

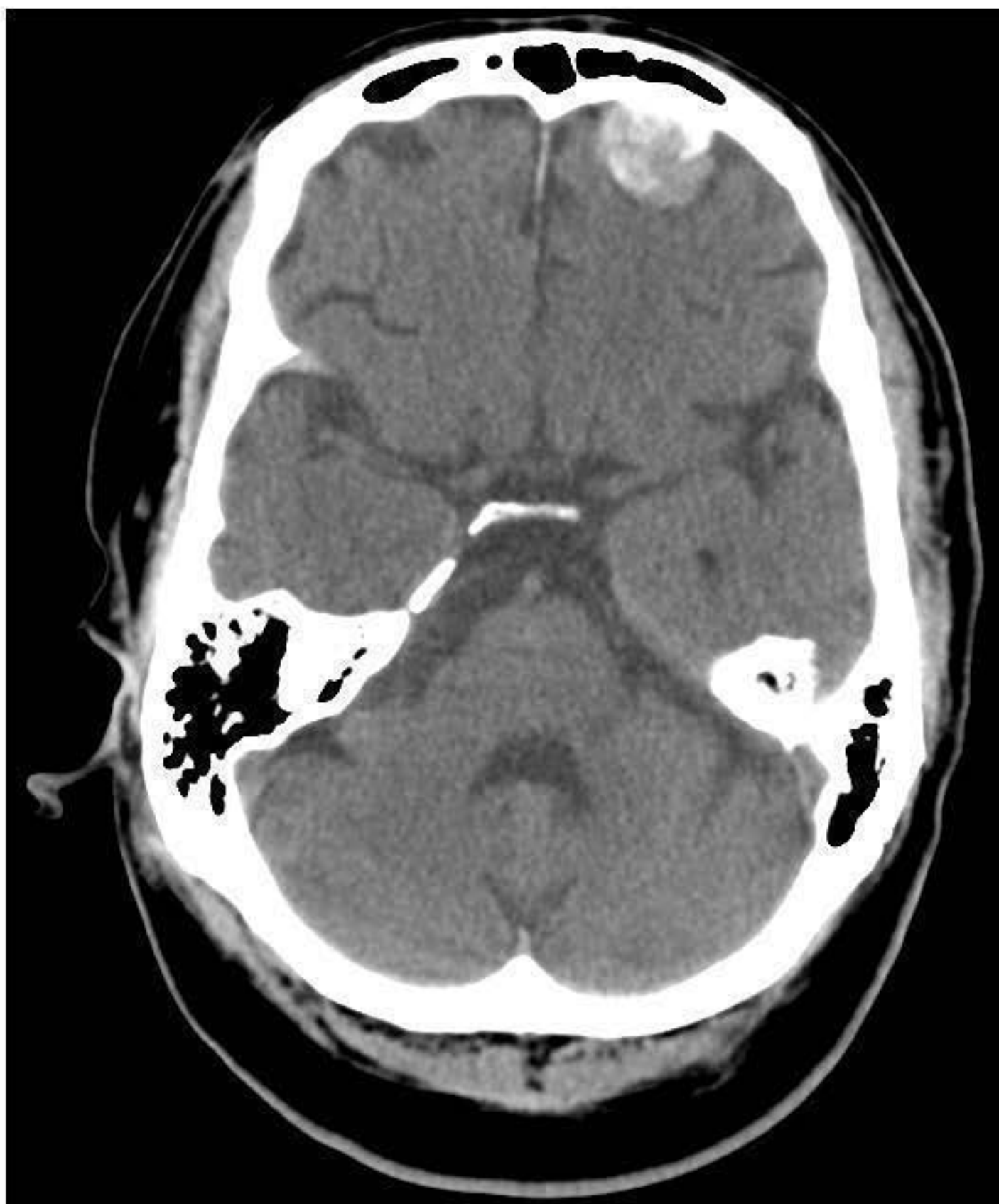
A 55-year-old woman is brought to the emergency department due to worsening headaches and right-sided weakness. The patient developed these headaches a month ago and since then has had continuous throbbing pain over the left side of her head that is associated with nausea. More recently, she has noticed increasing difficulty using her right arm and leg. The patient has had no trauma, neck stiffness, fever, double or blurry vision, or photophobia. She recently emigrated from Mexico with her family. She is a retired seamstress and admits to chronic tobacco use for many years. Her temperature is 36.7 C (98 F), blood pressure is 150/90 mm Hg, pulse is 84/min, and respirations are 14/min. Neurologic examination is significant for right-sided pronator drift. A non-contrast head CT scan reveals a partially calcified round extra-axial mass compressing the left frontal lobe, as shown in this [exhibit](#). The mass appears dural-based and homogeneously enhances on post-gadolinium MRI. Which of the following is the most appropriate next course of action in management of this patient?

