Online-Only Supplemental Materials (Case Descriptions for Misdiagnosed Patients*)

Case 1. A <30-year-old presented to a hospital ED with headache, nausea, vomiting, and generalized weakness. No detailed neurologic examination was documented, and the patient was admitted with a presumed diagnosis of viral gastroenteritis. During admission, conventional treatment for gastroenteritis (hydration, etc.) was administered, but the symptoms failed to improve. Spinal fluid examination to rule out meningitis and subarachnoid hemorrhage was normal. On the 3rd hospital day, nausea and vomiting persisted, and (s)he was not able to walk without help due to imbalance. At that time, head CT was performed and a cerebellar hemorrhage involving the vermis was found. An associated arteriovenous malformation (AVM) and mild hydrocephalus were also detected. (S)he was transferred to another ED with alert mental state and a Glasgow coma scale of 15 on arrival. (S)he underwent emergent posterior fossa decompression with evacuation of cerebellar hemorrhage and AVM resection. (S)he recovered well and had a nearly normal examination at last follow-up.

Case 2. A >50-year-old with a several-year history of systemic lupus erythematosus and arthritis visited a primary care clinic with a 2-day history of nausea and anorexia. (S)he was found to be hypertensive (180/110 mmHg). No other abnormal physical findings were noted; no detailed neurologic exam was documented. (S)he was diagnosed with systemic hypertension and prescribed an antihypertensive agent. However, the symptoms gradually increased, and two days later, (s)he visited an ED with altered mental state (disorientation at arrival) and lethargy with nausea and vomiting. Emergent head CT was performed, and right cerebellar hemorrhage involving the dentate nucleus with mild hydrocephalus was detected. (S)he underwent emergent posterior fossa decompression with evacuation of the hemorrhage. (S)he recovered, but mild imbalance persisted.

Case 3. A <40-year-old presented to the primary care clinic with headache, nausea, vomiting, and dizziness. No abnormal physical findings were noted; no detailed neurologic exam was documented. (S)he was given a presumed diagnosis of viral gastroenteritis. (S)he later visited the ED and was admitted. Despite conventional treatments for gastroenteritis, the symptoms failed to improve. On the 5th hospital day, nausea and vomiting persisted and (s)he was not able to walk without help due to imbalance. (S)he underwent head CT, revealing an intracranial hemorrhage involving the midline cerebellum. An associated cavernous hemangioma and mild hydrocephalus were also detected. (S)he was transferred to another ED. On arrival, (s)he was described as mildly drowsy with a Glasgow coma scale of 15. (S)he underwent emergent posterior fossa decompression with evacuation of the cerebellar hemorrhage. (S)he recovered well and had a nearly normal examination at last follow-up.

Case 4. A >60-year-old with hypertension, gout, and arrhythmia who was taking antihypertensive and anticoagulant (Coumadin) medications visited a hospital ED with nausea, vomiting, and mild abdominal pain. No abnormal physical findings were noted; no detailed neurologic exam was documented. (S)he was admitted with a presumed diagnosis of viral gastroenteritis. During hospital admission, conventional treatment for gastroenteritis (hydration, etc.) was administered, but the patient's symptoms failed to improve. On the 2nd hospital day, (s)he was noted to have altered mental state with disorientation along with persistent nausea and vomiting. Head CT was then performed, revealing an intracranial hemorrhage involving the right cerebellum along with obliteration of the fourth ventricle, mild hydrocephalus, and subarachnoid extension of the hemorrhage. (S)he underwent emergent posterior fossa decompression with evacuation of the hemorrhage and right cerebellar hemisphere resection. (S)he recovered well and was transferred to a nearby facility.

Abbreviations

CT – computerized tomography; ED – emergency department

** Case demographics have been concealed to protect the identities of the patients involved.*