Table 1
Critical headache diagnoses for the EP

Diagnosis	Critical Clinical Features	Critical Diagnostic Tests	Critical Interventions	Comments
SAH	Sudden onset Maximal at onset Different than previous headaches	CT head LP	Neurosurgical consultation Blood pressure control Nimodipine Ventriculostomy	CT head and other neuroimaging modalities are insufficient to rule out the diagnosis
Occult trauma	Signs of abuse or neglect Anticoagulation or coagulopathy	CT head	Neurosurgical consultation Admission	Patients in at-risk populations may not volunteer a history of trauma
Bacterial meningitis	Fever Meningeal irritation Immune compromise Head and neck infection or instrumentation	CT head LP	Antibiotics Corticosteroids Isolation	Treatment should be initiated before diagnostic confirmation by CSF analysis if clinical suspicion is high. Corticosteroids should be initiated before or with the first dose of antibiotics in clinically apparent cases
TA	Jaw claudication Superficial temporal artery tenderness or nodularity Visual symptoms	Temporal artery biopsy	Systemic corticosteroids	ESR is an adequately sensitive screening test in patients without these high-risk features. Empirical corticosteroids are indicated in patients with high-risk features and findings or a markedly increased ESR
CO toxicity	Symptomatic cohabitants Flulike illness that is worse each morning Potentially toxic environment (eg, home furnace in winter)	Arterial cooximetry	HBOT	HBOT is indicated for patients with neurologic and cardiovascular signs and above certain cutoff levels
Acute glaucoma	Red eye Midrange fixed pupil Cloudy cornea	Intraocular pressure	Topical ocular therapy Systemic osmotic agents Ophthalmologic consultation	A cursory examination before neuroimaging should prevent costly delays in consultation and therapy

Cervical artery dissection	SAH-like onset Facial (carotid), neck (vertebral) pain Cranial nerve abnormalities	Angiography	Neurologic/ neurosurgical consultation Anticoagulation	In the absence of brain hemorrhage, anticoagulation is initiated to reduce the risk of thrombus formation and embolization
Cerebral/dural VST	Hypercoagulable state (pregnancy and puerperum, oral contraceptives, malignancy) Head and neck infection Proptosis (cavernous sinus thrombosis)	MR head Venography	Neurosurgical consultation Systemic anticoagulation	A D-dimer may be falsely negative
Space-occupying lesion	Progressively worse over time New onset in patient >50 years old History of malignancy Worse in morning Worse in head-down position	CT head	Neurosurgical consultation ICP-lowering therapies Lesion-specific therapies	Emergent ICP-lowering therapies may include elevating the head of the bed, restriction of intravenous fluids, mannitol, and hyperventilation Lesion-specific therapies may include emergent surgery/ neuroradiological procedures, corticosteroids, and antimicrobial agents
Cerebellar infarction	Headache with dizziness Cerebellar signs Cranial nerve abnormalities	CT head	Neurologic/ neurosurgical consultation	Although CT head is insensitive for infarction, it is helpful initially to rule out hemorrhage and identify life-threatening edema and mass effect
Idiopathic intracranial hypertension	Obese, young female patient Cranial nerve 6 palsy (false localizing sign)	LP	CSF drainage Neurologic referral	After negative neuroimaging, an LP will reveal a markedly increased opening pressure and provide temporary headache relief
Pituitary apoplexy	Thunderclap headache Vomiting Visual acuity, field deficits Ocular palsies	CT head MR head	Neurosurgical consultation	Many pituitary infarctions and hemorrhages will not be easily visible on CT. MR is considered the diagnostic modality of choice
Preeclampsia	Postpartum (up to 4 weeks)	Complete blood count Chemistry panel with Liver function tests Coagulation studies	Intravenous magnesium Obstetric consultation	Up to half of all patients present in the postpartum period, the majority with a chief complaint of headache

Abbreviations: CSF, cerebrospinal fluid; CT, computed tomography; ESR, erythrocyte sedimentation rate; HBOT, hyperbaric oxygen therapy; ICP, intracranial pressure; LP, lumbar puncture; MR, magnetic resonance; TA, temporal arteritis; VST, venous sinus thrombosis.