- ☐ A. Chemotherapy
- ☐ B. Combination antitubercular therapy
- ☐ C. CT scan of the chest, abdomen, and pelvis
- ☐ D. Surgical resection
- ☐ E. Whole brain radiation



Media Exhibit

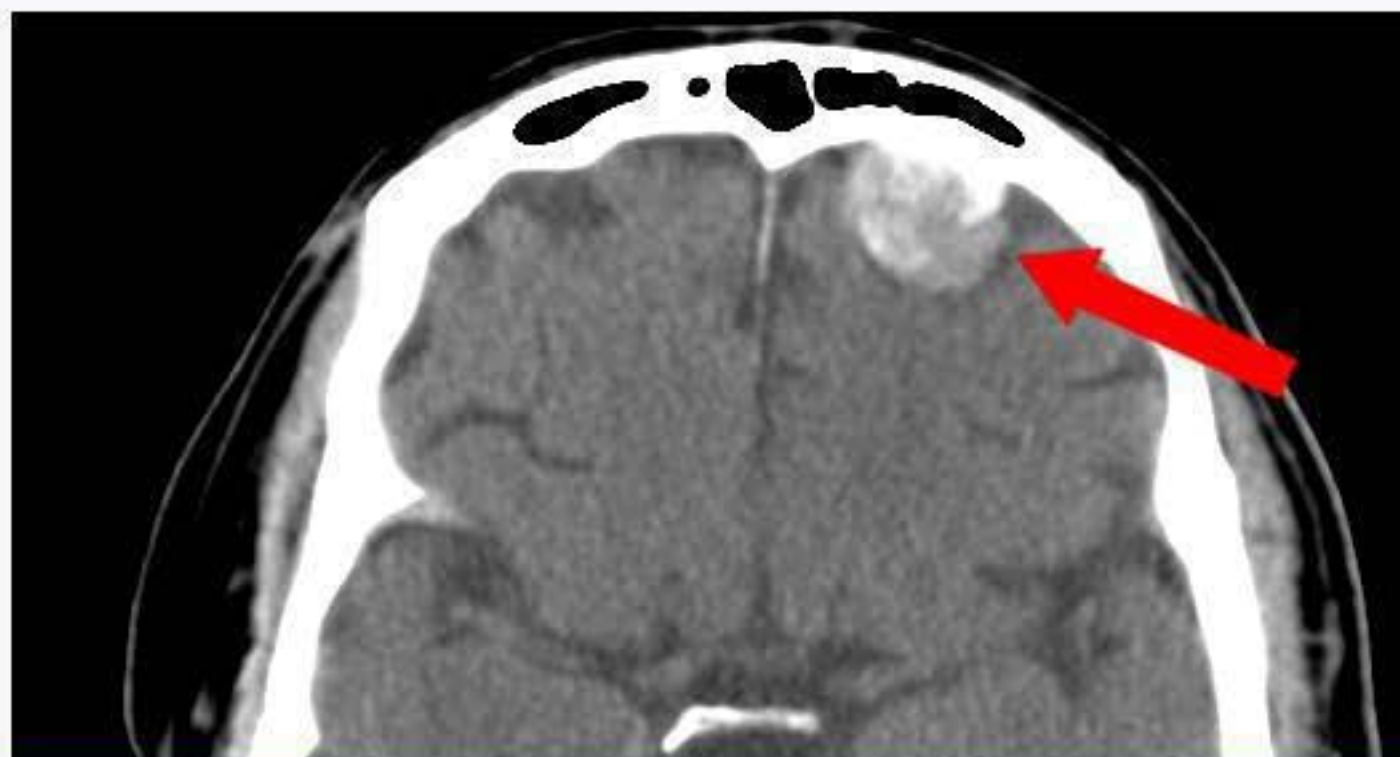
