Identification

- Gender: female
- Age: 79-year-old
- Date of admission: 91/03/01

Chief complaint & present illness

- Been found to sleep on the ground after falling down
- She suffered from memory impairment and unsteady gait for 1 month
- Nausea and vomiting
- General weakness

Past, family and personal history

- Past history: Denied any systemic disease
- Family history: Not contributory
- Personal history: Denied smoking/drinking
  Denied allergy history

Physical & neurologic examination

- Vital sign: T/P/R—38.5/88/20
- BP—148/90
- Consciousness: delirium
- Orientation: oriented
- Memory: not test
- GCS: E4M6V4 (confused conversation)
- M.P & DTR: normal

Laboratory data

- 3/1 WBC:17950, NEUT:94%
- 3/5 WBC:11190, NEUT:90.6%
- 3/7 ESR, CEA, AFP, CA125, CA153, CA199– within normal range

Image finding

- Brain CT on 91.3.1
- Without enhancement
- A hypo-intense lesion on right temporo-parietal region
- High-attenuated mass situated in the right thalamus with white matter edema

Image finding

- Brain CT on 91.3.1
- With enhancement
- Brain swelling with right side lateral ventricle narrowing
- A high-attenuation mass in the temporo-pariatal area

Image finding

- MRI(T2WI) on 91.3.5
- A heterogeneous mass lesion in right temporo-parietal region with a peripheral rim of low signal intensity
- Surrounding high signal intensity in the adjacent white matter

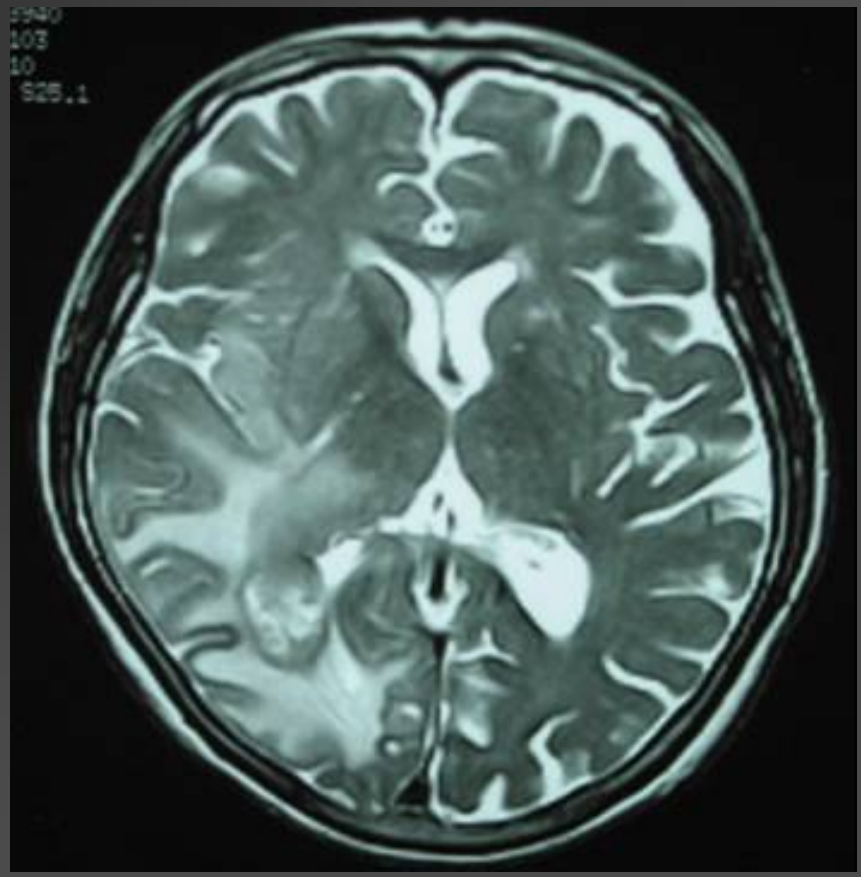


Image finding

- MRI(T1WI) on 91.3.5
- An irregular mixed signal intensity mass at right temporo-parietal area with marked peri-focal edematous change

