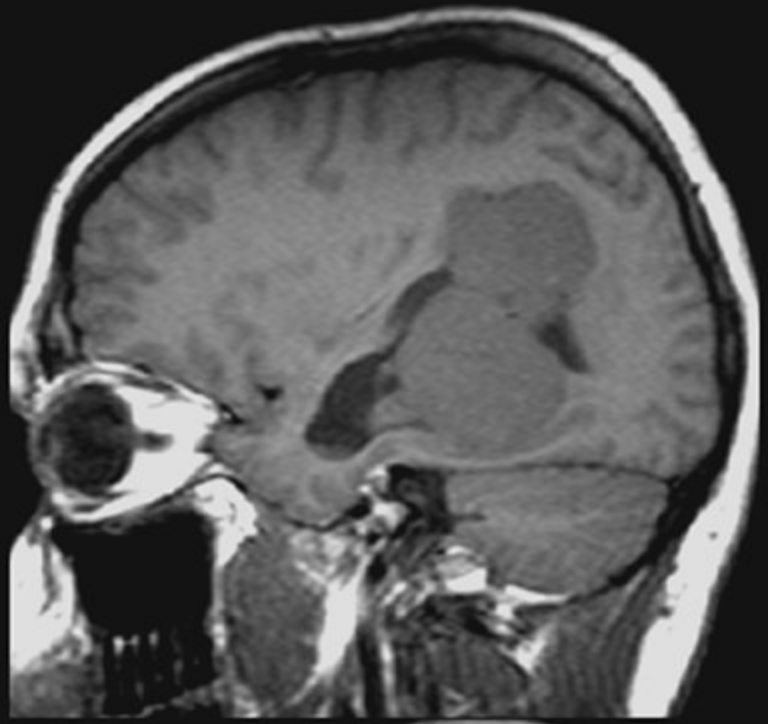
Metastaz
Leptomeningeal
Kalvarial

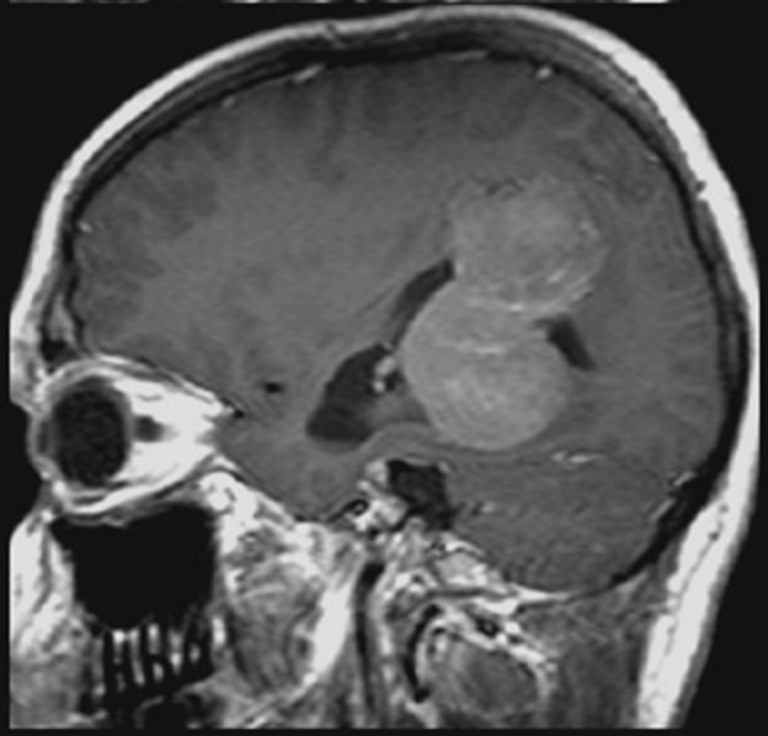
İntraventriküler tümörler

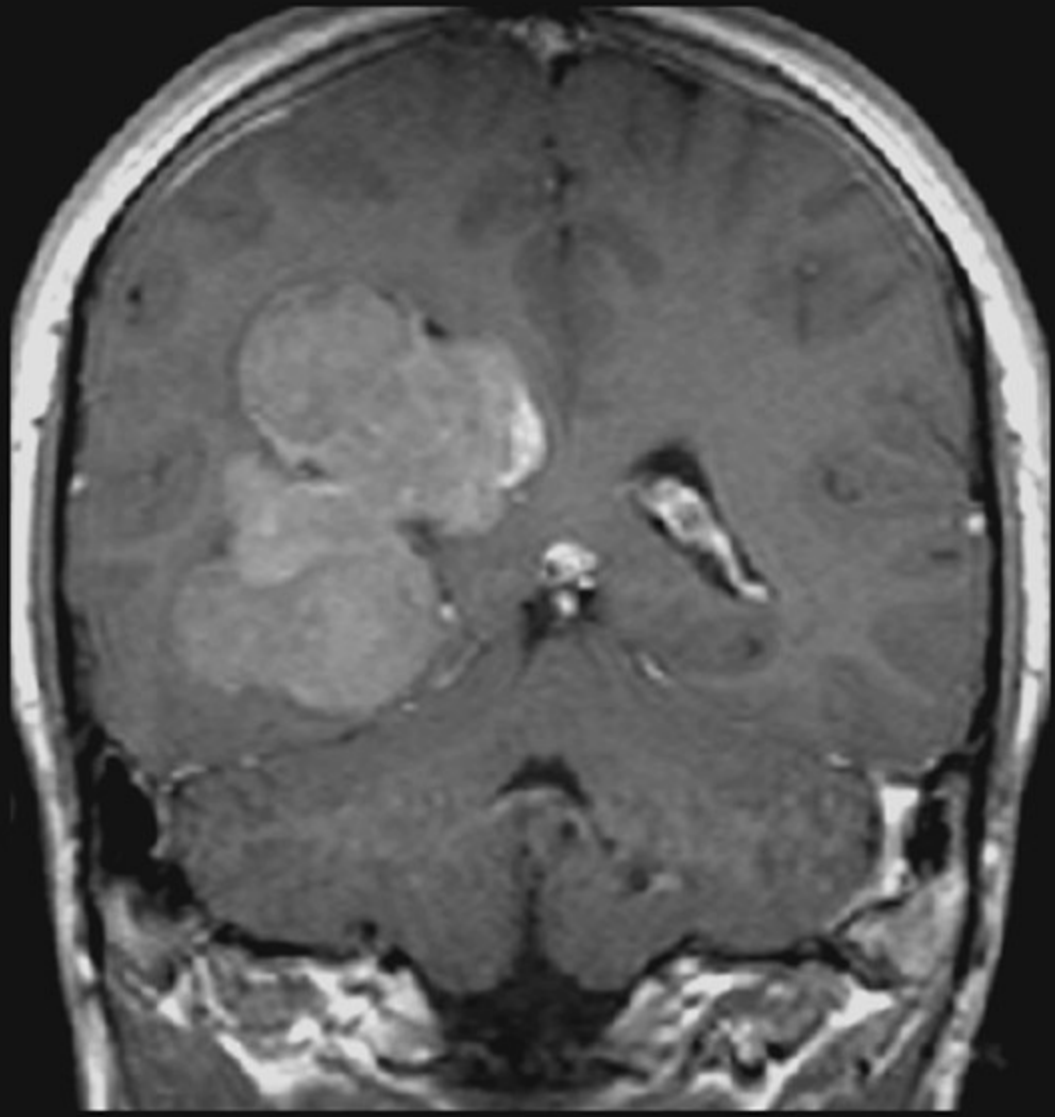
- Santral nörositom
- Koroid pleksus tm'leri
- Menengiom
- Glial tm'ler
- Lenfoma
- Teratom
- Kolloid kist
- Diğerleri....

