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Severe Refractory Vasospasm Associated with Bacterial Meningitis

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Introduction

Bacterial meningitis is a relatively common presentation of central nervous system infection in children. Cerebrovascular compromise has been reported during the acute phase of meningitis although meningitis induced-vasospasm resulting in ischemic cerebral infarctions is exceedingly uncommon.

Methods

We present a case of a 17-year-old male with a past medical history of previous thoracolumbar posterior instrumentation for scoliosis 5 years prior to presentation.

Results

He developed high fevers and altered mental status. Subsequent imaging and lumbar puncture demonstrated bacterial meningitis from Streptococcus anginosus, a paraspinal abscess involving previously placed hardware and hydrocephalus. A ventriculostomy was placed for hydrocephalus and intravenous antibiotics were started. Drainage of the abscess and wound washout with removal of spinal instrumentation was performed. He improved and the ventriculostomy was removed. However, five days after initial presentation, patient developed severe lethargy and ventricular drain was replaced. Repeat computerized tomography (CT) demonstrated findings suggestive of a new right internal capsular and globus pallidus ischemic infarct. A CT-angiogram was performed which demonstrated findings suggestive of vasospasm. A diagnostic cerebral angiogram demonstrated left internal carotid artery (ICA), left anterior cerebral artery and left middle cerebral artery stenosis. Spasmolysis was attempted with intra-arterial verapamil and nicardipine infusion into the supraclinoid ICA with minimal improvement in cerebral arterial flow. Repeat magnetic resonance imaging demonstrated new findings of left basal ganglia infarction in addition to right sided basal ganglia infarct. Patient was started on intravenous corticosteroids and pressors were initiated for blood pressure augmentation. Patient’s clinical status gradually improved subsequently over the next two weeks.

Conclusions

We report the case of severe vasospasm with resulting multiple ischemic infarcts secondary to bacterial meningitis. This patient illustrates an instance where worsening mental status in the context of meningitis may warrant consideration of cerebrovascular vasospasm. Also, management of such vasospasm may be more challenging.

Learning Objectives

-Identifying bacterial meningitis as an etiology of meningitis

-Demonstrating that meningitis-induced vasospasm may be more difficult to manage than other etiologies of vasospasm

-Establish that clinical decline in a meningitic patient may necessitate a thorough workup for cerebrovascular vasospasm

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