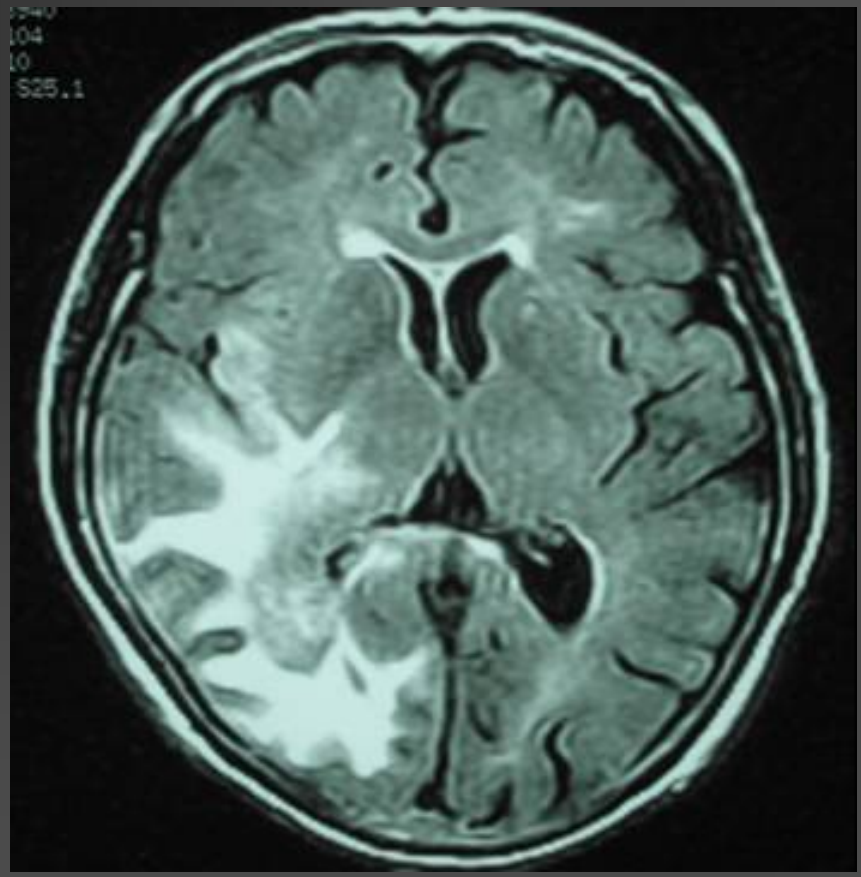


Image finding

- Sagittal MRI scan with contrast enhance
- 26mm in diameter

- MRA shows normal tributaries of bilateral carotid arteries

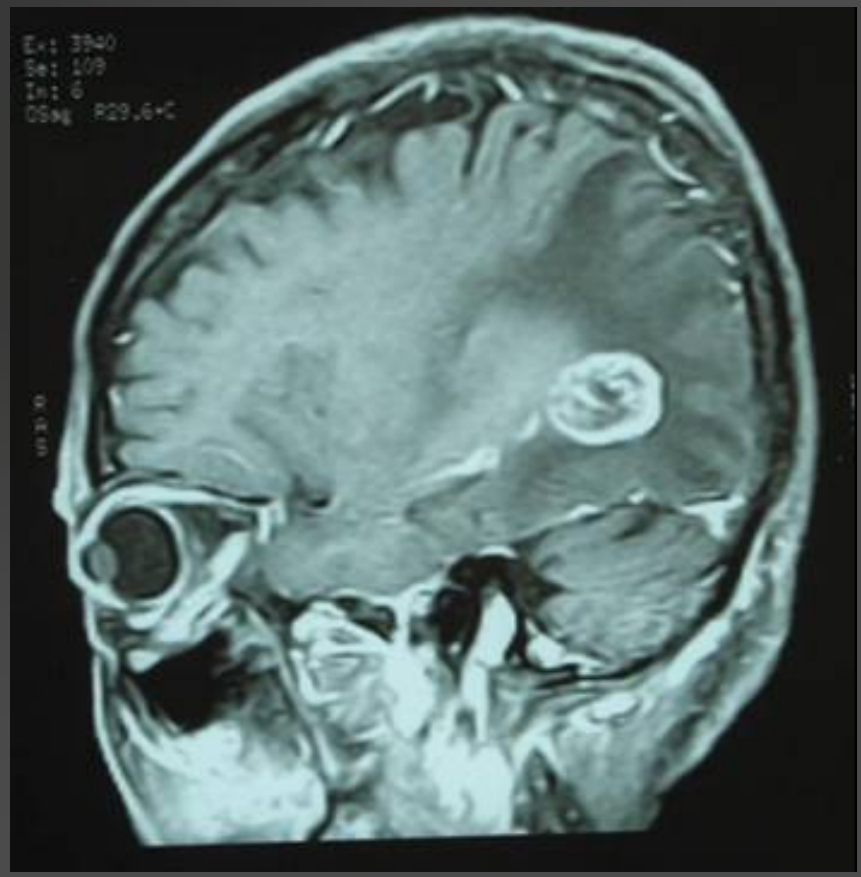
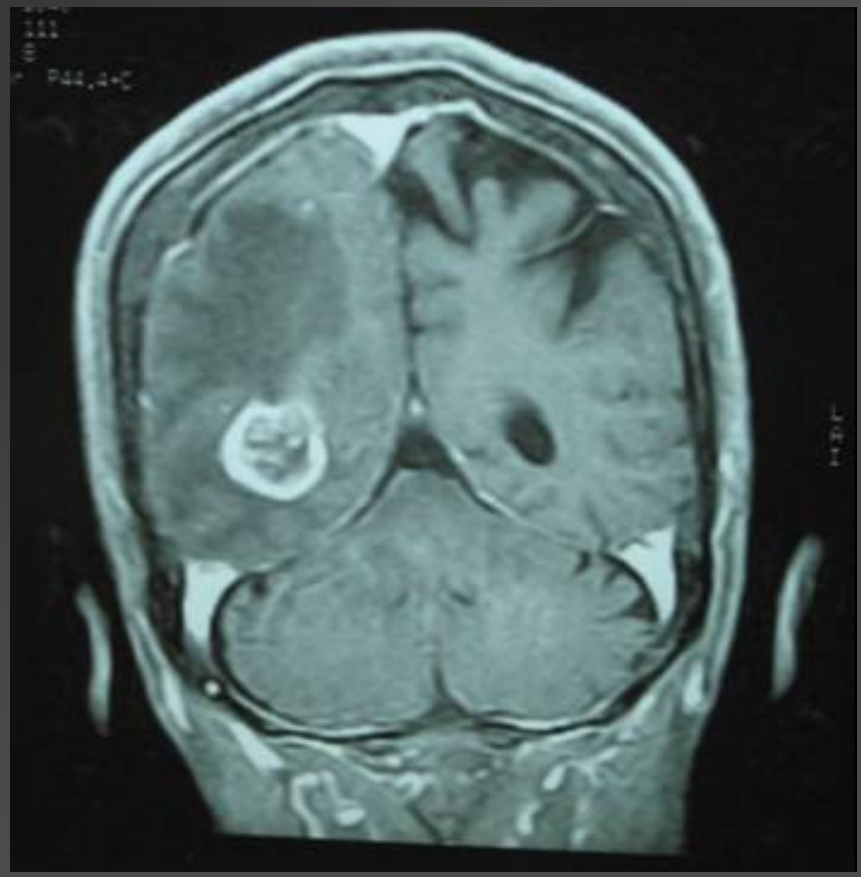


Image finding

- Coronal MRI scan with contrast
- 22*21mm in diameter
- Heteorgeneous contrast enhance of the right cerebral hemisphere mass



Differential diagnosis(1)

- Intra-axial lesion with marked edema: metastasis, abscess, glioma, radiation necrosis, mild hematoma
- Hemorrhagic tumors: GBM> metastasis> oligodendroglioma
- Ring-enhancement lesions: metastasis, abscess, glioma, infract, contusion, demyelinating disease, resolving hematoma

Differential diagnosis(2)

- Abscess: smooth ring, hyper-intense on T1WI, hypo-intense on T2WI
- Butterfly glioma: bihemispheric spread (CNS lymphoma or GBM) through corpus collosum, T2 hyperintense in corpus collosum or internal capsule→secondary to neoplastic spread

Pathology

- Glioblastoma multiforme with hyper-cellularity and moderately pleomorphic neoplastic cells in the fibrillary background. Mitoses can be found in the tumor cells.
- Focal prominent endothelium proliferation giving rise to glomeruloid appearance is also noted no necrosis is seen

Clinical course

- 3/1 brain CT, R/O brain tumor or abscess, admission
- 3/2 arrange brain MRI, antibiotics given
- 3/4 fever subside, conscious clear
- 3/7 tumor marker negative
- 3/8 CT guide stereotactic brain biopsy
- 3/12 pathology report—GBM
- 3/18 start R/T

Glioblastoma multiforme

- Most malignant type and most common form of glioma
- Peak age: 44~55 y/o
- Most common location: deep white matter of the frontal lobe> temporal lobe and basal ganglion
- Classic appearance: expansile mass with central necrosis, ring enhanement, and a large surrounding region of white matter edema

Glioblastoma multiforme

- Non-contrast CT: heterogeneous and lobulated with marked white matter edema
- Necrosis, hemorrhage, calcification
- Contrast CT: 90% show at least some enhancement, usually irreular
- MRI: tumor nidus– dark on T1WI, bright on T2WI compared with gray matter