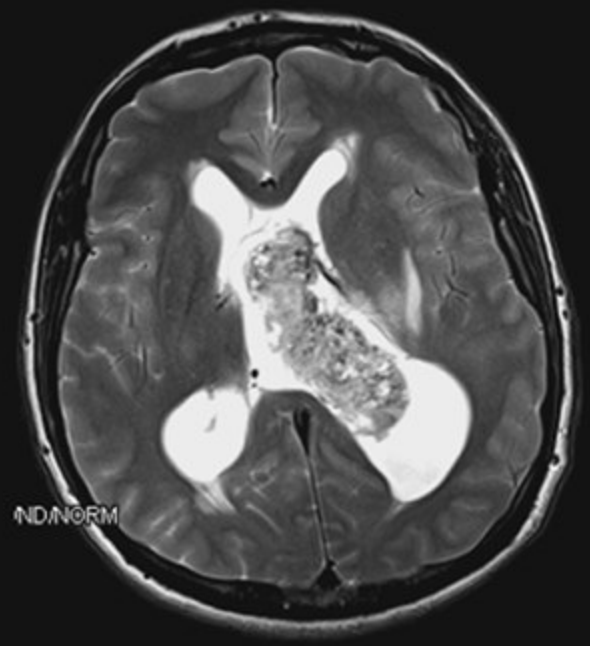


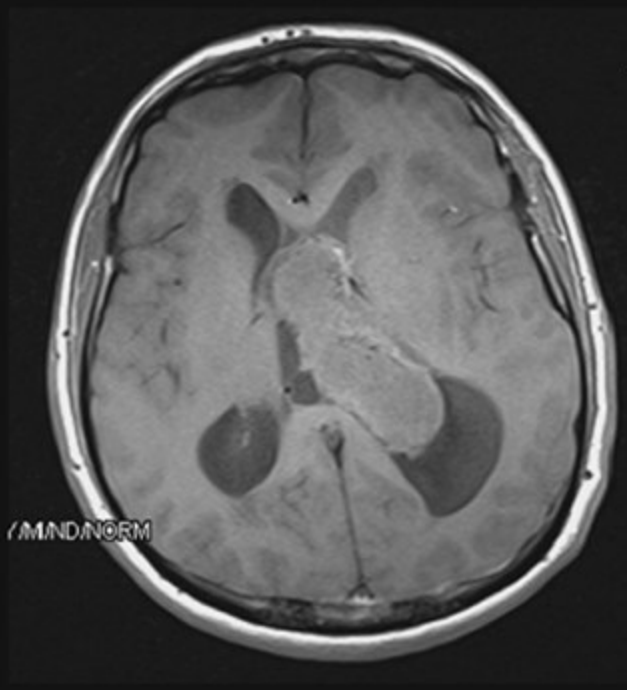
Intraventriküler meningiom

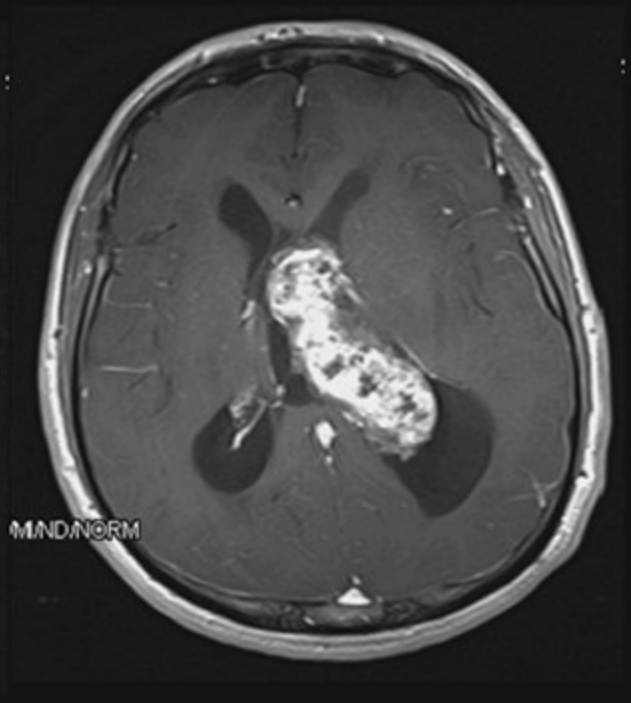




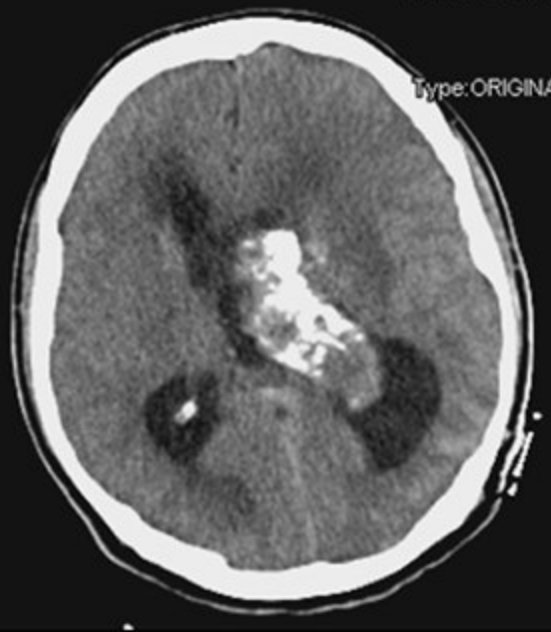


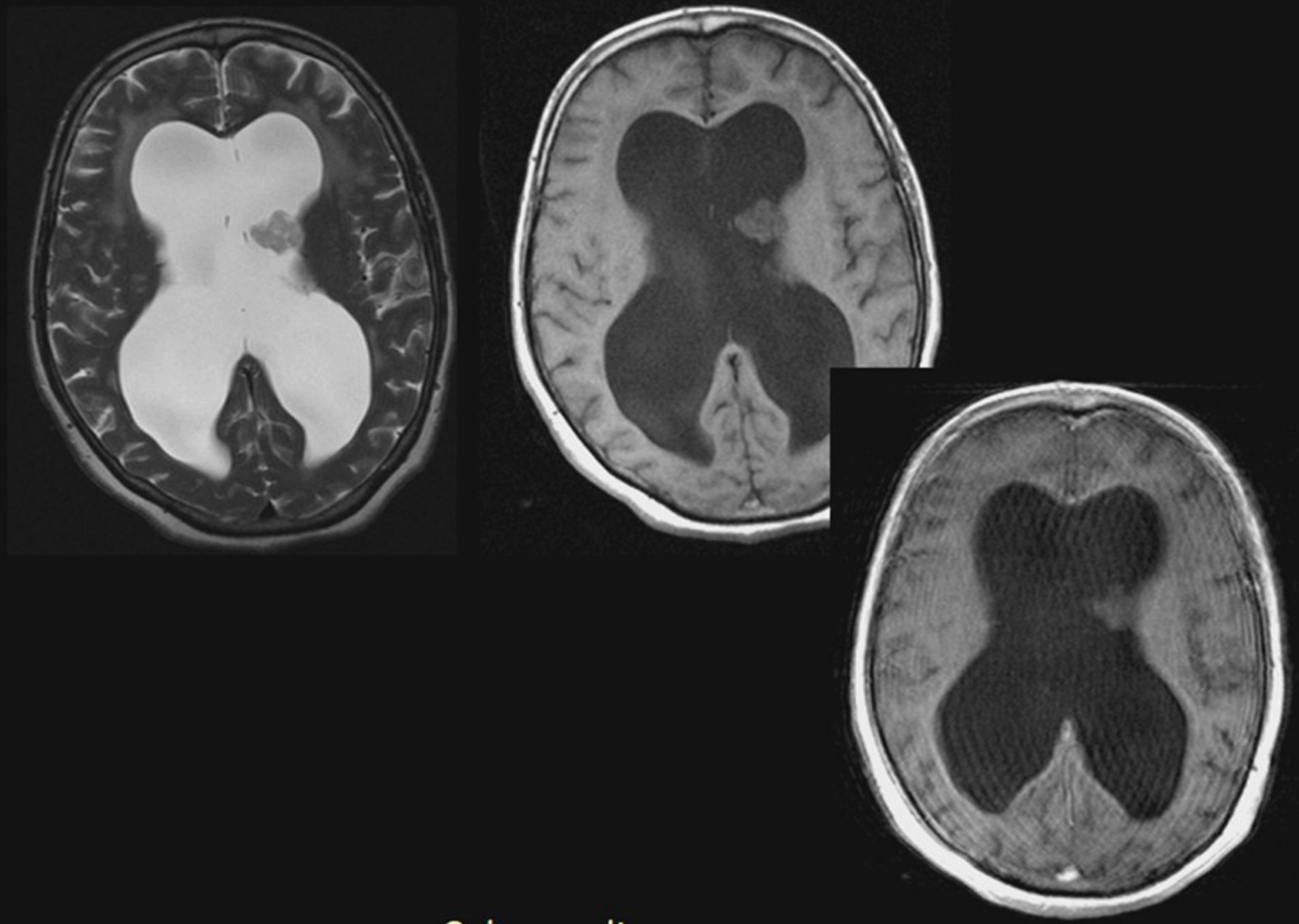




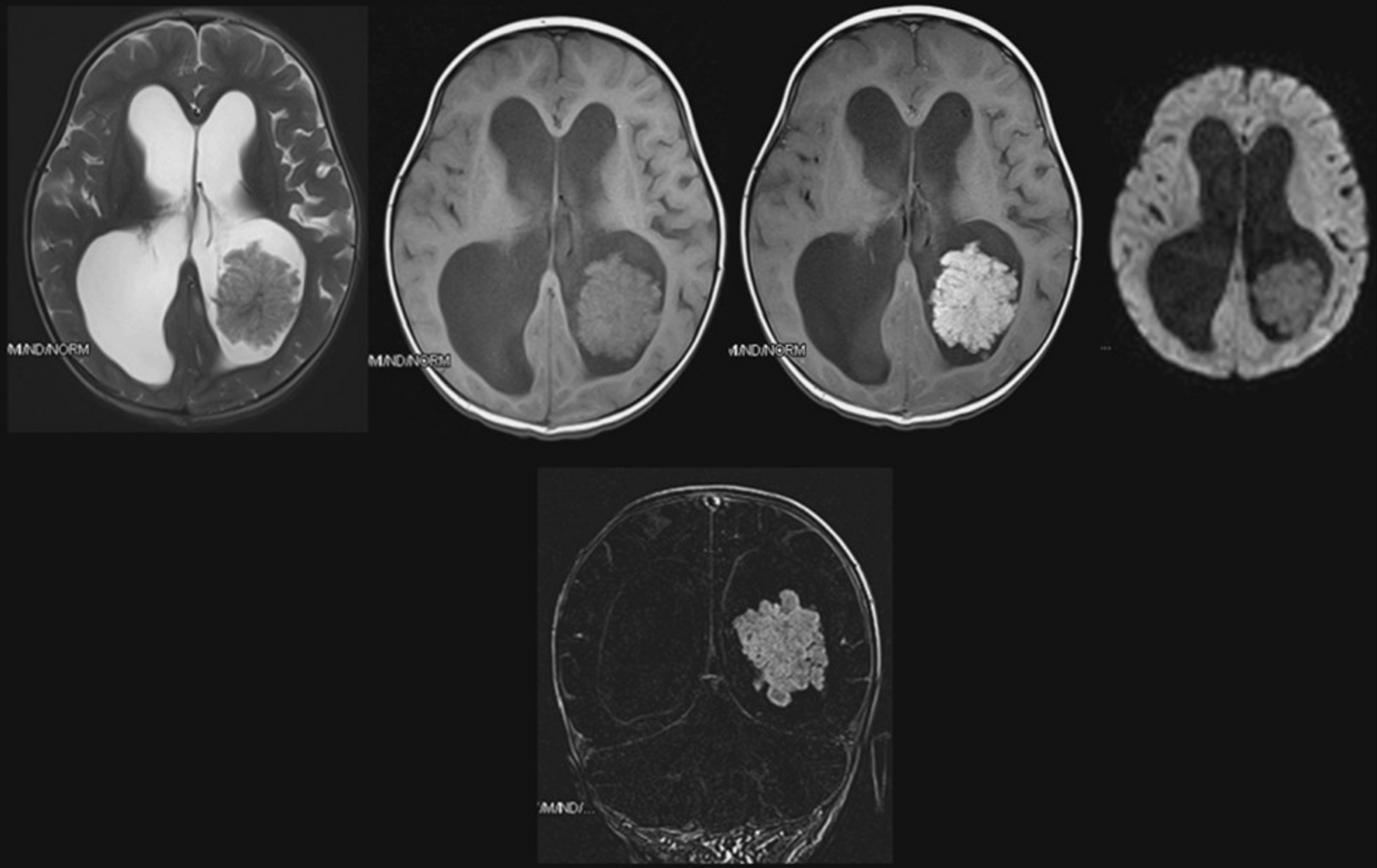


Santral nörositom

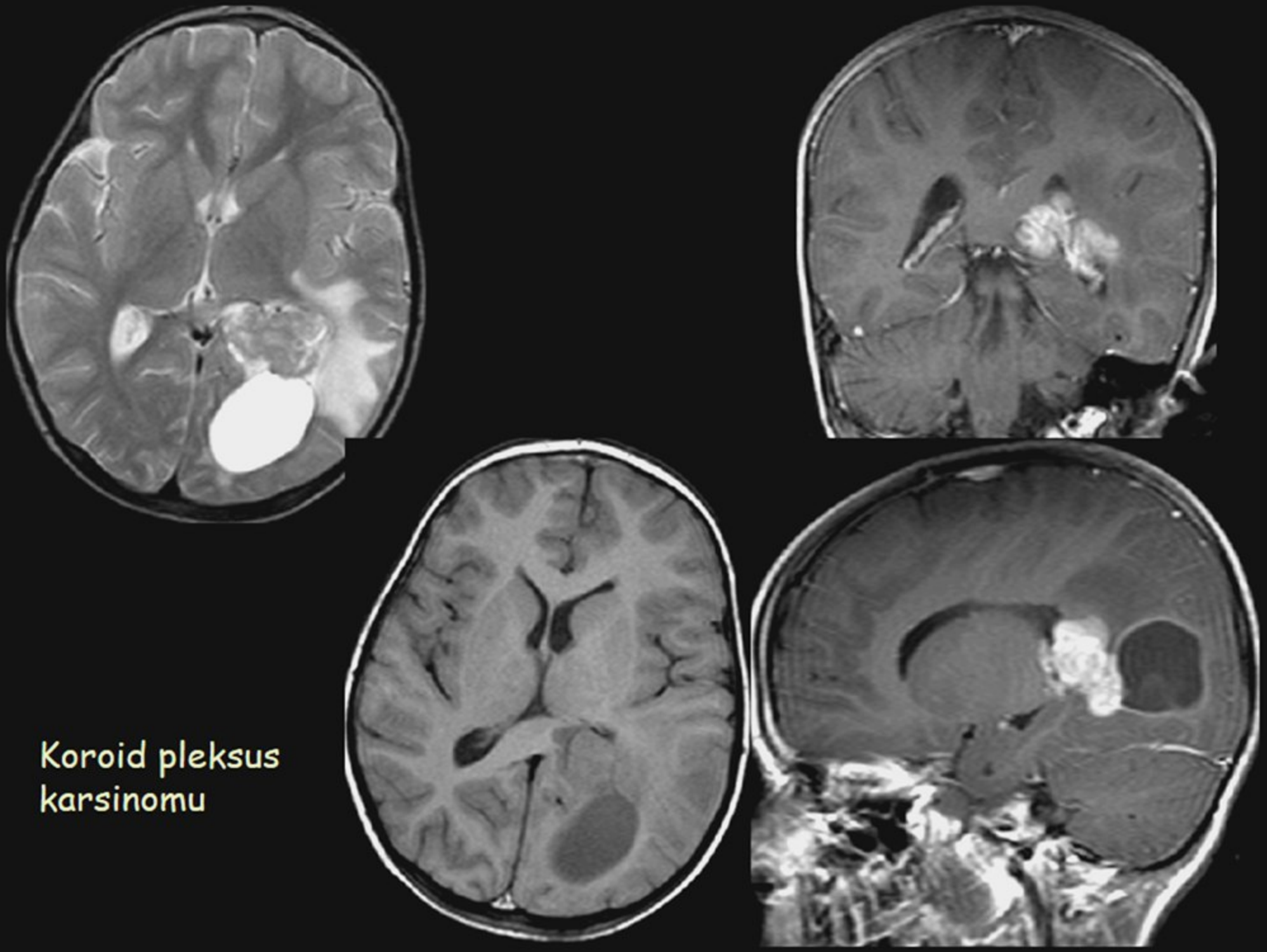




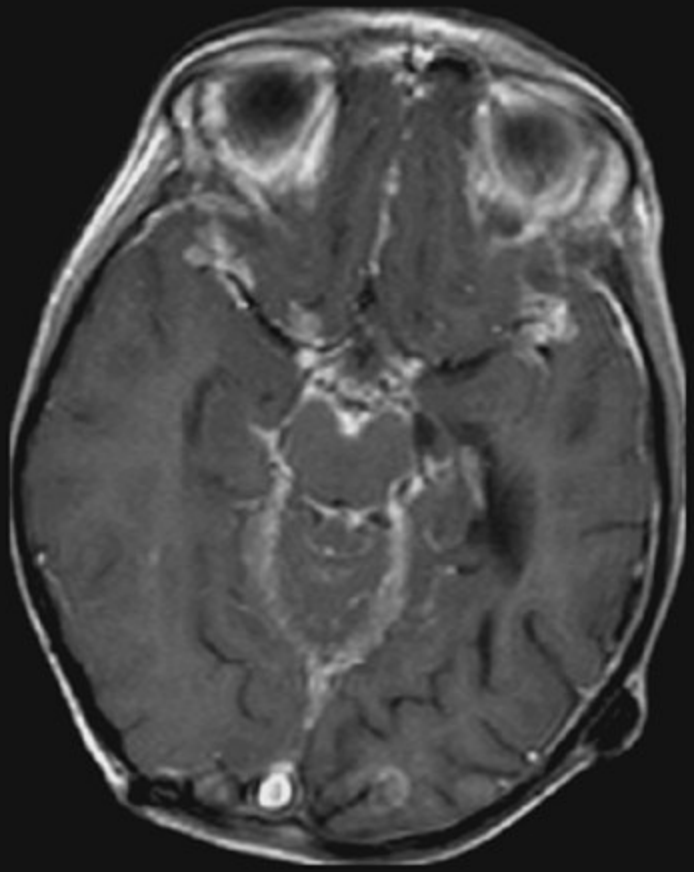
Subependimom

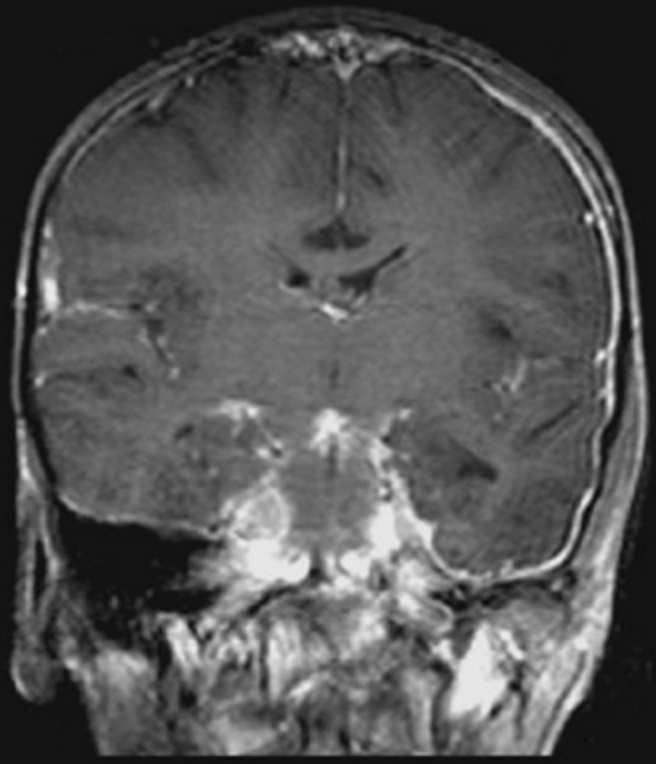


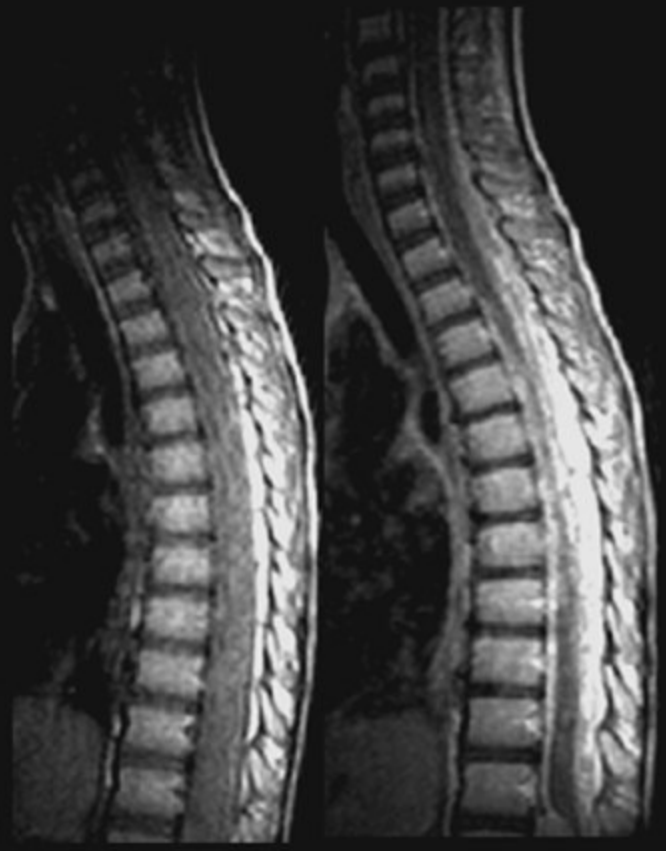
Koroid pleksus papillomu

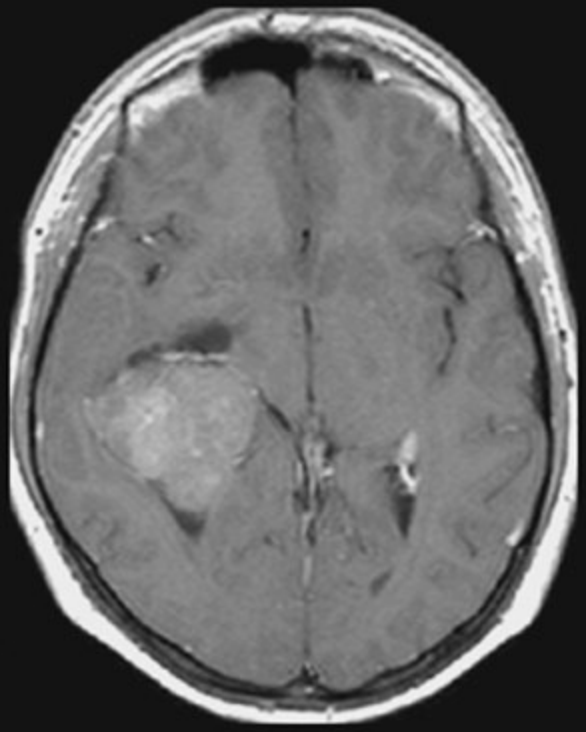

Koroid pleksus
karsinomu

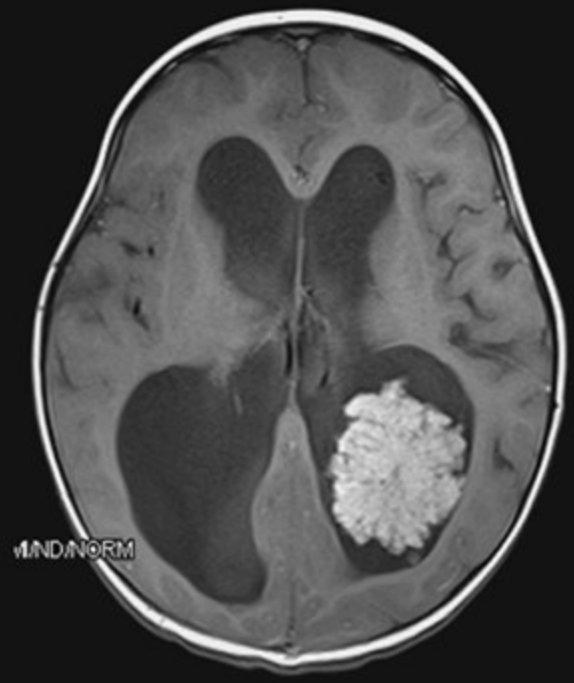
Koroid pleksus karsinomu,
Leptomeningeal metastaz

