

Acute Ischemic Stroke as a Rare Complication in Glioblastoma Multiforme

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Learning Objectives

- To identify the potential of **ischemic stroke as a cause of neurological deterioration** in newly diagnosed Glioblastoma patients.
- To consider the **use of thrombolysis** in stroke patients with underlying Glioblastoma.

Case Description

- A 58-year-old man presented with 3 weeks of expressive aphasia, blurry vision, and severe headache.
- Past medical history is significant for essential hypertension and coronary artery disease. No history of cancer.
- Physical exam was notable for dense expressive aphasia with receptive aphasia without motor or sensory deficits noted.
- MRI showed large intra-axial mass infiltrating the left frontal and temporal lobes up to 9.5 cm highly suspicious for primary glioma with 13 mm left to right midline shift [Fig.1].

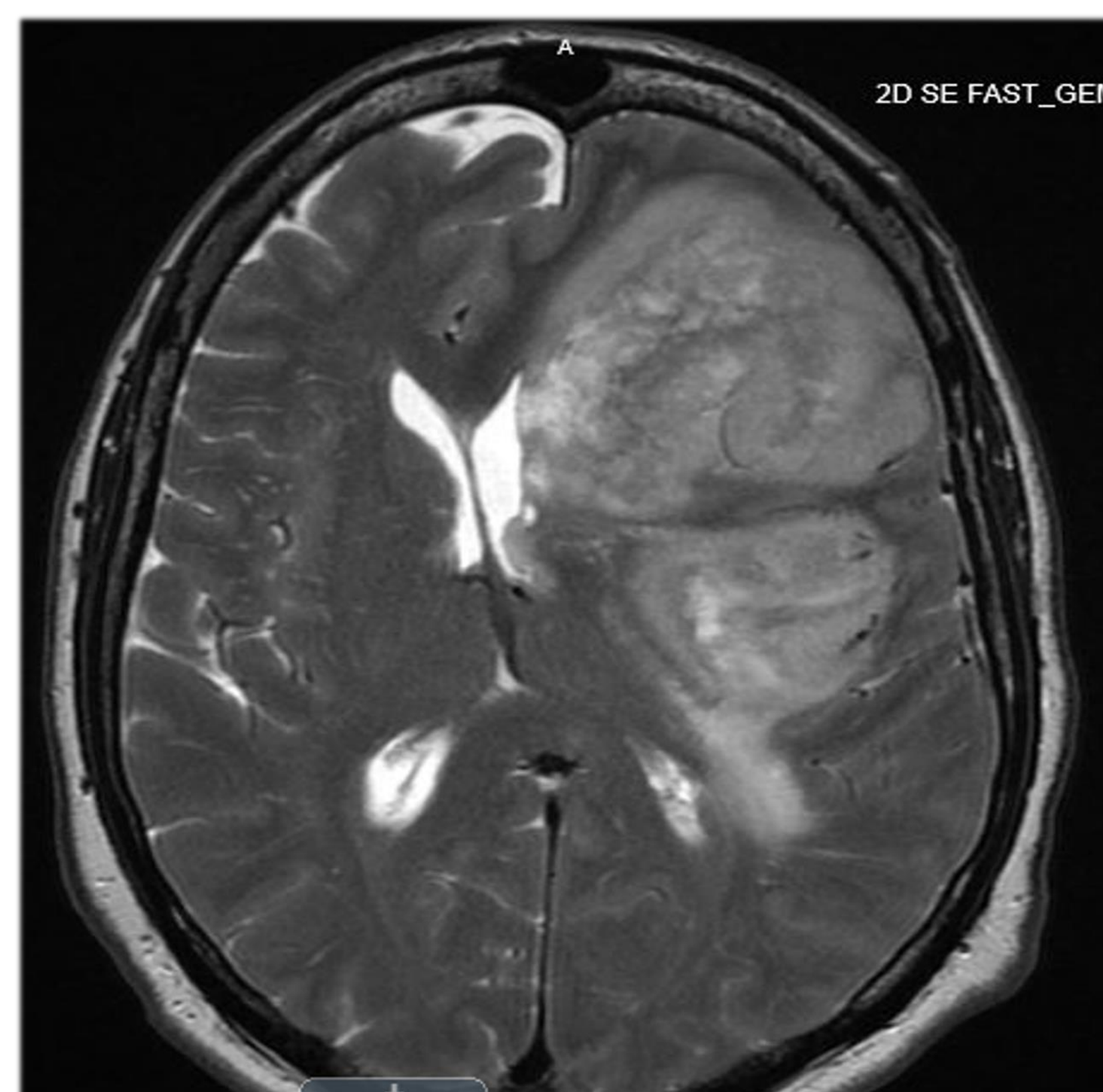


Fig.1:
Large mass consistent with primary glioma.

