

# Neisseria Ventriculitis: An uncommon but serious complication of Neisseria Meningitidis infection.

Asma Gulab, Omotola O Balogun, Joanna Paula Sta. Cruz  
 Albert Einstein Medical Center, Philadelphia

## Introduction

Ventriculitis is defined as acute inflammation of the ependymal lining of cerebral ventricles that leads to build up of purulent debris within the ventricles. It has also been referred to as ventricular empyema and pyocephalus. It is a rare but potentially fatal CNS infection. We present an interesting case of pyogenic ventriculitis caused by *Neisseria meningitidis*. Only a handful of such cases have previously been reported in literature<sup>1</sup> and usually occur as a complication of meningitis or a healthcare related infection related to external ventricular devices<sup>2</sup>.

## Case description

A 67-year-old female with history of hypertension and alcohol abuse was found down on the street with bowel incontinence. Patient on presentation to the ED was altered and unable to provide history. Initial head CT did not reveal any acute abnormalities. Empiric antibiotics were started due to suspicion of infection given patient's fever and hypotension. Patient's blood cultures turned positive for *Neisseria meningitidis*. PCR from CSF also was positive for *Neisseria meningitidis*. During hospitalization, patient went into PEA arrest and was initiated on TTM protocol. After TTM, patient's

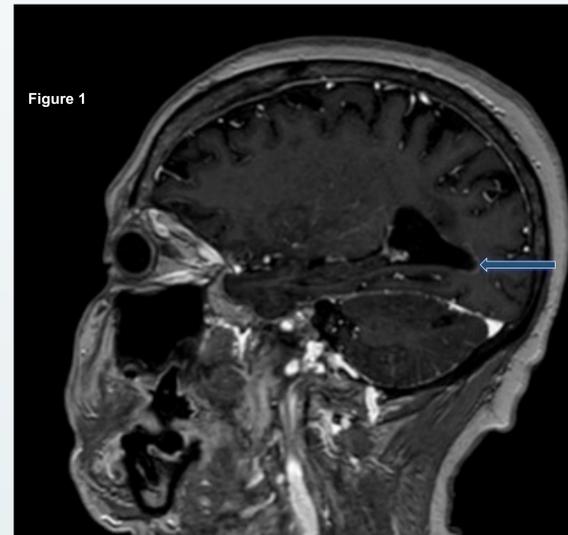


Figure 1  
 Sagittal T1 image: Arrow showing subependymal ventricular enhancement.

## Case Description Cont.

neurological status did not improve which prompted us to obtain an MRI. This revealed abnormal FLAIR signals in bilateral cerebral hemispheres associated with leptomeningeal enhancement concerning for meningitis and cerebritis, and layering debris within the occipital horn of bilateral lateral ventricles with associated restricted diffusion and subependymal enhancement consistent with ventriculitis (Figure 1, 2).

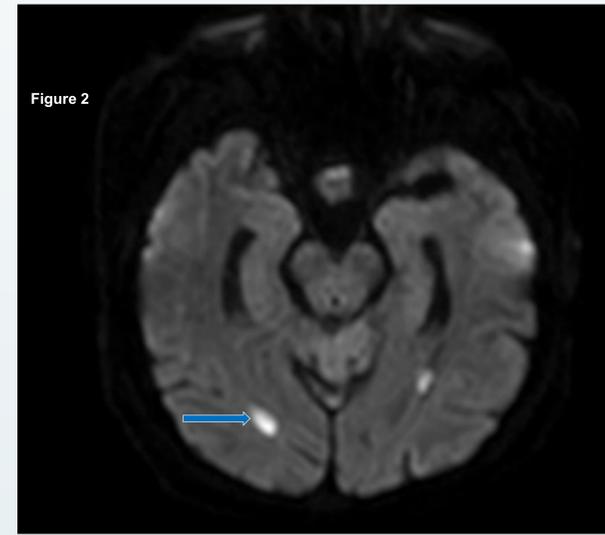


Figure 2  
 DWI image shows layering material in the occipital horns of both lateral ventricles

## Management

Ceftriaxone 2mg BID was started to continue for 6 weeks. On repeat imaging, patient had developed acute hydrocephalus requiring an external ventricular drain (EVD) placement. The drain was eventually removed after three days. Patient unfortunately had a poor neurological outcome and remained quadriplegic. She eventually received a tracheostomy and a PEG tube and was transferred to an LTAC facility.

## Conclusion

Diagnosis of ventriculitis can be challenging due to non-specific clinical presentation. Early diagnosis with the help of MRI is crucial to avoid adverse neurological sequelae. Management of the infection with antibiotics is tailored to clinical and neuro-radiological improvement as no set guidelines are available. Surgical intervention with EVDs are also required in setting of hydrocephalus associated with severe infection.

## References:

1. Lesourd A, Magne N, Soares A, et al. Primary bacterial ventriculitis in adults, an emergent diagnosis challenge: report of a meningococcal case and review of the literature. *BMC Infect Dis.* 2018;18(1):226. doi:10.1186/s12879-018-3119-4
2. Humphreys H, Jenks P, Wilson J, et al. Surveillance of infection associated with external ventricular drains: proposed methodology and results from a pilot study. *J Hosp Infect.* 2017;95(2):154-160. doi:10.1016/j.jhin.2016.09.008