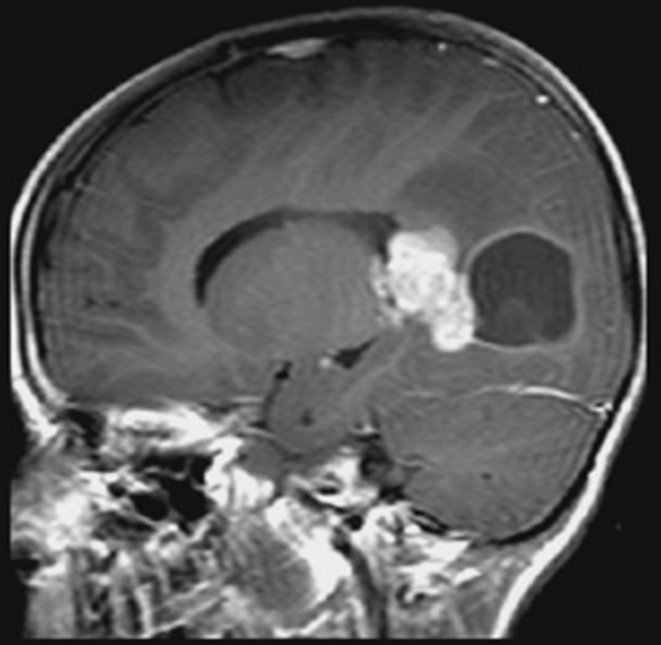


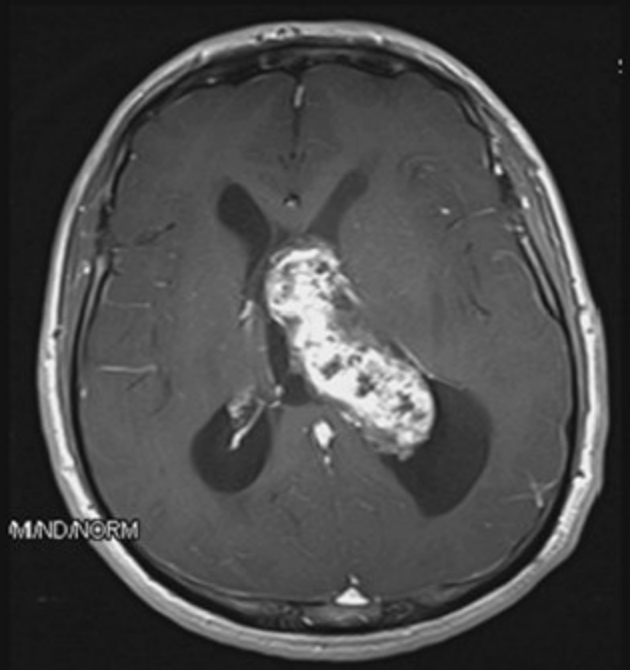







M/ND/NORM



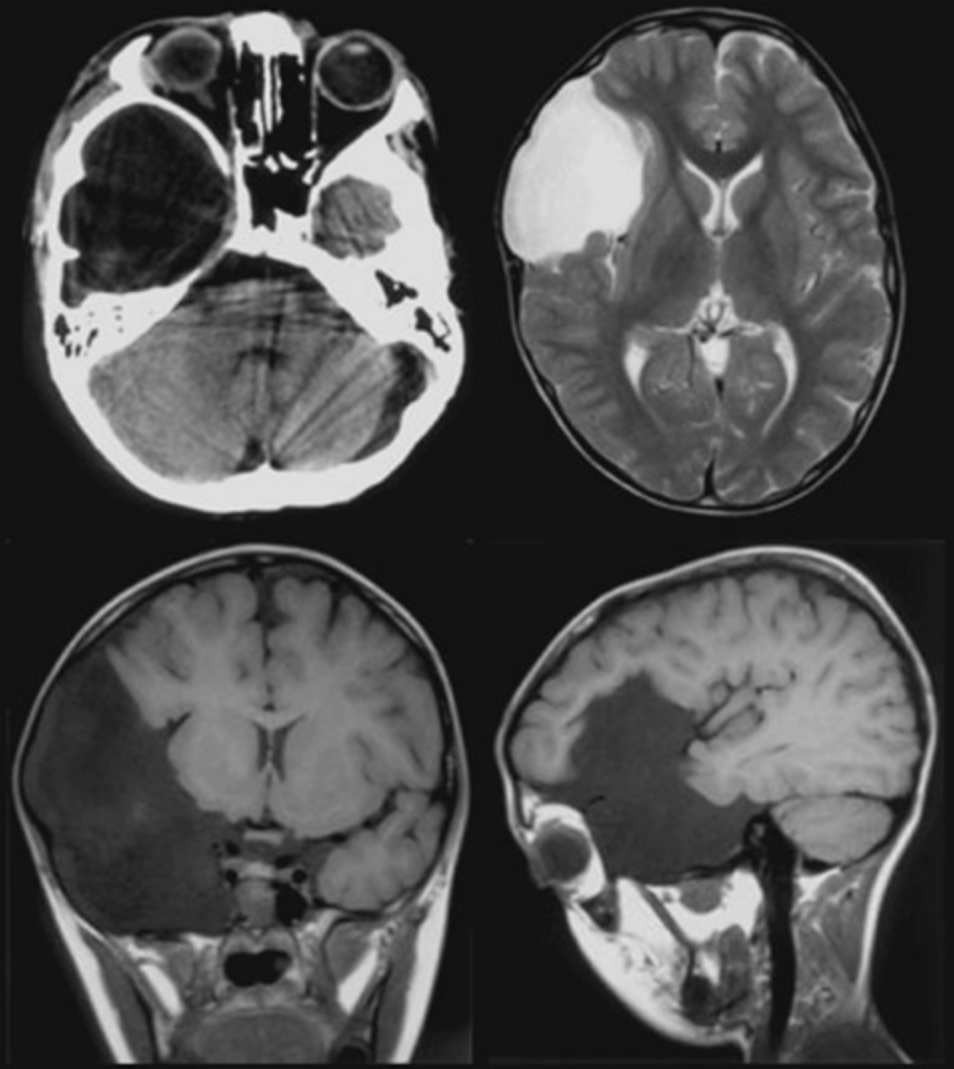

M/ND/NORM

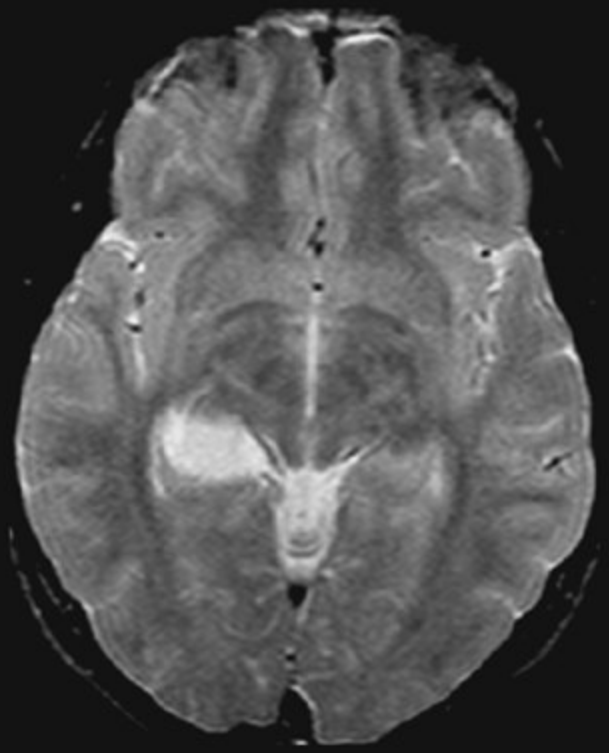
Araknoid Kist

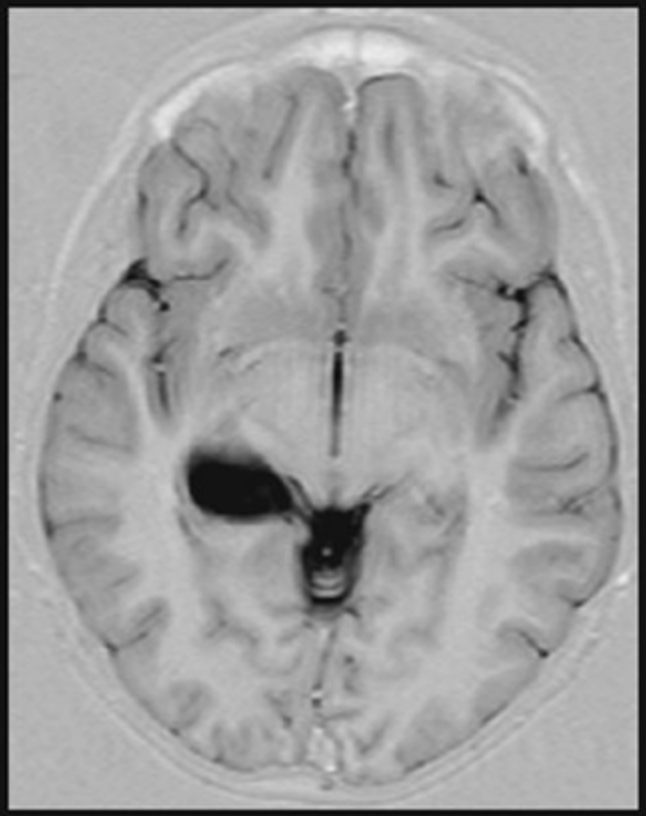
- Orta kranial fossa & silvian fissür
- Kist duvarı görülemez, kalsif yok
- Kontrastlanma yok
- Tüm sekanslarda ~ BOS

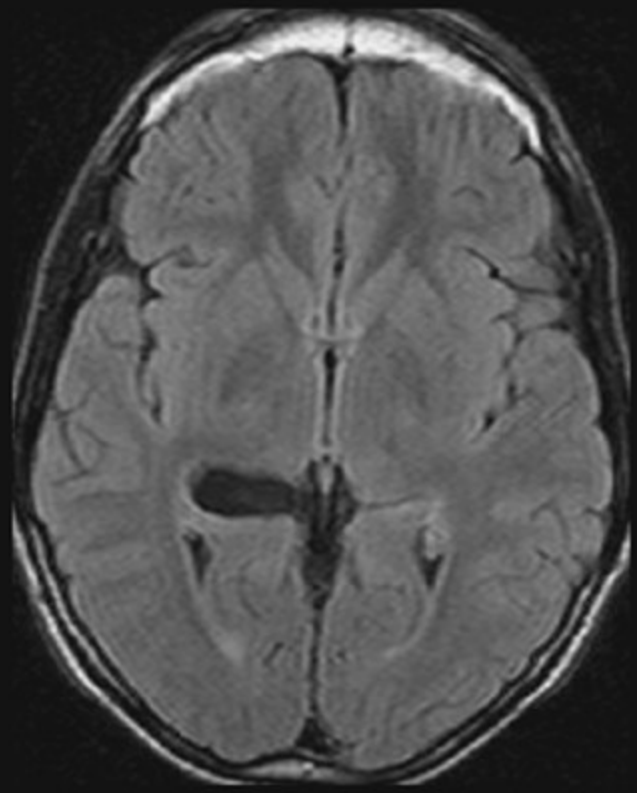
Araknoid Kist

- Orta kranial fossa & silvian fissür
- Kist duvarı görülemez, kalsif yok
- Kontrastlanma yok
- Tüm sekanslarda ~ BOS









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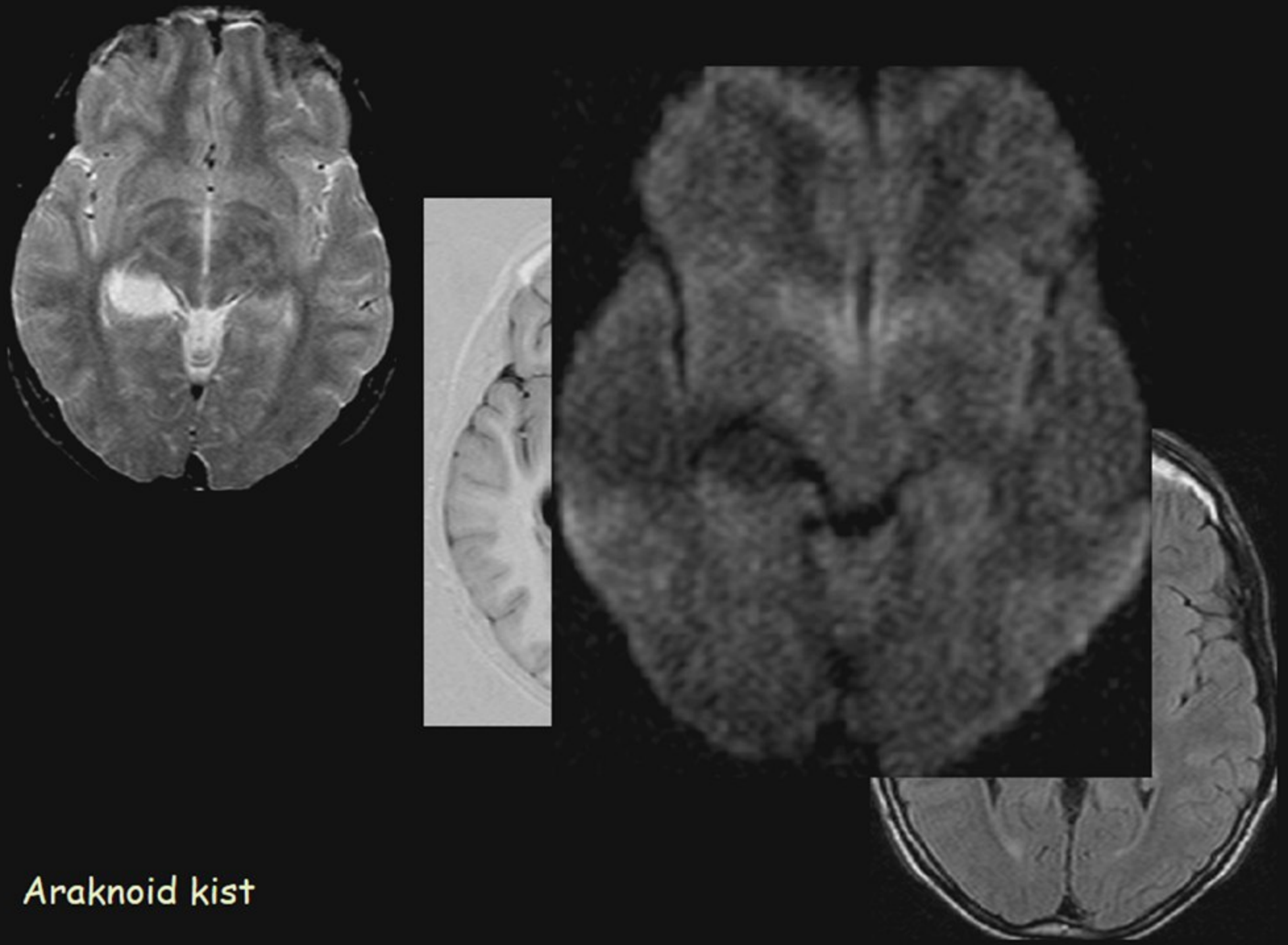

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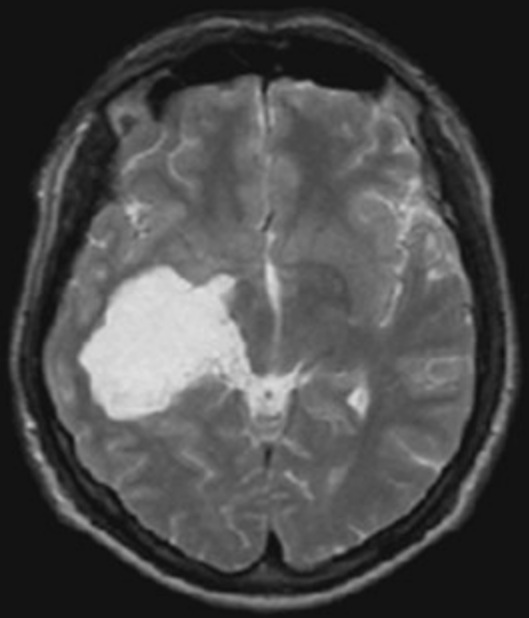
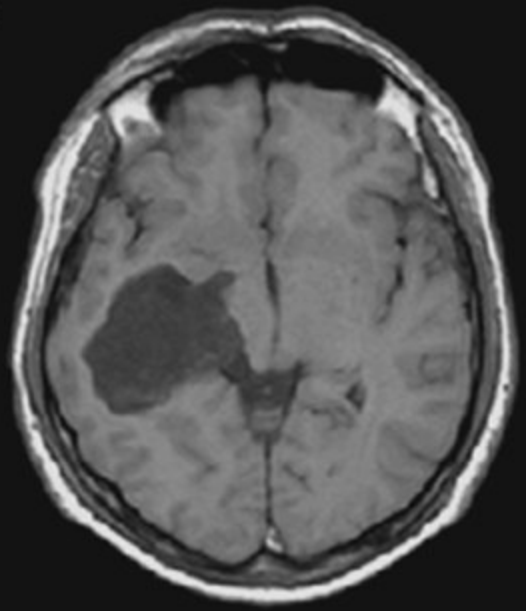
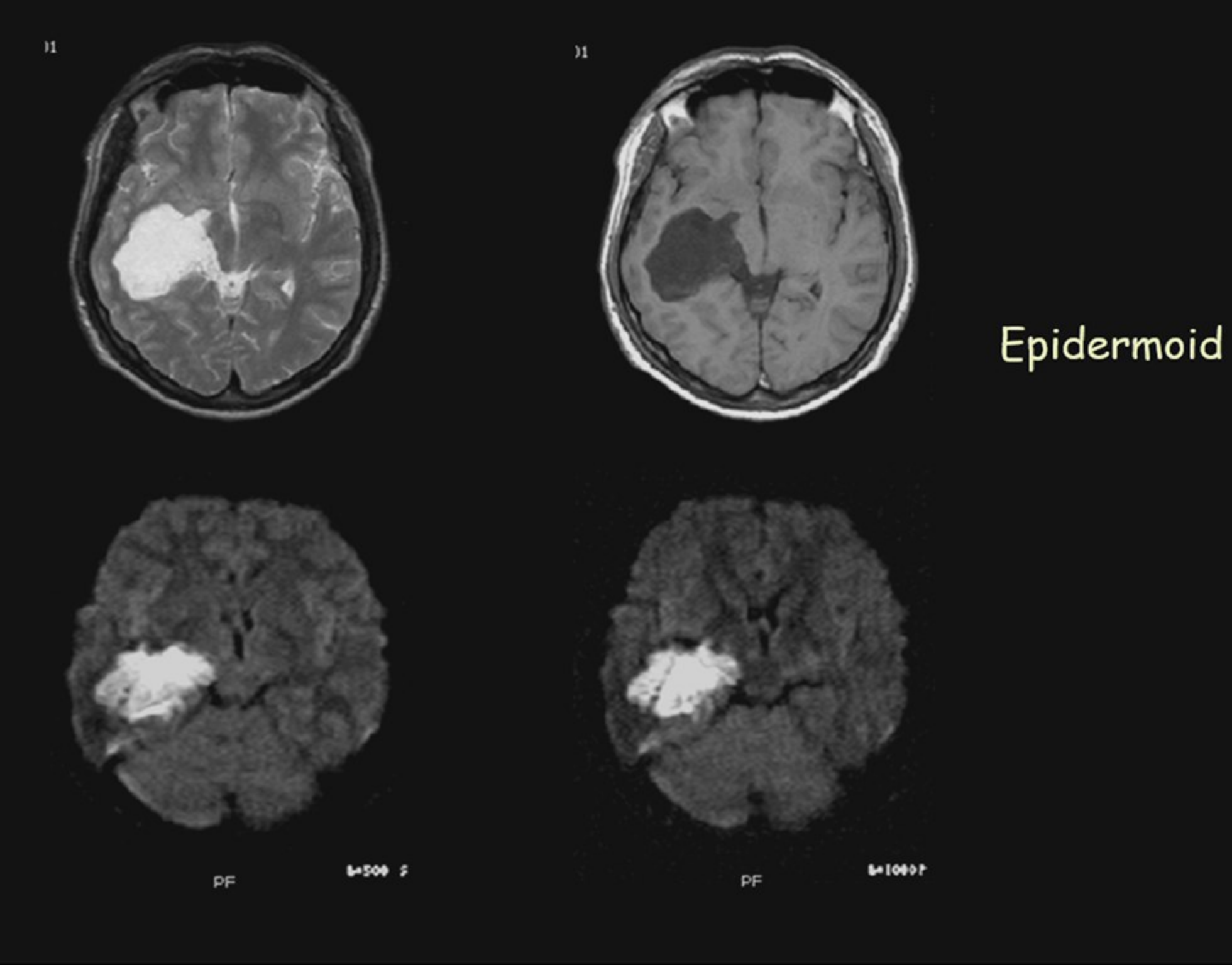
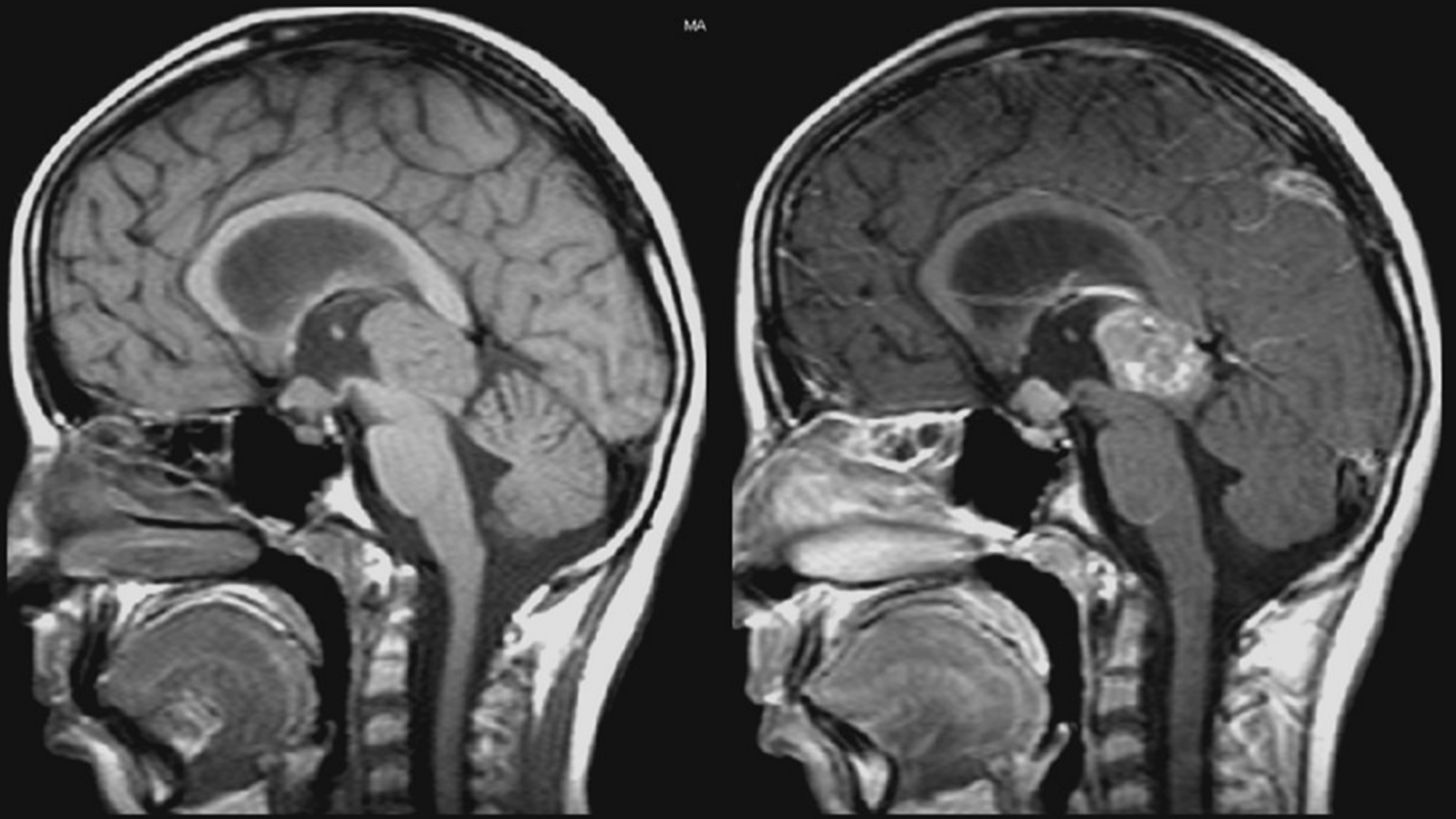