Hospital Course

- While inpatient, neurosurgery was consulted, and IV dexamethasone and Levetiracetam were started.
- Patient underwent surgical resection and pathological examination confirmed Glioblastoma Multiforme.
- MRI after surgery showed a slightly diminished midline shift with mild improvement in aphasia [Fig.2].
- On postoperative day 3, patient developed right-sided hemiparesis with marked aphasia, concerning for possible stroke.
- A repeat MRI showed acute left posterior frontal/parietal infarct [Fig.3].
- Given recent surgery and intra-axial brain tumor, decision to use thrombolysis was deferred due to the inevitable risk of intracranial bleeding.
- The patient's condition stabilized and he was discharged to a rehabilitation center with a plan to start radiotherapy and adjuvant Temozolomide therapy.

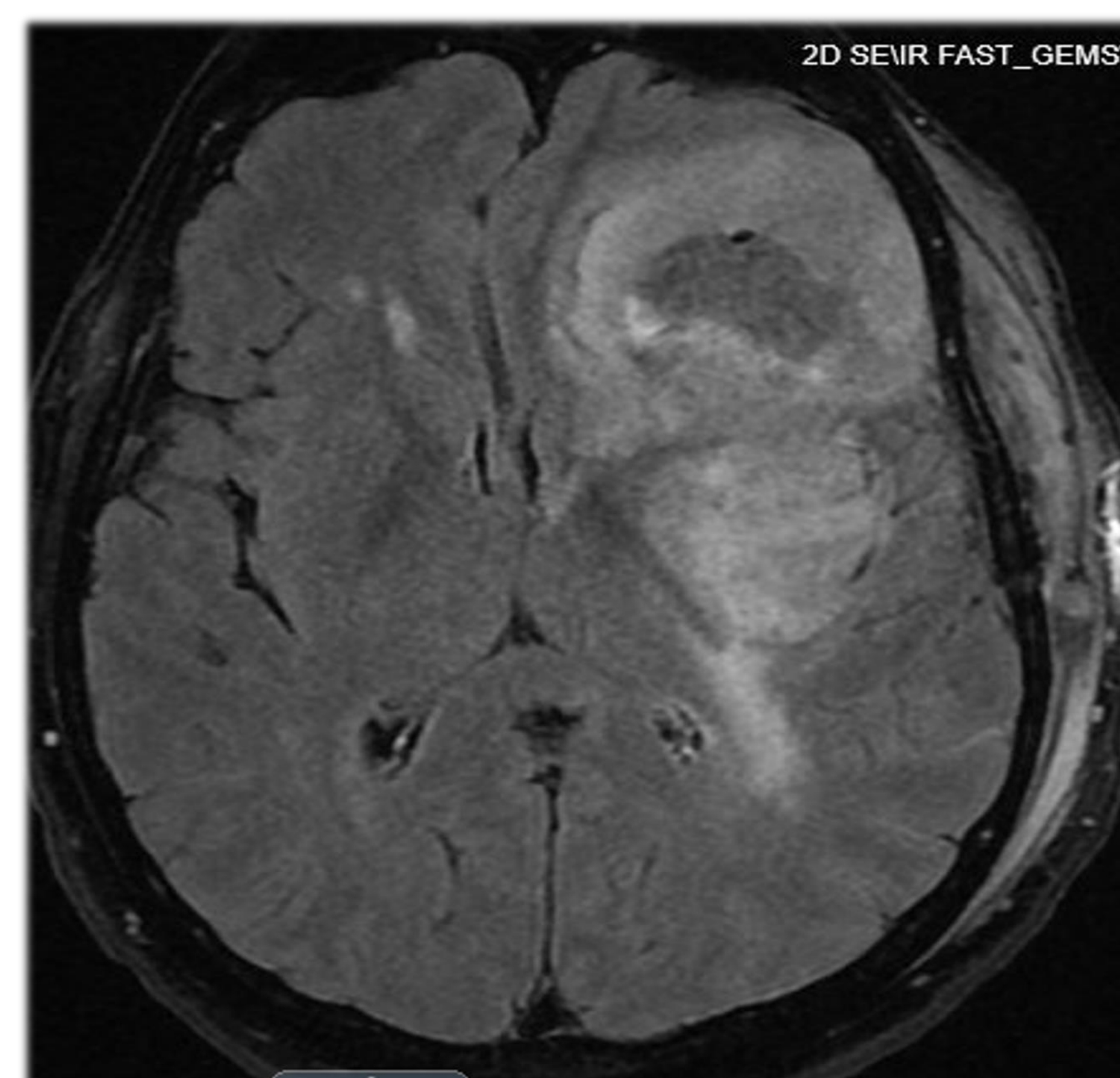


Fig.2:
MRI showing postoperative change and diminished midline shift from 13 to 9 mm