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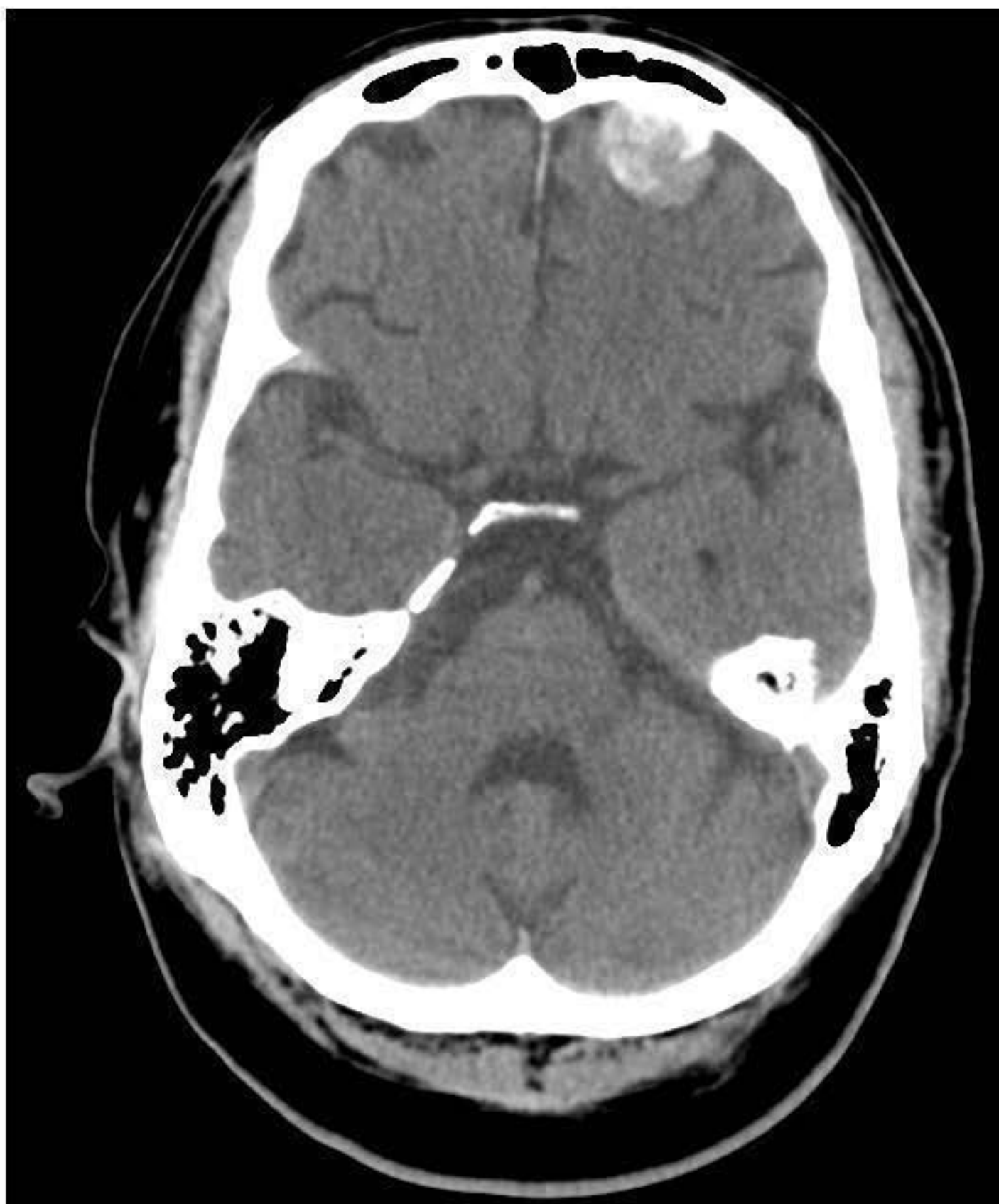
- ☐ A. Chemotherapy [2%]
- ☐ B. Combination antitubercular therapy [5%]
- ☐ C. CT scan of the chest, abdomen, and pelvis [26%]
- ☒ D. **Surgical resection** [65%]
- ☐ E. Whole brain radiation [1%]