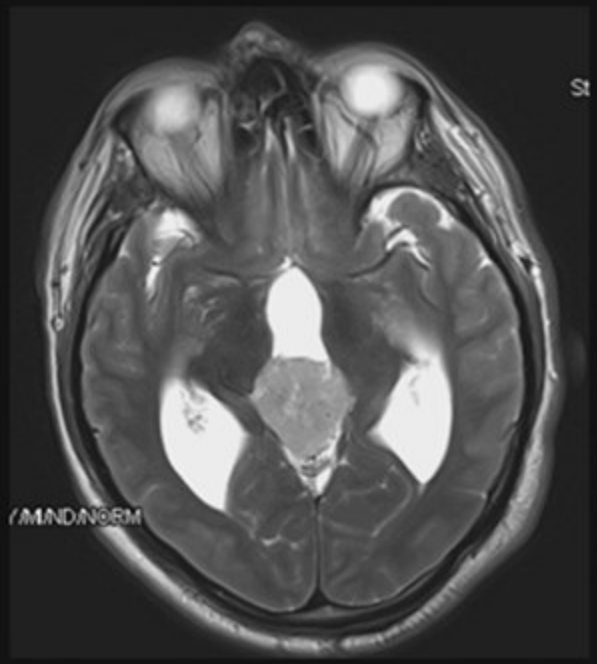

Epidermoid

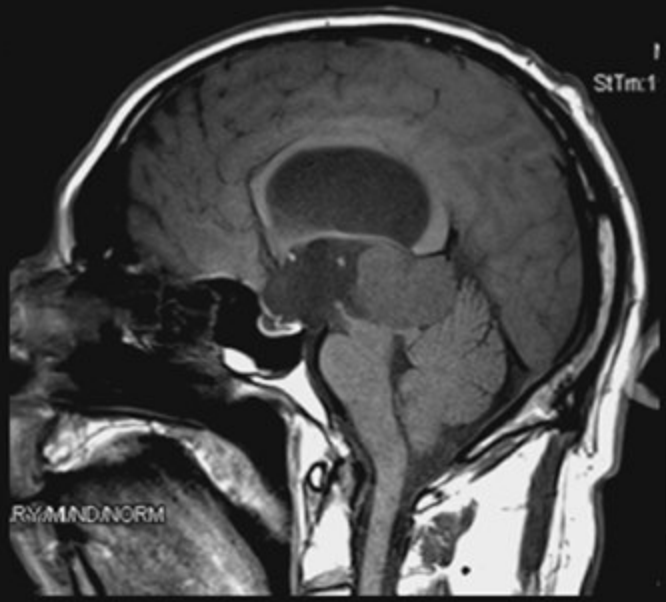
Pineal bölge tmleri

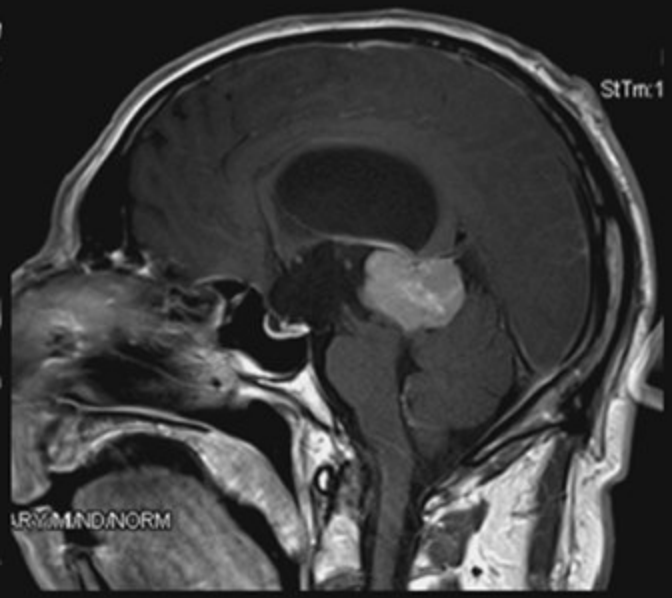
- Germ hücreli tm
  - Germinoma (%65)
  - Non-germinomatous (%26)
    - Teratoma, endodermal sinus tm...
  - Mikst (%9)
- Pineal parankimal tm
  - Pinealositom
  - Pineoblastoma
- Dermoid / epidermoid
- Pineal gliom
- Pineal kistler

