A RARE COMPLICATION SUBARACHNOID HEMORRHAGE SECONDARY TO PNEUMOCOCCAL MENINGITIS
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Introduction: Acute bacterial meningitis (ABM) is a medical emergency. About one third of patients develop complications from the disease and some suffer long term sequelae. Cerebrovascular complications are relatively uncommon. Thrombosis, vasculitis, acute cerebral hemorrhage, and aneurysm formation are potential complications of bacterial meningitis. Subarachnoid hemorrhage is the rare cerebrovascular complication which has been described in isolated reports. Herein we describe patients with acute Streptococcus pneumoniae meningitis who developed acute subarachnoid hemorrhage (ASAH) which is rarely reported in previous literatures.

Objectives: Case presentation: A 67-year-old diabetic woman with history of recent pulmonary embolism taking warfarin presented with altered mental status for 6 hours. There was no reported history of fever, muscle weakness, visual change, headache or recent head trauma. Vital signs were afebrile with BP 125/67 mmHg , HR 100/min, RR 16/min. She developed generalized tonic clonic seizure at the emergency room. Complete postictal neurological examination revealed E3V2M4 Glasgow coma score and stiff neck without papilledema or focal neurological deficit. Given the possibility of acute bacterial meningitis, empirical antibiotics and systemic steroid were given. CT scan of the head to evaluate for acute stroke and subarachnoid hemorrhage (SAH) was unremarkable. Subsequently, cerebrospinal fluid (CSF) studies showed cloudy appearance, nucleated cell 7321 (segment 91%, lymphocyte 8%), RBC 613, glucose 43, protein 72 without gross blood or xanthrochromia. Microbiological examination of the CSF revealed Streptococcus pneumoniae. She remained in broad spectrum empirical antibiotics pending sensitivity result. After 48 hours of admission, her mental status was getting worse with new positive Babinski’s sign on the left side. Repeated CT scan of the head was performed and showed subarachnoid hemorrhage in the left sylvian fissure and parietal region. Cortical high density, consistent with hemorrhage in the left frontal and parietal and right parietal cortex. CT angiogram of the brain showed no aneurysm or ruptured vessel. Her INR was 2.3 at the time. Warfarin was stopped and fresh frozen plasma was transfused to normalize INR. Her neurological status was improving but she remained ventilator dependent. She was eventually discharged to a long-term facility after tracheostomy.

Methods: None

Results: Discussion: ASAH is a rare complication of ABM in adult. There have been very limited literatures describing ASAH in this patient population. True incidence is unknown. Patients who develop cerebrovascular complications from ABM, in general, have poorer prognosis than those without complications. Mechanism is thought to be from vessel erosion or aneurysm formation with subsequent rupture associated with inflammatory reaction in subarachnoid space from ABM. ABM has been shown to be associated with both subclinical and clinical changes in blood vessels demonstrated by angiography. The abnormal findings include vessel wall irregularities, arterial occlusions, focal arterial bleeding or dilatation and venous thrombosis. Patients can present with new focal neurological deficit, persistent coma with appropriate antibiotics or abnormal CT scan of the head without new symptoms. In our patient
who was also taking warfarin with therapeutic INR during the time ASAH was diagnosed, the bleeding could be multifactorial. However, whether one should hold warfarin in patients with ABM is unknown.