[Proceed to Next Item](#)**Explanation:**User Id: [REDACTED]



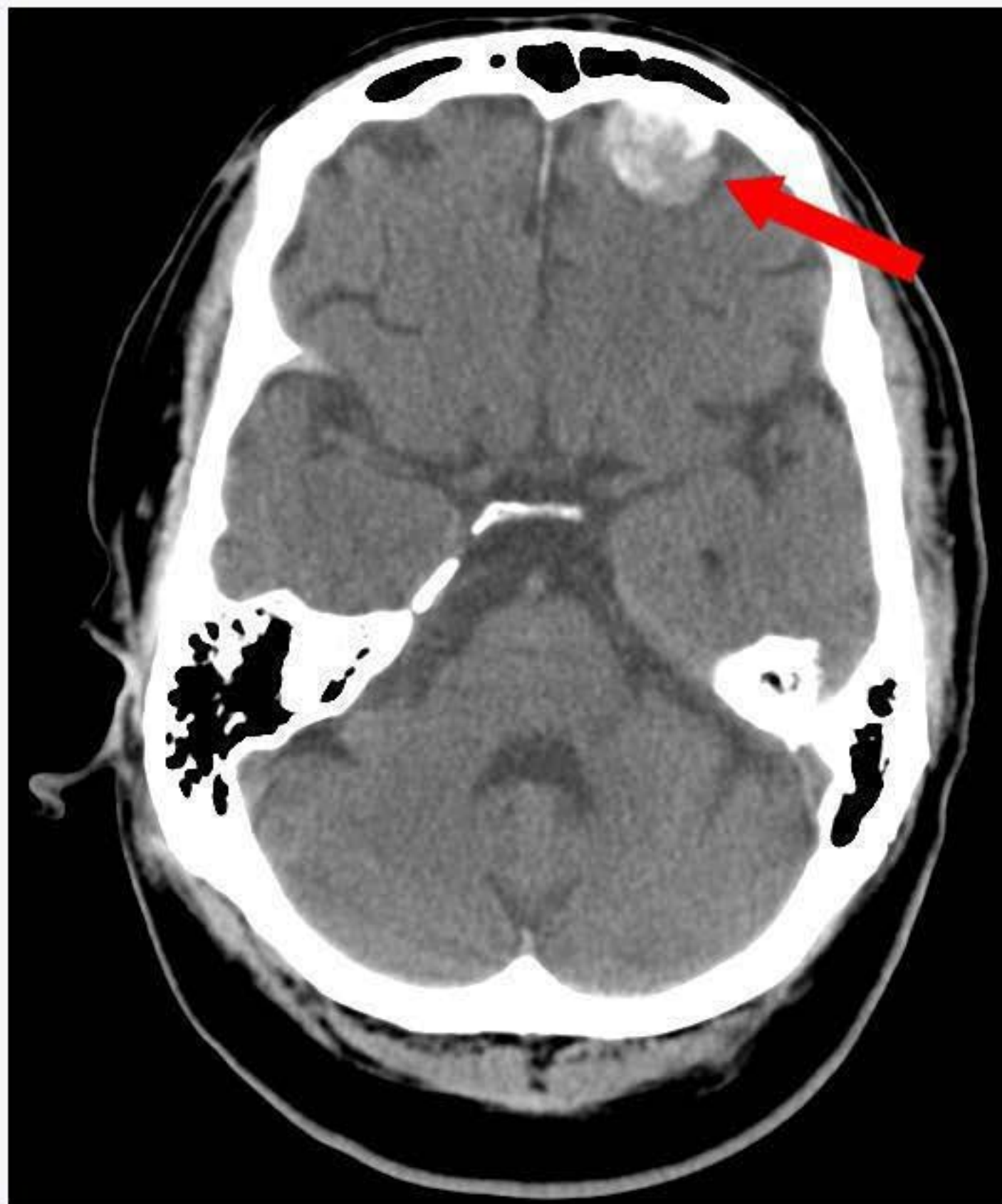
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Explanation:

User Id: [redacted]



This patient's presenting symptoms and imaging findings are consistent with an expanding intracranial neoplasm. The presence of an **extra-axial well-circumscribed** or round homogenously enhancing **dural-based** mass on **MRI** is strongly suggestive of a **meningioma**. These tumors usually undergo **calcification** and can appear hyperdense on non-contrast head CT scan (red arrow).

Meningiomas are considered to be **benign** primary brain tumors arising from meningotheial cells and are more commonly found in middle-age to elderly women.



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Meningiomas are considered to be **benign** primary brain tumors arising from meningotheial cells and are more commonly found in middle-age to elderly women. They can cause significant neurologic symptoms (eg, headache, seizure, focal weakness/numbness) if they become large enough to cause mass effect on critical neurovascular structures. The diagnosis of meningioma is confirmed intraoperatively and the treatment of choice in symptomatic patients is typically **complete resection** as this leads to a cure in most individuals.

**(Choice A)** Chemotherapy is not considered first-line treatment for meningioma. Chemotherapy may be coupled with surgical resection and radiation in patients with highly malignant primary brain tumors (eg, glioblastoma multiforme, medulloblastoma). It can also be considered in patients with highly chemosensitive metastatic brain disease (eg, due to testicular germ cell tumor).

**(Choice B)** Isoniazid, rifampin, pyrazinamide, and ethambutol may be used to treat tuberculosis, which can cause meningitis and rarely intracerebral tuberculoma in patients from endemic areas (eg, Mexico and other developing countries). Tuberculosis is less likely in this patient given the absence of systemic symptoms (eg, fever, weight loss, night sweats) or chronic cough.

**(Choice C)** CT scan of the chest, abdomen, and pelvis is usually done to look for a primary visceral malignancy in patients suspected of having metastatic brain disease. Brain metastasis, which is more common than primary brain tumor, typically appears as multiple ring-enhancing lesions at the grey-white junction (intra-axial).

**(Choice E)** Whole brain radiation is not indicated for the treatment of meningioma; rather, it is usually considered for the treatment of diffuse metastatic brain disease. Focused tumor radiation (stereotactic radiosurgery) may be considered for partially resected or unresectable meningiomas.

#### Educational objective:

The presence of an extra-axial well-circumscribed dural-based mass that is partially calcified on neuroimaging is strongly suggestive of a meningioma. Meningiomas are considered benign primary brain tumors; however, they can present with headache, seizure, and focal neurologic deficits due to mass effect. In such cases, complete surgical resection is recommended.



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#### References:

1. [Management of meningiomas.](#)



Media Exhibit