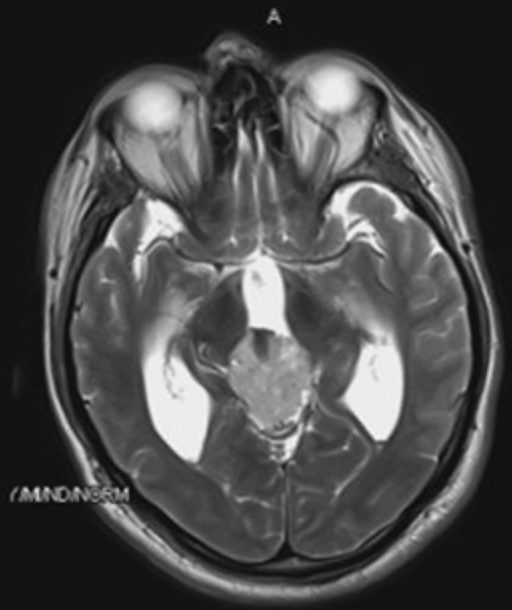


Germinoma

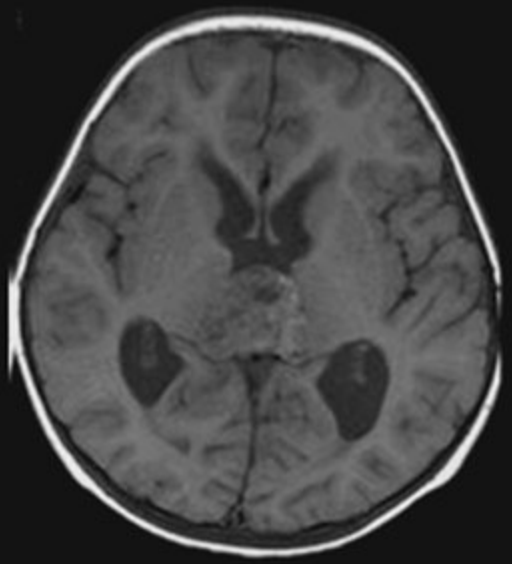


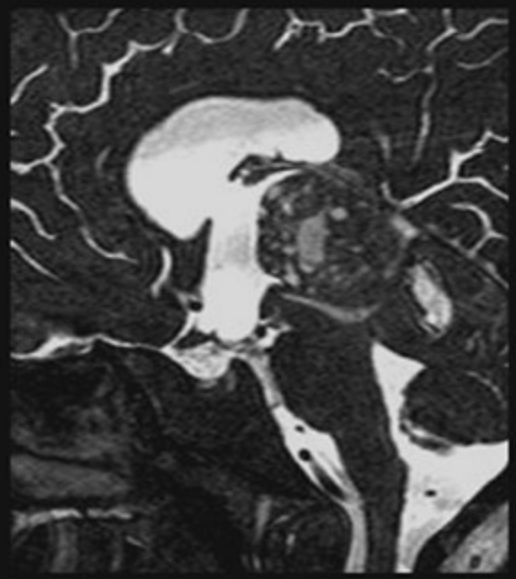


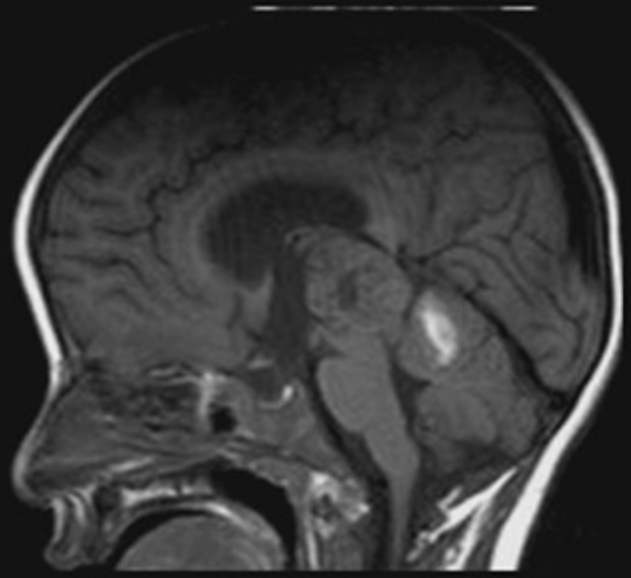




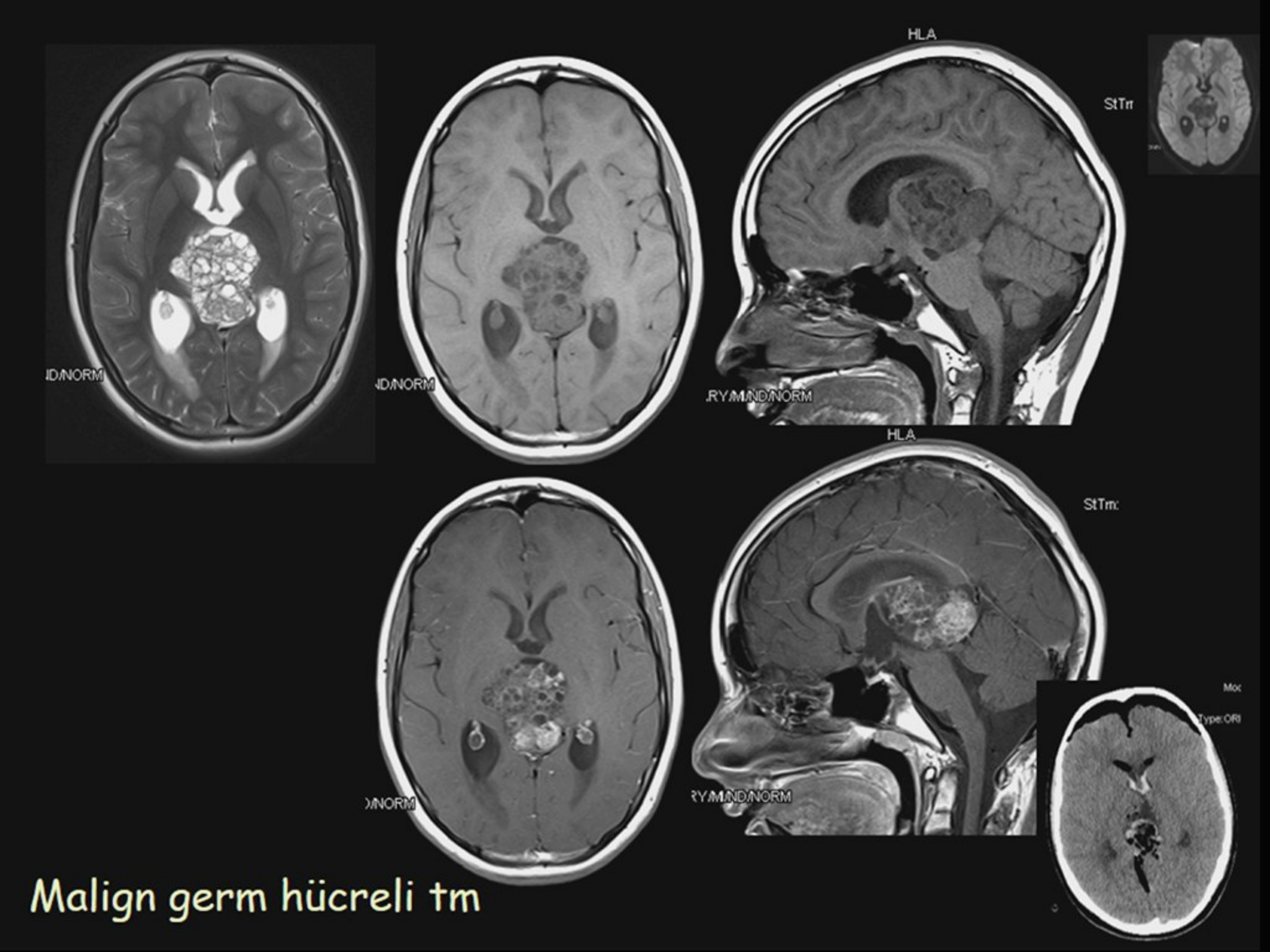
pineasitom



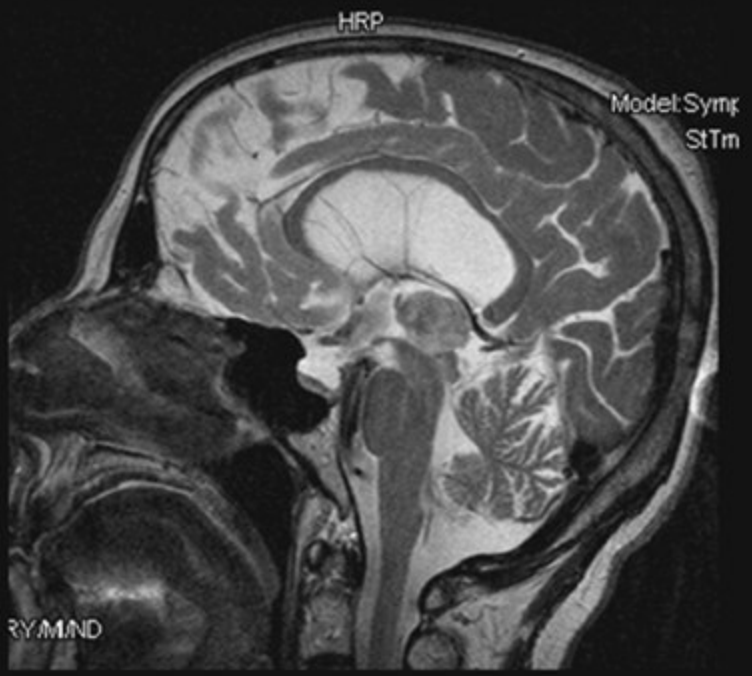


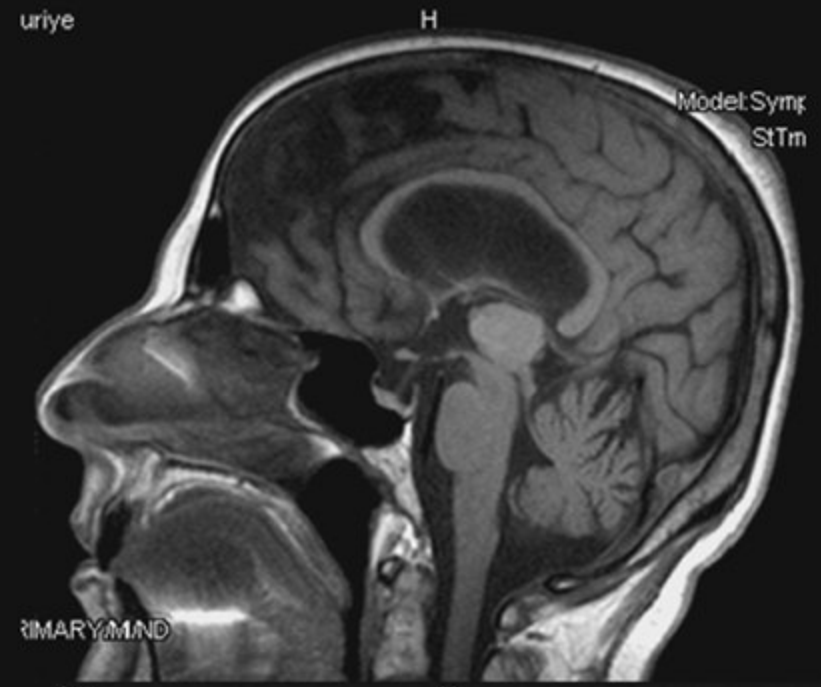


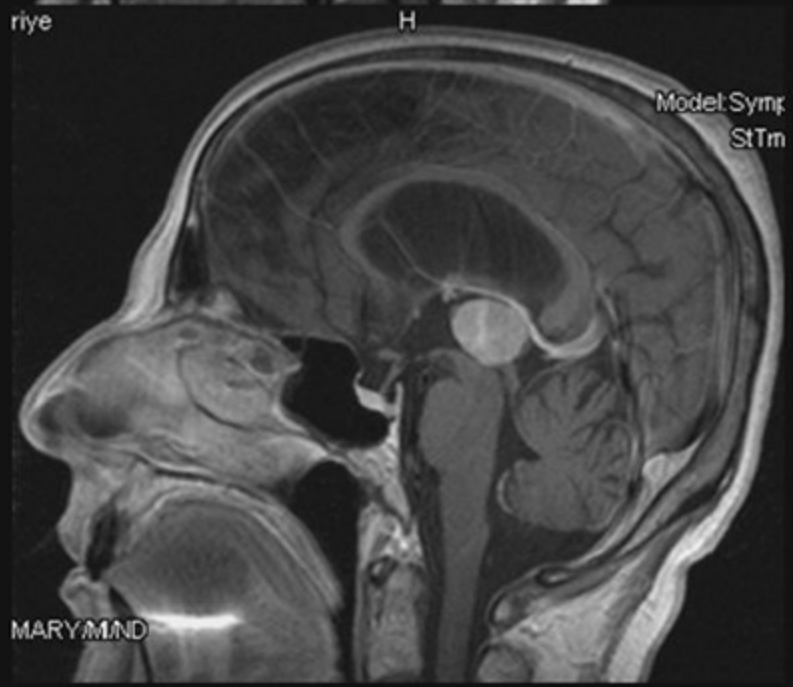
Pineoblastoma



Malign germ hücreli tm





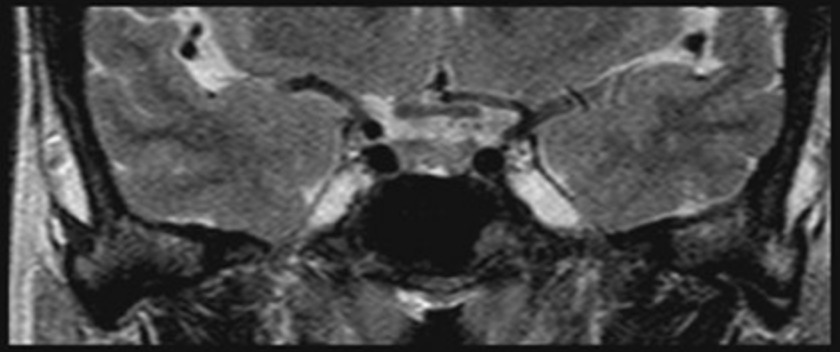


Pineal Papiller tm

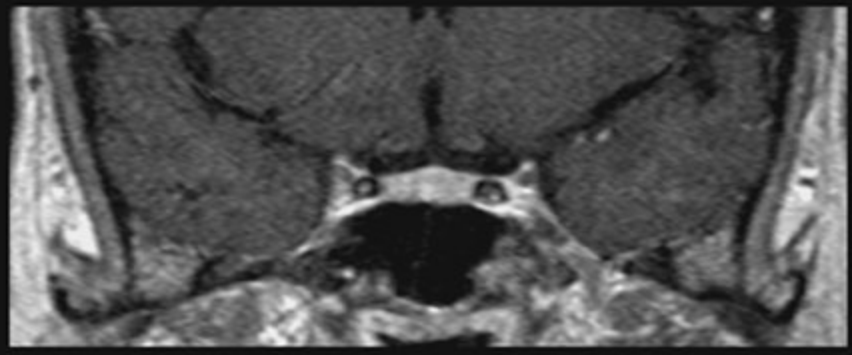
*

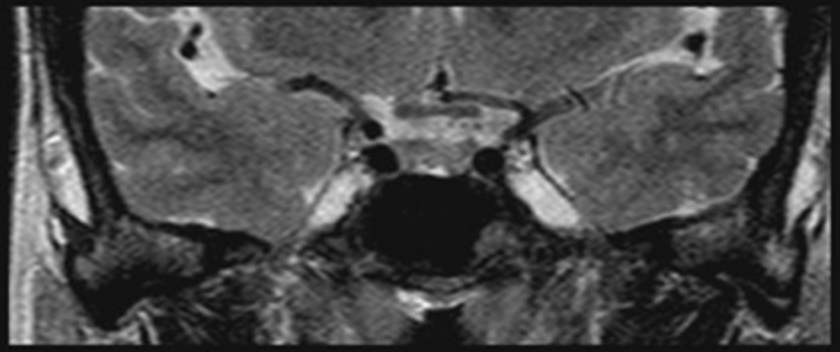
Pitüiter Adenom

- İntrakranial tmlerin 10-15%
- <10mm → mikroadenoma
- >10mm →makroadenoma
- T1W 80-95% hipointens
- T2W 50% hiperintens, 50% izointens
- +C dinamik görüntüleme gerekli (Normal beze göre hipointens kalırlar)

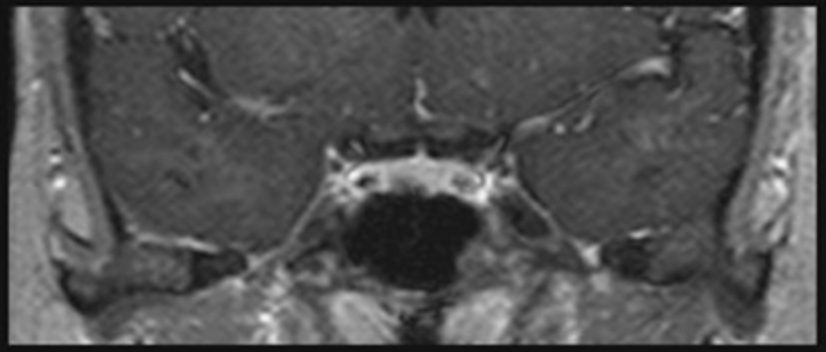


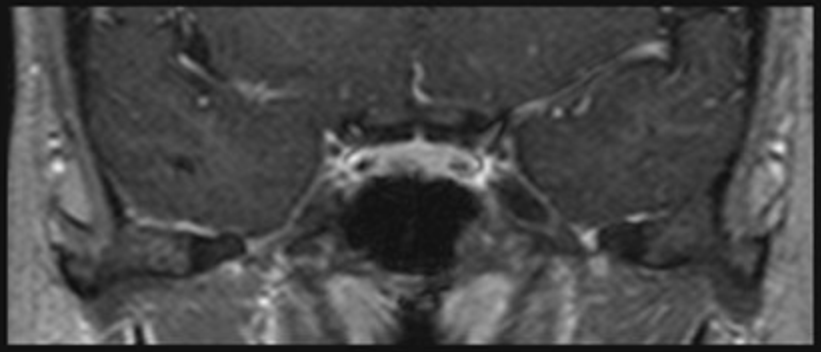
Pituiter Adenom?



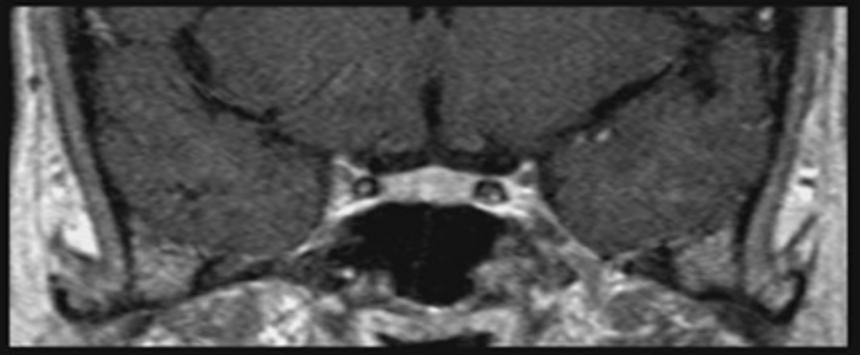


Dinamik inceleme!!!!





Pituiter Adenom?



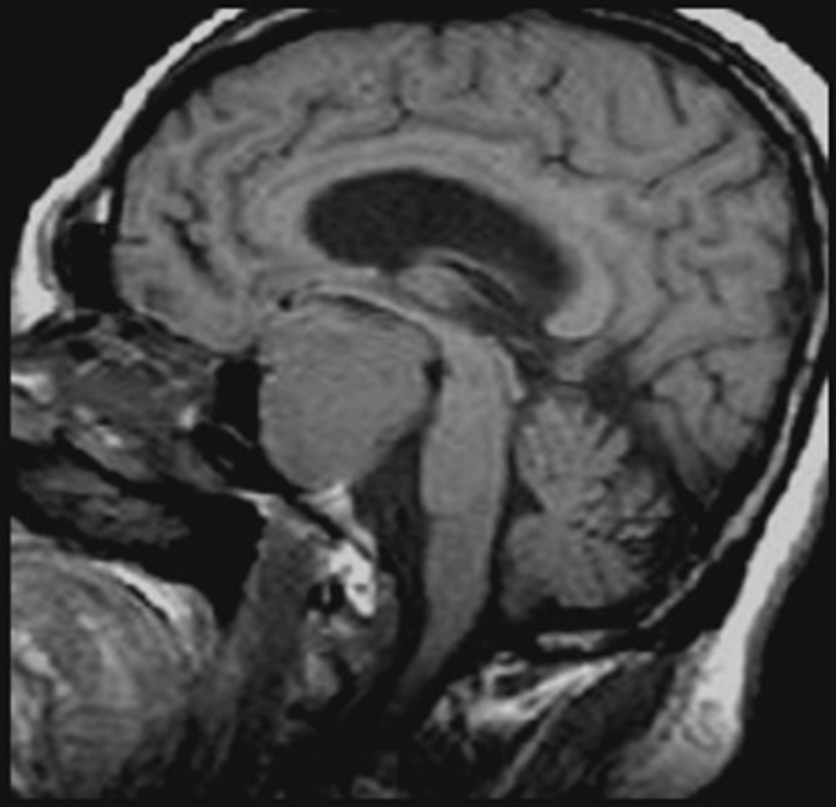
Makroadenom

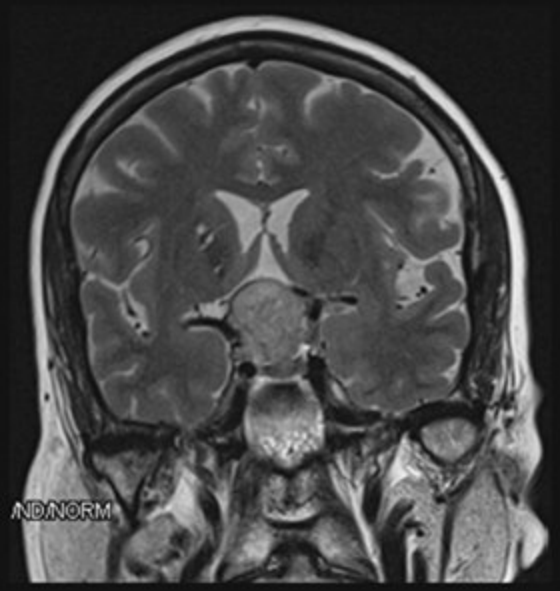
Kitle etkisi

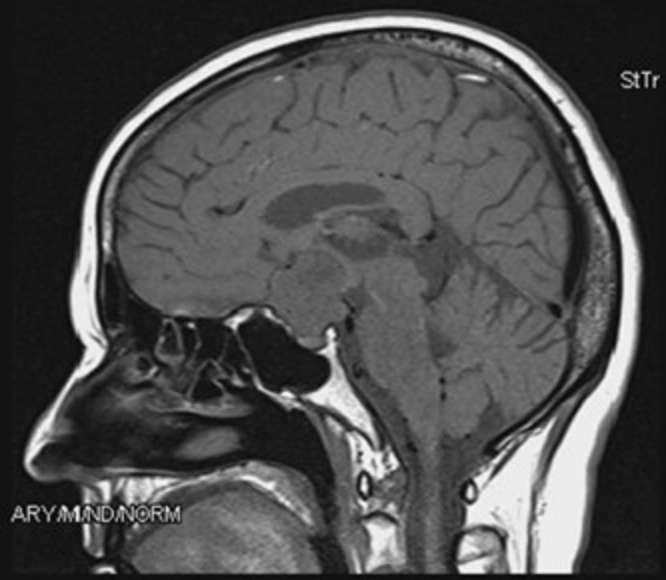
Kavernöz sinüs, sfenoid sinüs, suprasellar yayılım