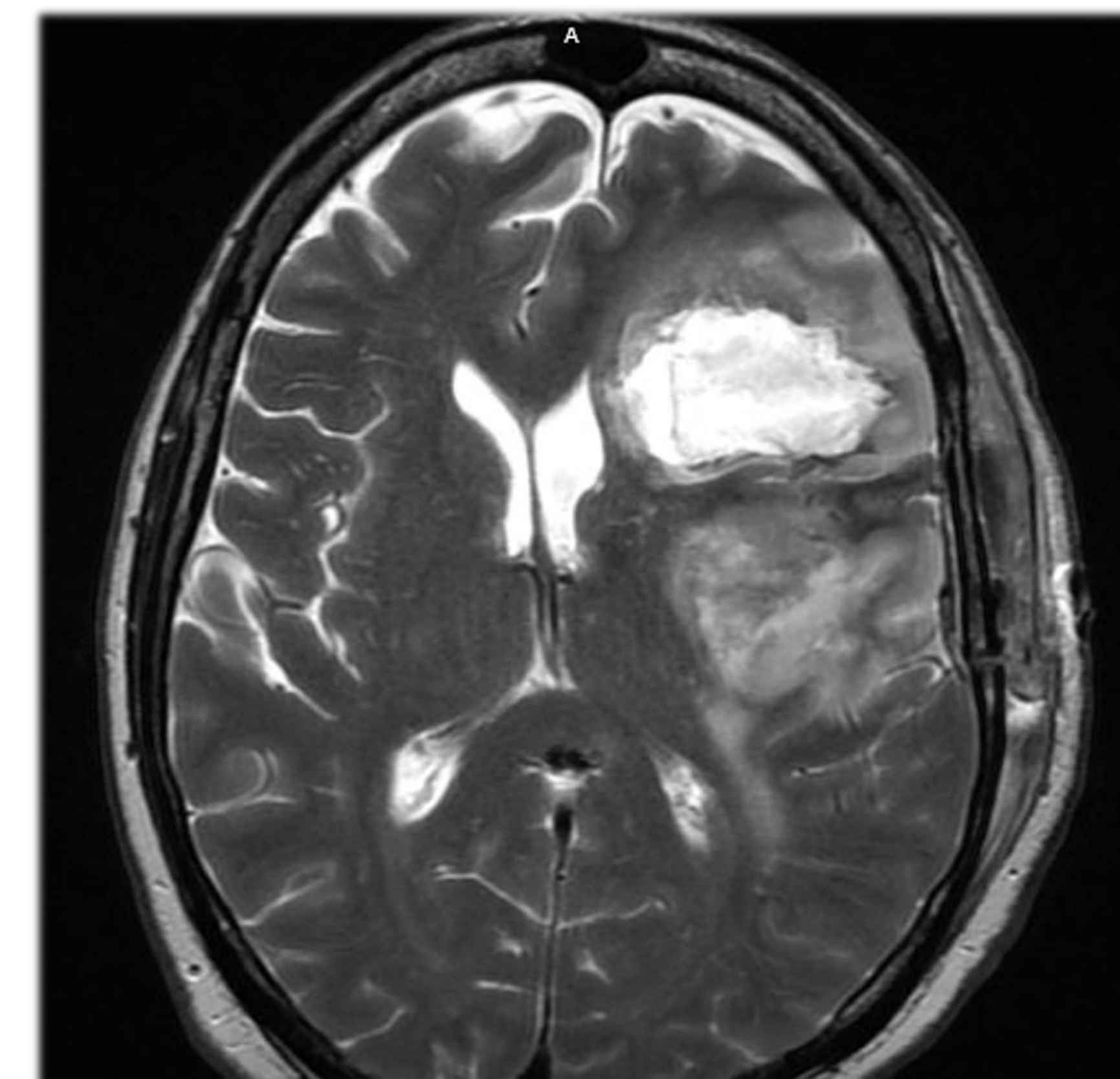


Fig.3:
New acute left posterior frontal/parietal infarct

Discussion

- Glioblastoma is the **deadliest and rarely curable form of gliomas** and resistant to chemotherapy /radiotherapy with unfavorable prognosis.
- Ischemic stroke is uncommon in Glioblastoma, with **> 50%** of cases reported postoperatively.
- **Possible mechanisms of ischemic stroke in glioma patients** include proliferating tumor pressure on arteries, general prothrombotic tendency by underlying active cancer.
- Diagnosis of cerebral ischemia is challenging due to the overlapping neurological deficits with the underlying tumor or postoperative change.
- **MRI is the best imaging modality** (CT findings can be masked by tumor cells).
- Intracranial surgery and intra-axial tumors are contraindications to intravenous thrombolysis.

Conclusion

- Ischemic stroke should be considered with any deterioration of neurological symptoms in postoperative glioma patients.
- Low index of suspicion may delay the diagnosis beyond the thrombolysis window.
- No current guidelines exist for treatment of ischemic stroke in glioma patients. Risks and benefits of intravenous thrombolysis should be weighed as treatment can markedly reduce complications and improve the patient prognosis.