54 Year Old Woman Found Unresponsive

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Initial imaging for an unresponsive patient?
A 54-year-old patient with a past medical history of DM Type I presented unresponsive for 7 hours and was found to be in DKA with severe AKI.

Stat CXR demonstrated increased bibasilar parenchymal radiodensities suggestive of infectious pneumonia or secondary to aspiration.

Head Imaging → **CT Head without IV contrast**
Approximately 4cm low-density region in the left internal capsule / basal ganglia
Mass like low-density region

Midline shift
CT of the head demonstrated an approximately 4cm low-density mass like region in the left internal capsule and anterior basal ganglia with surrounding edema.

Follow-up imaging?
An MRI of the brain with intravenous contrast was ordered for surgical planning. Pre-contrast, DWI, and FLAIR deferred by the Neurosurgical Service.
Lesion located by the anterior limb of the left internal capsule

- Central low intensity with peripheral enhancement
Midline shift (approximately 7mm)

Incomplete medial definition of ring-enhancement, indicative of an abscess
Abundant edema in left frontal lobe extending into left temporal lobe, low intensity.
Mild enlargement of right temporal horn, indicating developing hydrocephalus
Effacement of left lateral ventricle
Ring-enhancing lesion differential diagnosis?
DR MAGICAL

D: Demyelinating disease
R: Radiation necrosis or Resolving hematoma
M: Metastasis
A: Abscess
G: Glioblastoma
I: Infarct (subacute phase), Inflammatory (neurocysticercosis, tuberculoma)
C: Contusion
A: AIDS
L: Lymphoma (more common in immunocompromised)
Diagnosis?
Brain Abscess
Brain Accesses

• **Epidemiology:** High risk groups include patients with congenital heart disease, infective endocarditis, lung infection, sino nasal infections, dental abscess, systemic sepsis

• **Etiology:** Caused by pathogens growing within brain parenchyma (streptococcus 35-50%, sterile 25%, mixed, staph aureus and staph epidermidis following neurosurgery, gram negative in infants, listeria in pregnant women and older patients, GBS and E. coli in neonates, many other organisms can affect immunocompromised individuals)
Brain Accesses

- **Presentation:** Nonspecific. The classic triad of headache, fever, and neurological deficit is only present in 20% of brain abscess patients. Headache is the most common symptom. Changes in mental status often indicate severe cerebral edema and are a poor prognostic sign. Seizures develop in 25% of cases. Vomiting, papilledema, and unilateral cranial nerve deficits suggest increased ICP and are a contraindication to performing an LP.
Brain Accesses

• Diagnosis: CT with and without Intravenous Contrast, MRI with and without Intravenous Contrast (preferred), DWI, and blood cultures aid in diagnosis. Histopathology provides definitive diagnosis.

• Treatment: Neurosurgical intervention with drainage by stereotactic aspiration or craniotomy as well as initiation of broad spectrum intravenous antibiotics that can be adjusted based on pathogens
References