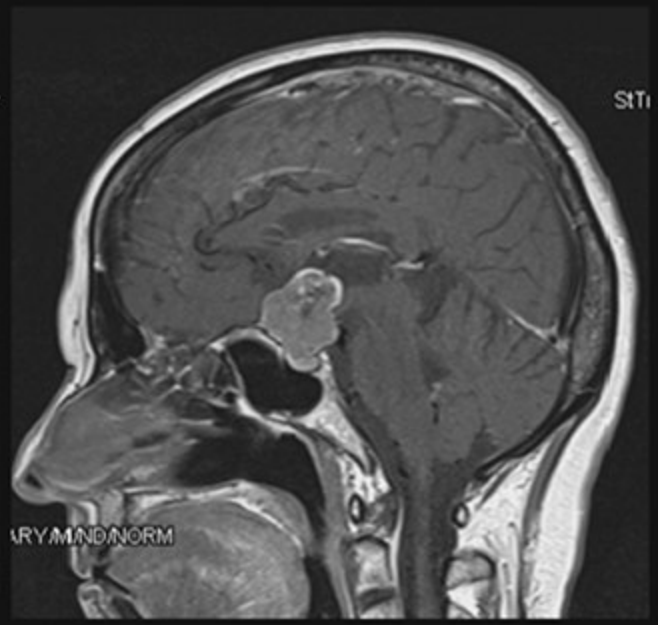
Sellada ekspansiyon

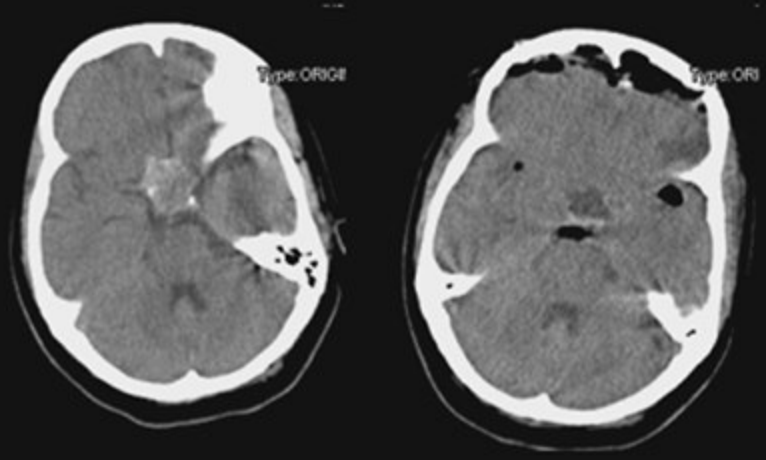
+C tutulumu var

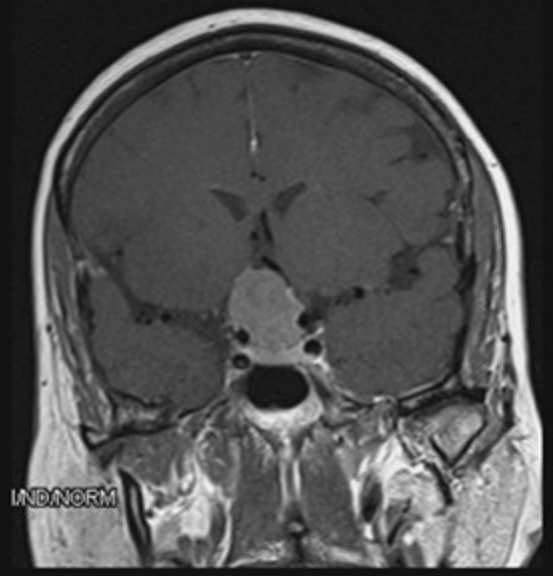




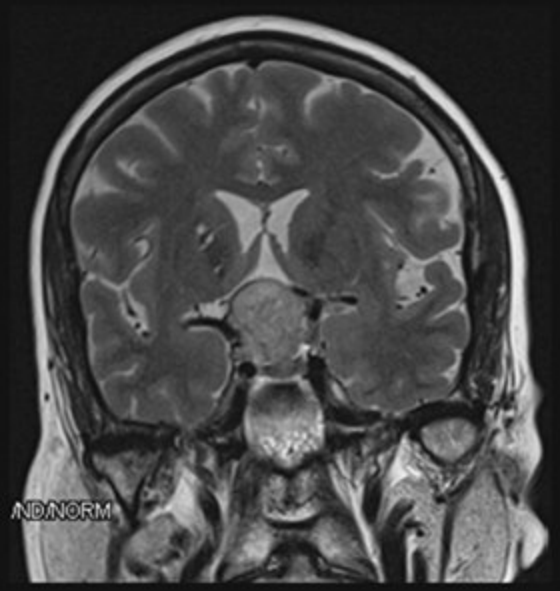


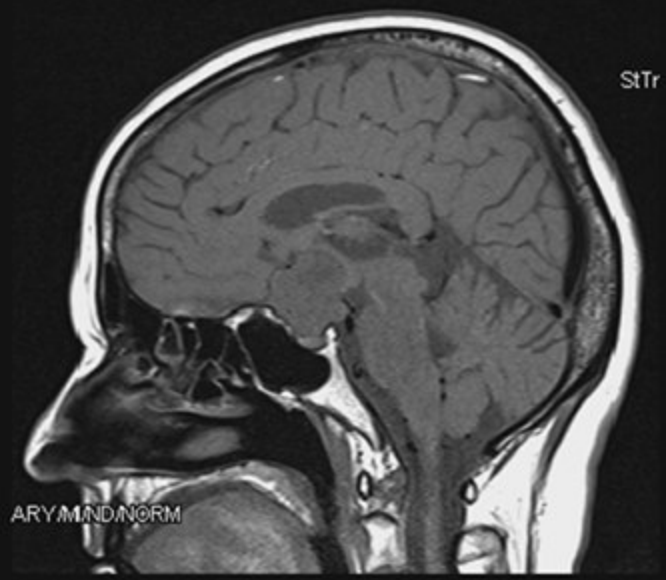


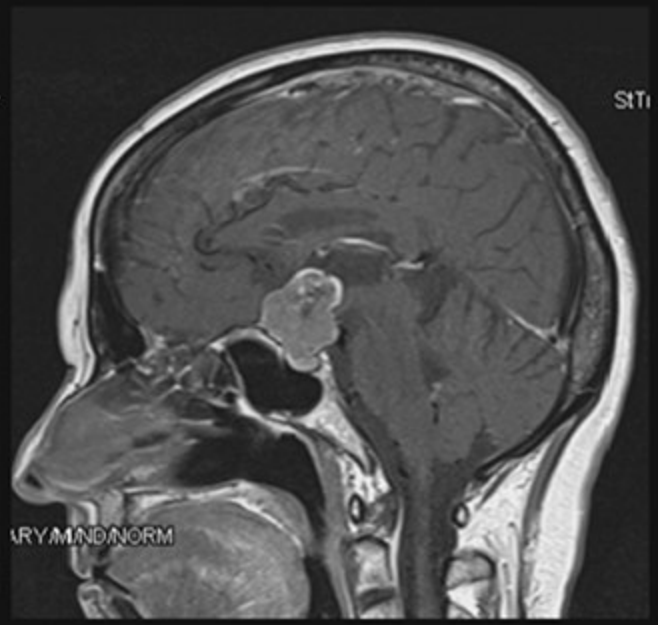


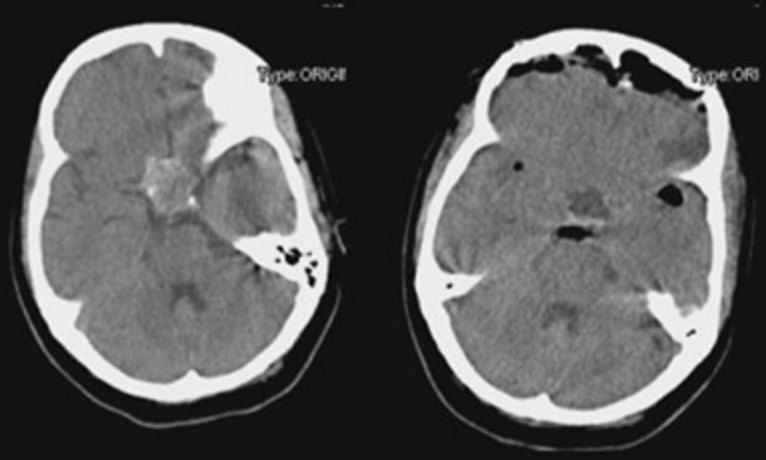


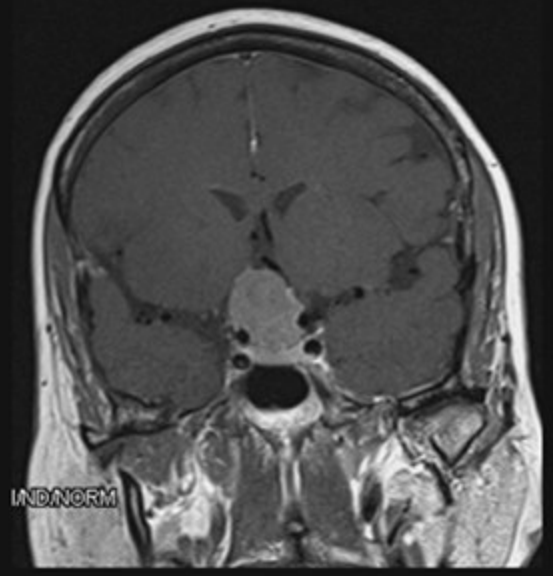
Parasellar menengiom



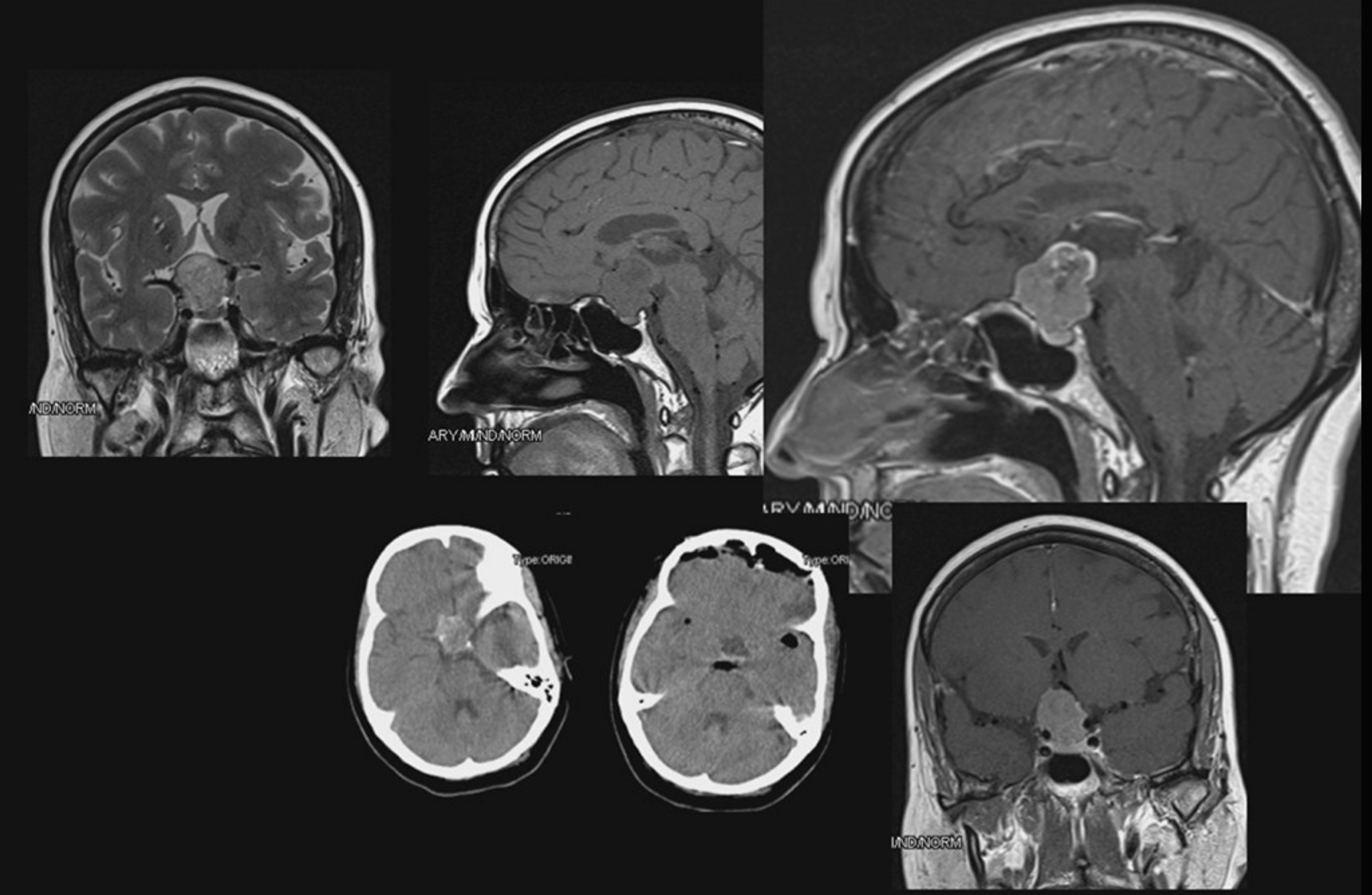




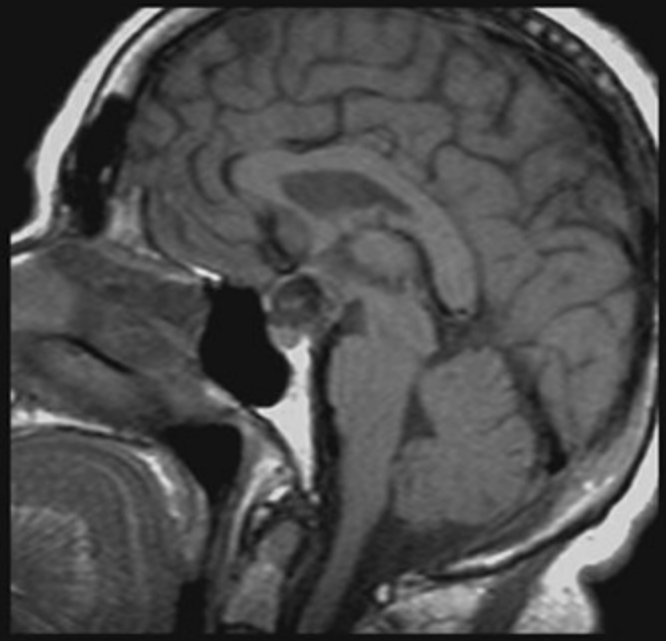


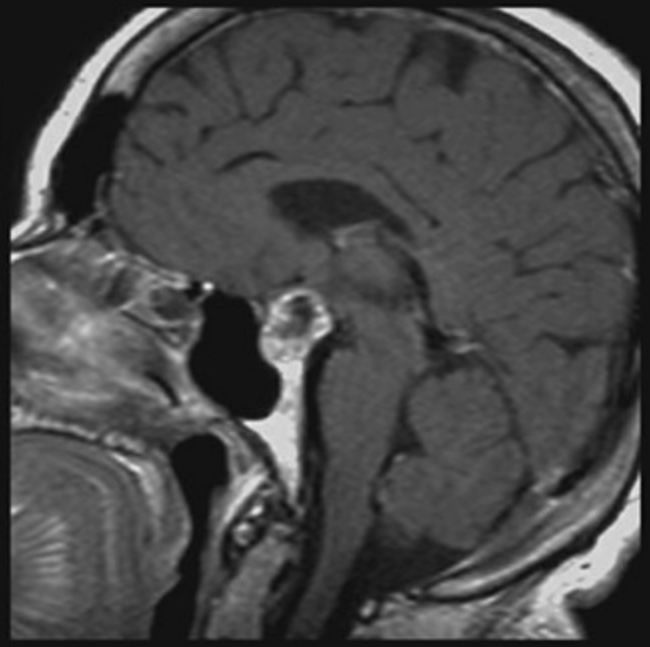


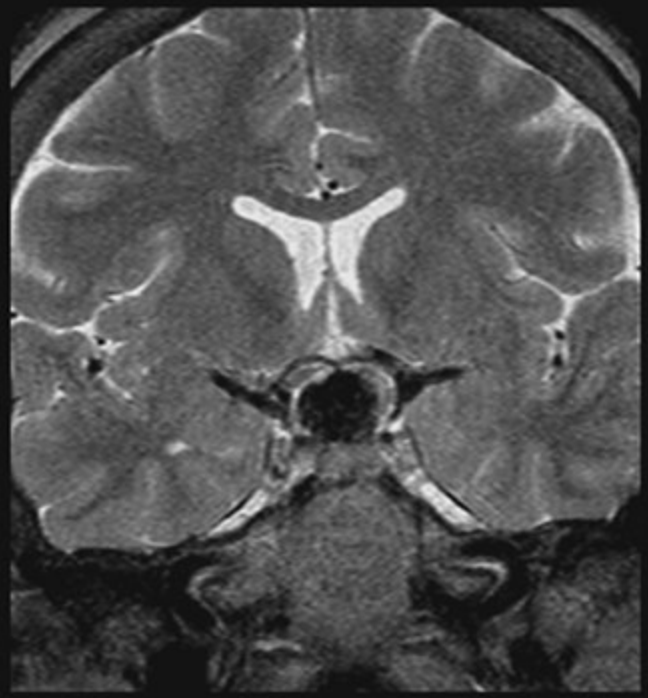
Parasellar menengiom

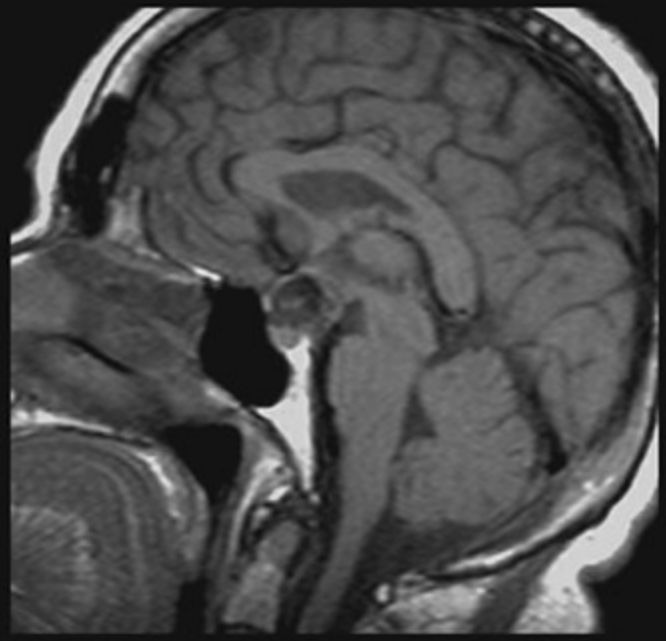


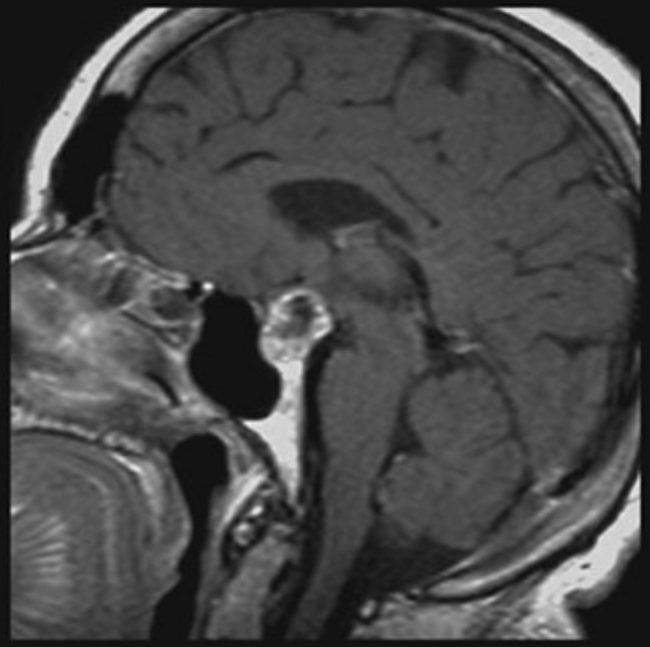
Parasellar menengiom

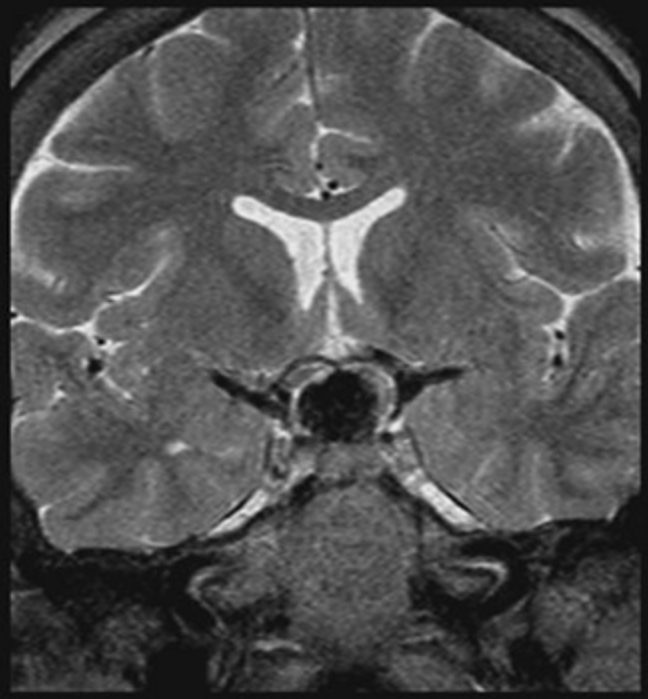








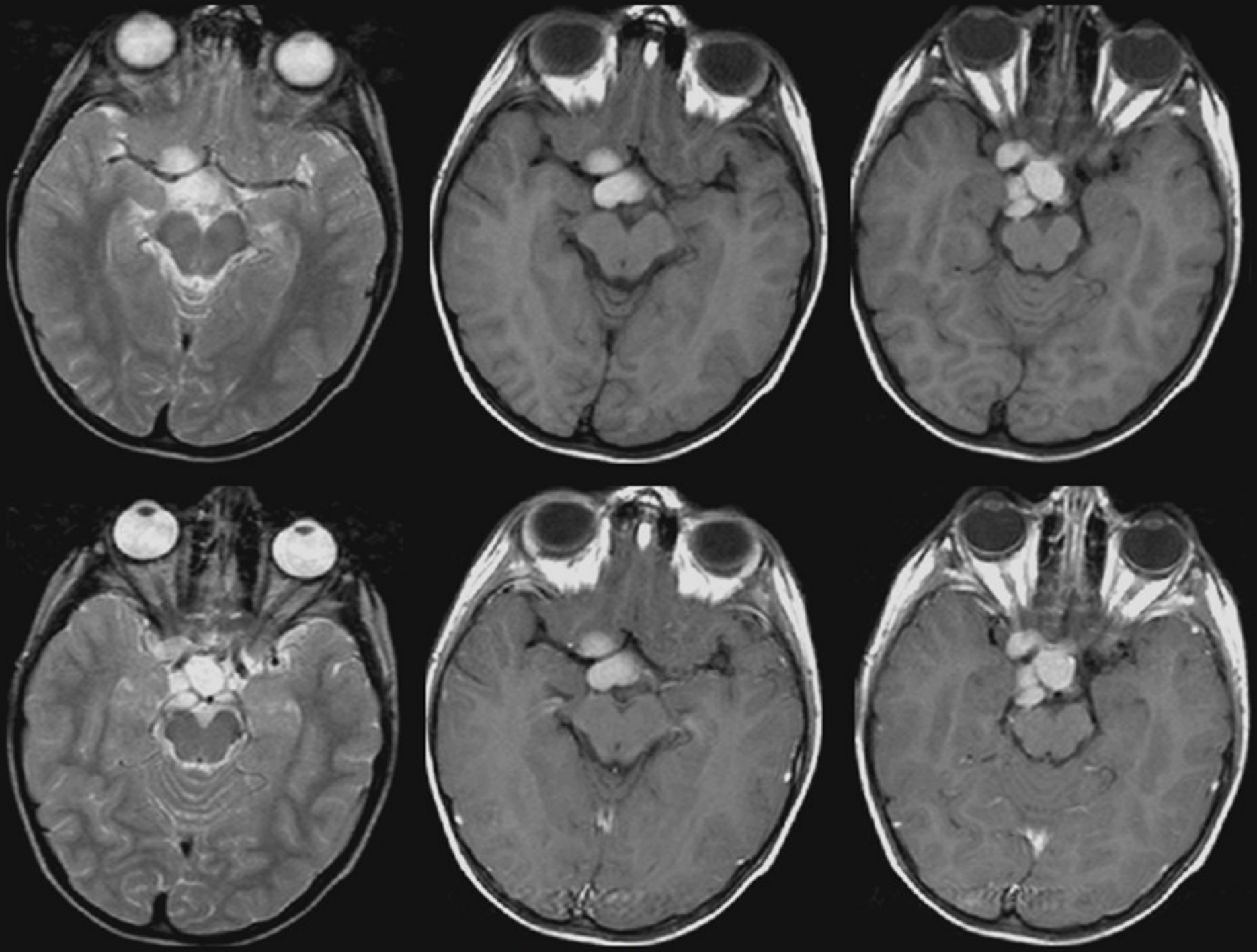




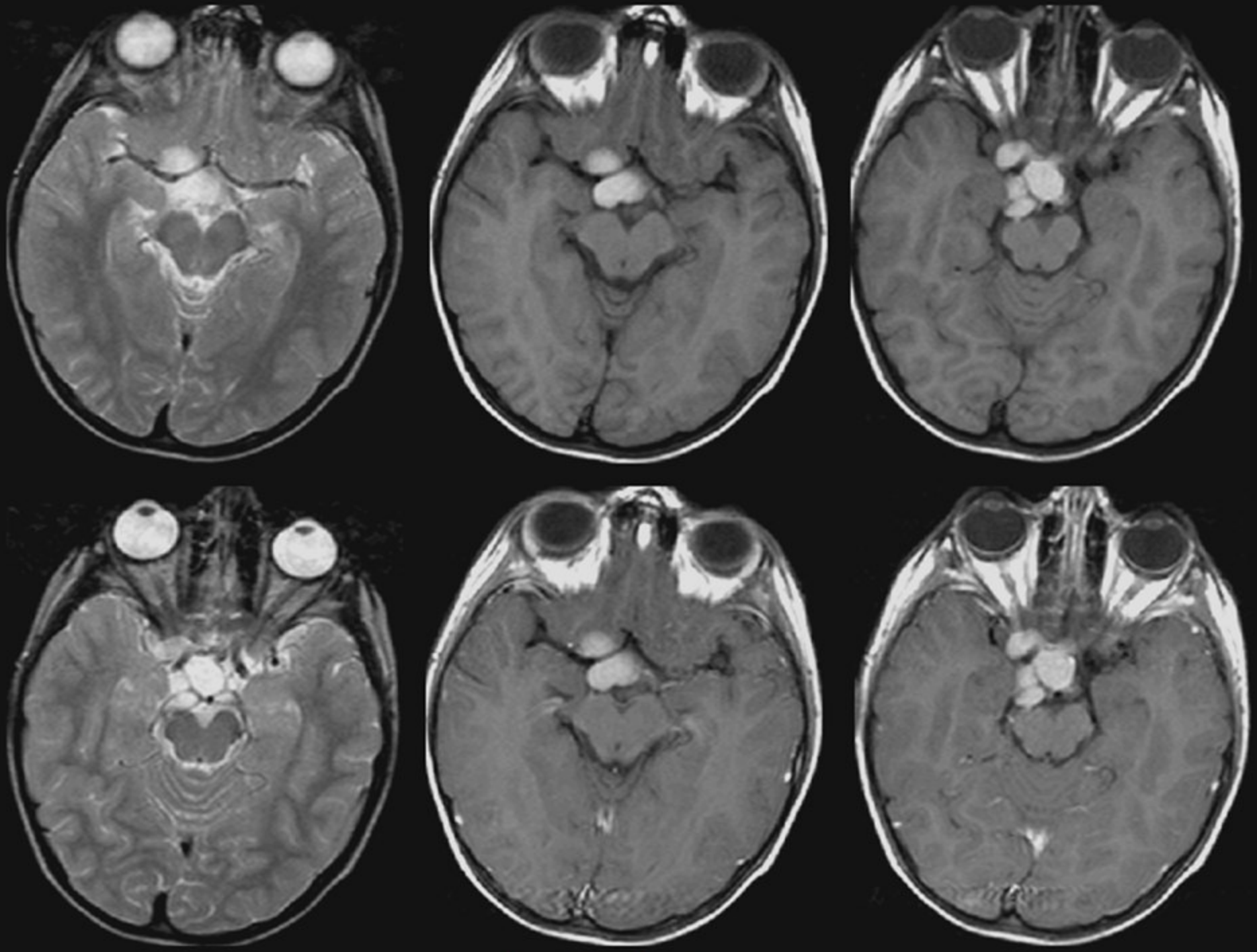
Suprasellar kalsifiye meningiom

Kraniofaringiom

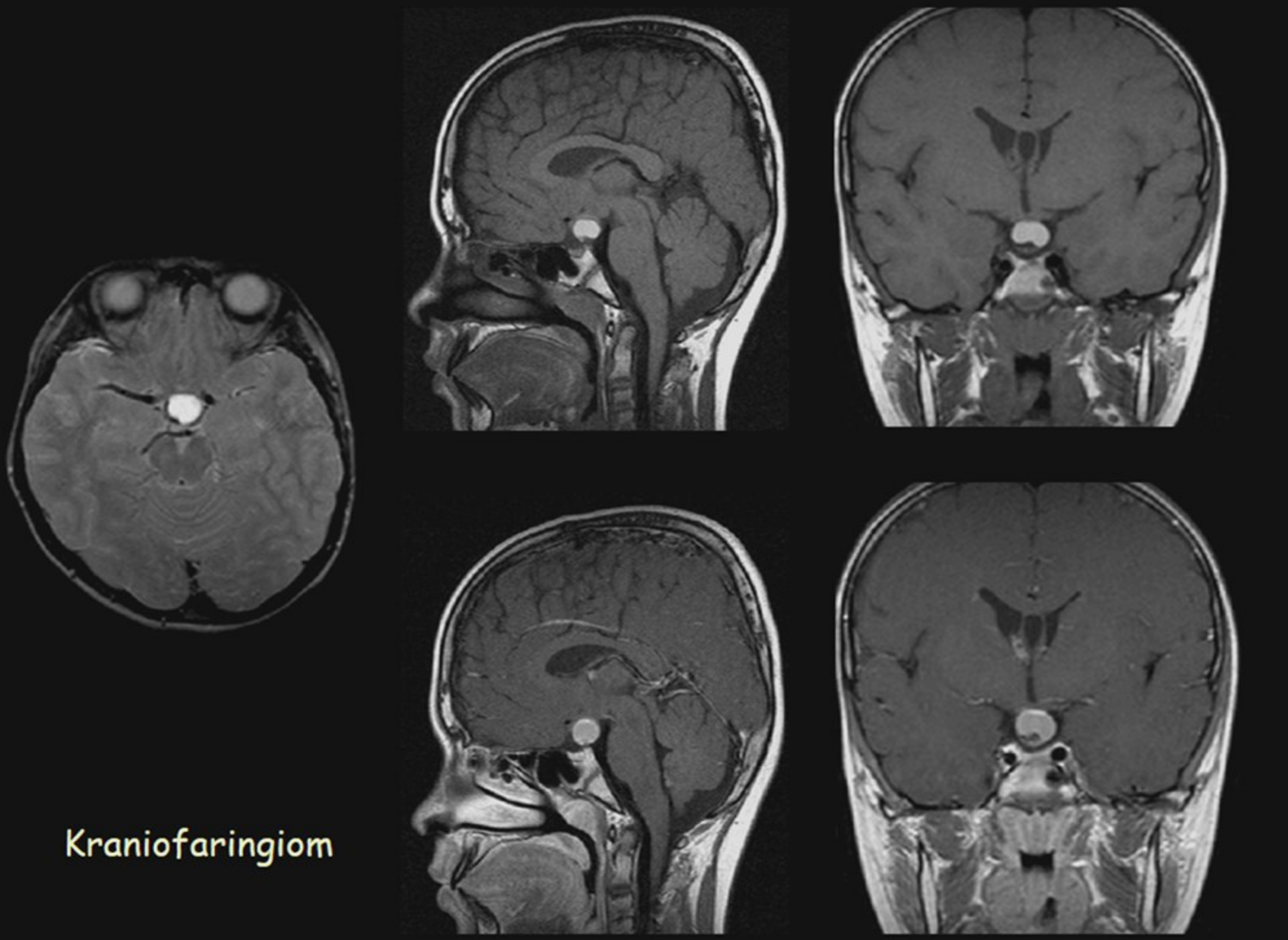
- İki tip
  - Adamantinomatöz (ped.)
  - Papillomatöz (adult)
- Benign, yavaş büyüme
- 90% kalsifikasyon +
- +C tutulum 90%
- Multikistik
- MRG: kanama, kolesterol, protein
  - T1W hiperintens
- Keratin, calcif.
  - T2W hipointens

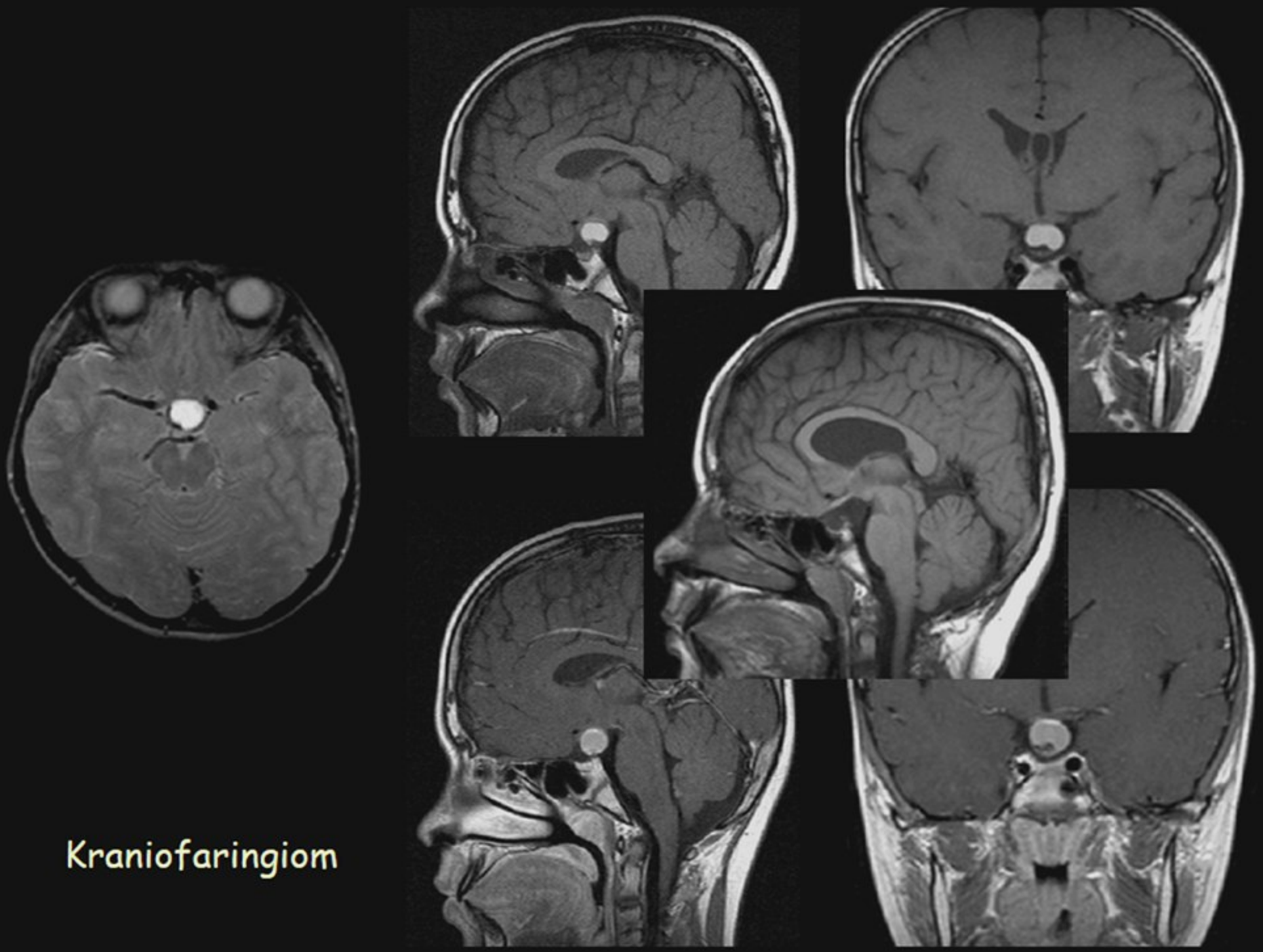


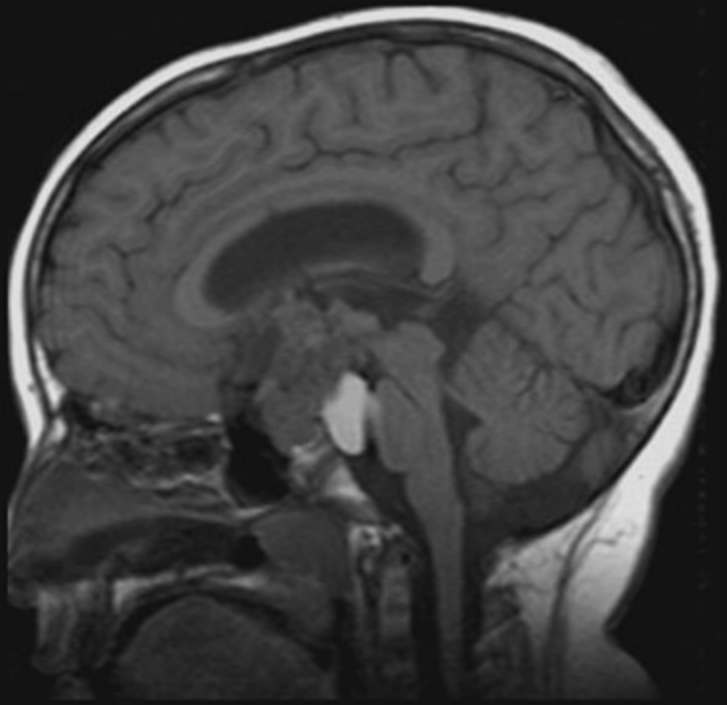
Kraniopharingiom

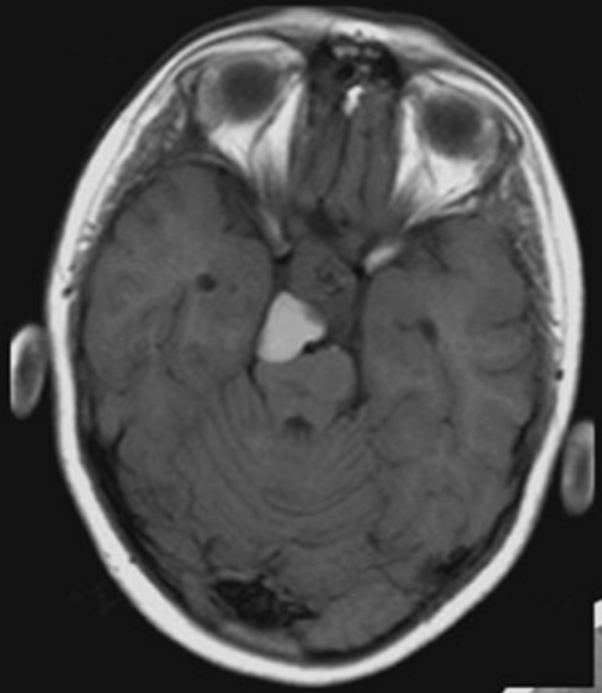


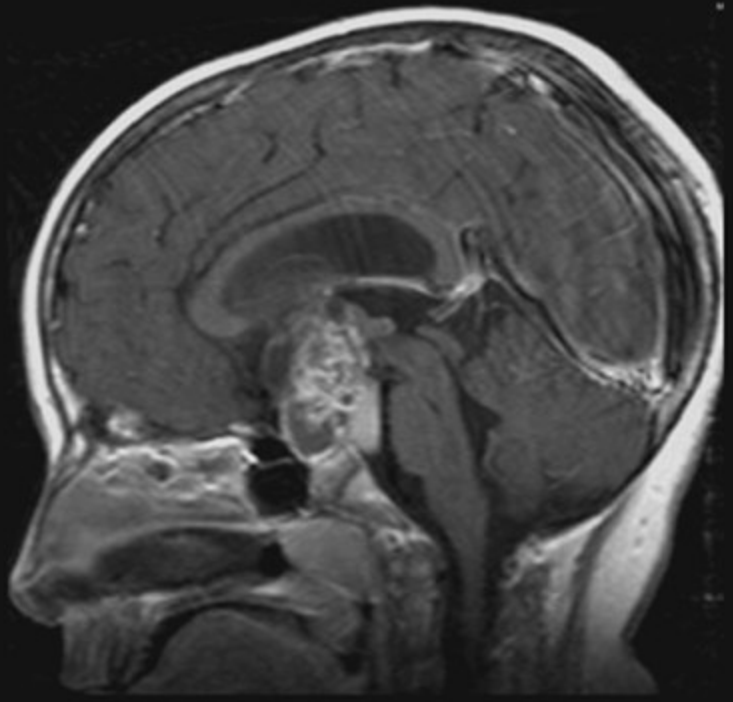
Kraniopharingiom


Kraniofaringiom

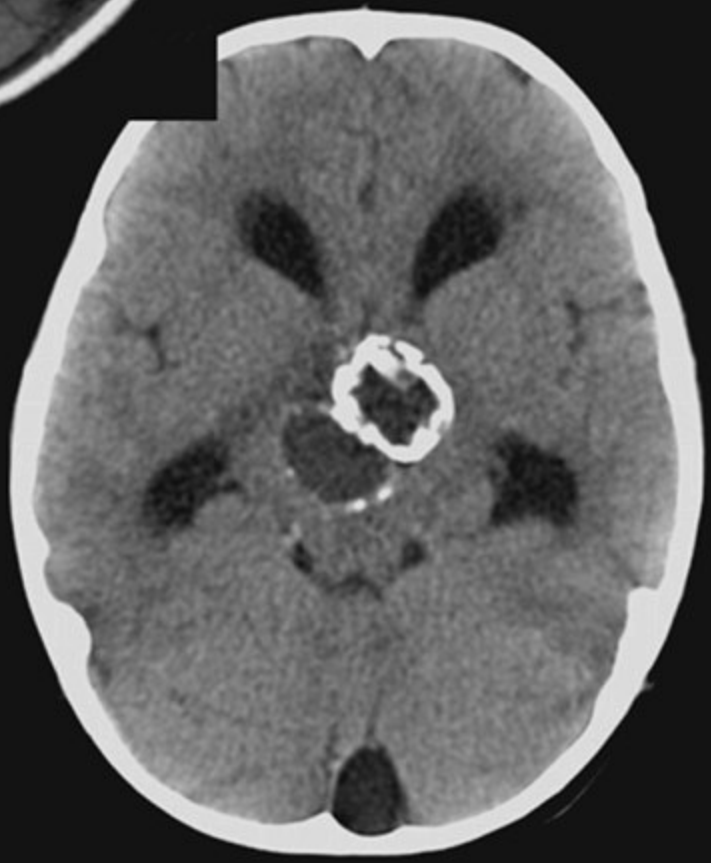

Kraniofaringiom

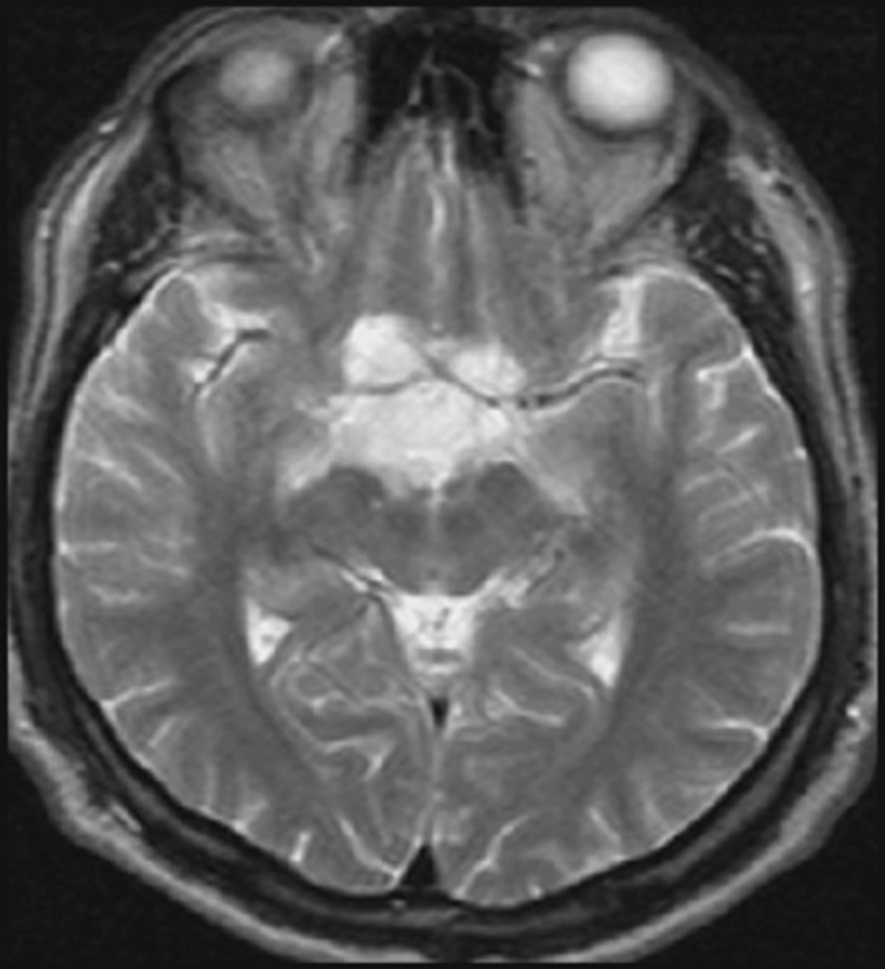


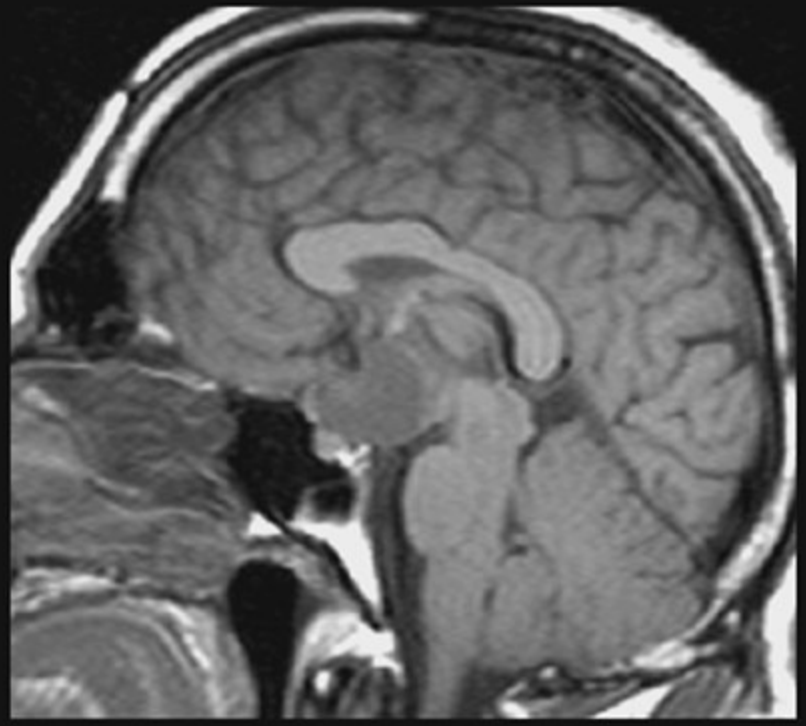


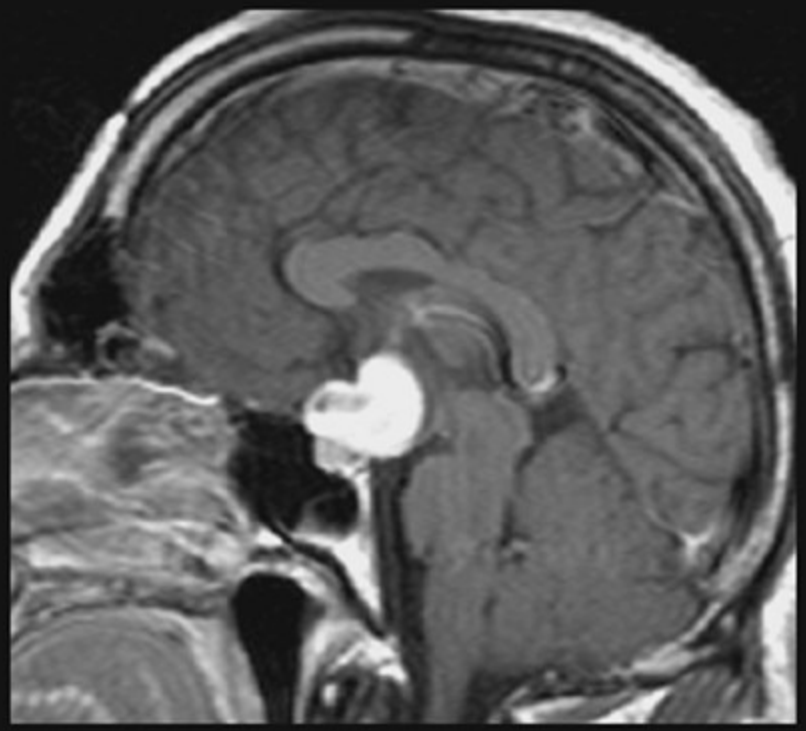


Kraniofaringiom

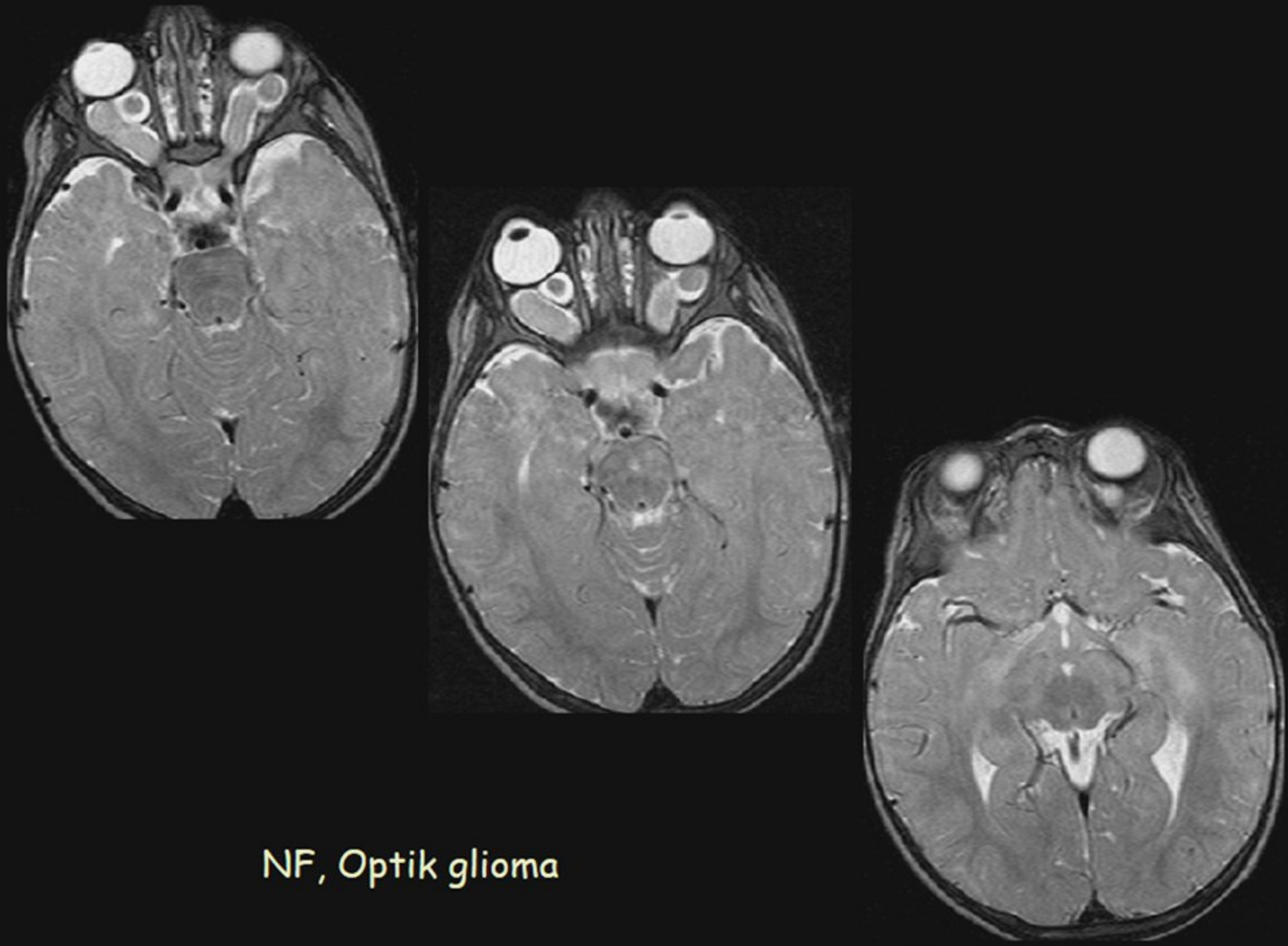




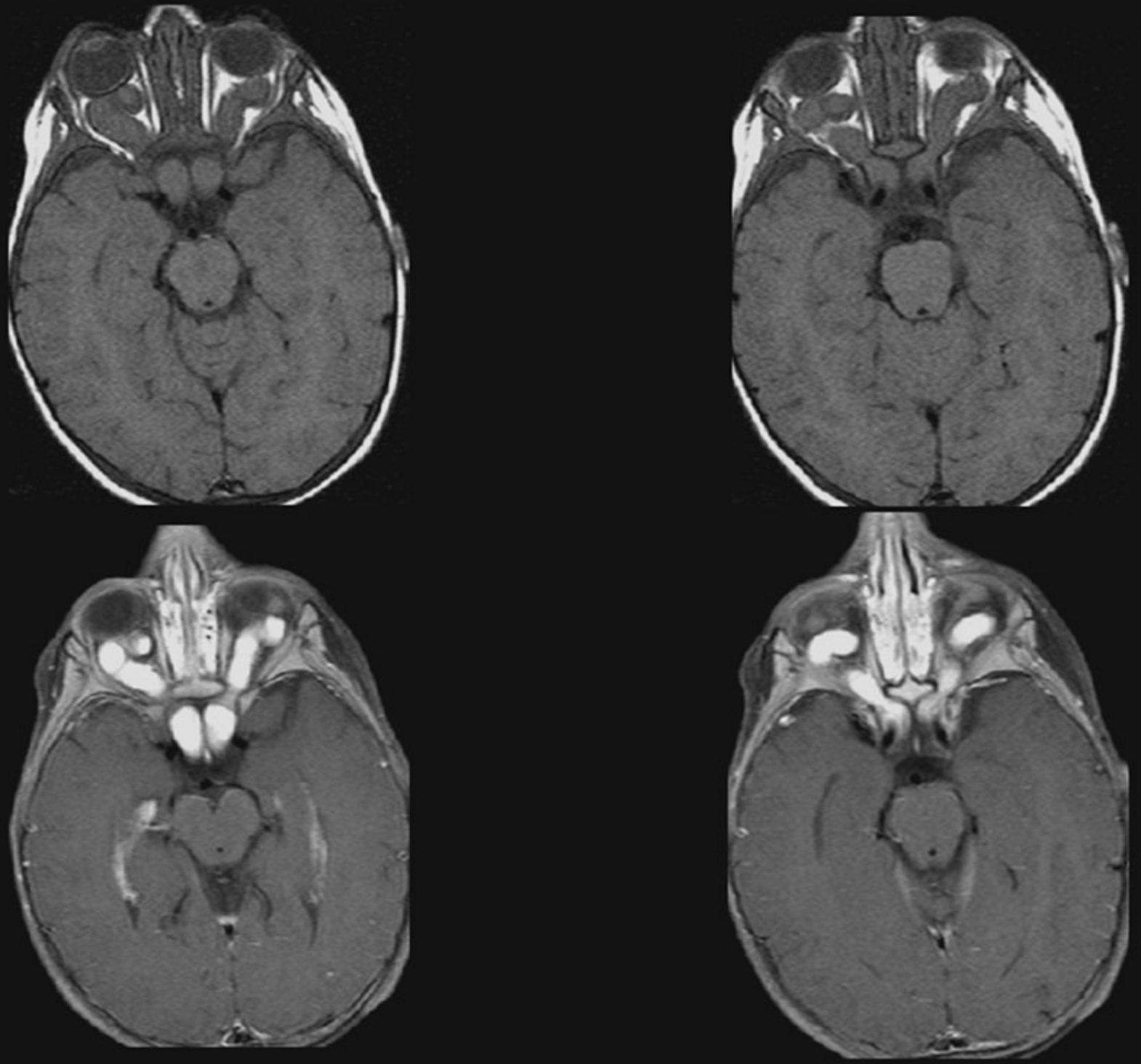




Optik glioma



NF, Optik glioma



Mesajlar

Posterior fossa:

- Orta hat tm, NCCT hiperdens, DAG kısıtlı
- Foramenlerden uzanan orta hat tm, kalsif. +, multikistik
- Hemisferik, mural nodul, CT hipodens
- Bilateral akustik schwannomlar

Mesajlar

Posterior fossa:

- Orta hat tm, NCCT hiperdens, DAG kısıtlı ➔Medulloblastoma
- Foramenlerden uzanan orta hat tm, kalsif. +, multikistik ➔Ependimo m
- Hemisferik, mural nodul, CT hipodens
- Bilateral akustik schwannomlar

Mesajlar

Posterior fossa:

- Orta hat tm, NCCT hiperdens, DAG kısıtlı ➔Medulloblastoma
- Foramenlerden uzanan orta hat tm, kalsif. +, multikistik ➔Ependimom
- Hemisferik, mural nodul, CT hipodens ➔Astrositom
- Bilateral akustik schwannomlar

Mesajlar

Supratentorial bölge:

·Frontotemporal kortikal tm, kitle etkisi yok,
Keskin konturlar, epilepsi +

·Suprasellar, T1W hiperintens, kalf +

·Suprasellar, optik sin. uzanım,

·Intraventriküler, beyin parankim invazyonu

·Pineal + suprasellar multisentrik kitleler

·DWI hiperintens extra-axial kitle

·DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofa
- Suprasellar, optik sin. uzanım,
- Intraventriküler, beyin parankim invazyonu
- Pineal + suprasellar multisentrik kitleler
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofarin
- Suprasellar, optik sin. uzanım,
- Intraventriküler, beyin parankim invazyonu
- Pineal + suprasellar multisentrik kitleler
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofaringiom
- Suprasellar, optik sin. uzanım, ➔ Optik glioma
- Intraventriküler, beyin parankim invazyonu
- Pineal + suprasellar multisentrik kitleler
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofaringiom
- Suprasellar, optik sin. uzanım, ➔ Optik glioma
- Intraventriküler, beyin parankim invazyonu
- Pineal + suprasellar multisentrik kitleler
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofaringiom
- Suprasellar, optik sin. uzanım, ➔ Optik glioma
- Intraventriküler, beyin parankim invazyonu ➔ Koroid pl ca
- Pineal + suprasellar multisentrik kitleler
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofaringiom
- Suprasellar, optik sin. uzanım, ➔ Optik glioma
- Intraventriküler, beyin parankim invazyonu ➔ Koroid pl ca
- Pineal + suprasellar multisentrik kitleler ➔ Germinoma
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

- Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi + ➔ DNET
- Suprasellar, T1W hiperintens, kalf + ➔ Kraniofaringiom
- Suprasellar, optik sin. uzanım, ➔ Optik glioma
- Intraventriküler, beyin parankim invazyonu ➔ Koroid pl ca
- Pineal + suprasellar multisentrik kitleler ➔ Germinoma
- DWI hiperintens extra-axial kitle
- DWI hiperintens intra-axial kitle

Mesajlar

Supratentorial bölge:

·Frontotemporal kortikal tm, kitle etkisi yok, Keskin konturlar, epilepsi +	➔ DNET
·Suprasellar, T1W hiperintens, kalf +	➔ Kraniofaringiom
·Suprasellar, optik sin. uzanım,	➔ Optik glioma
·Intraventriküler, beyin parankim invazyonu	➔ Koroid pl ca
·Pineal + suprasellar multisentrik kitleler	➔ Germinoma
·DWI hiperintens extra-axial kitle	➔ Epidermoid
·DWI hiperintens intra-axial kitle	