**Title:**

Neurocritical care for primary bacterial ventriculitis – how we do it

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**Abstract:**

***Objectives***:

Primary bacterial ventriculitis (PBV) is a fatal complication of meningitis. Case definition and best treatment are yet to be determined. This study, the largest case series of PBV in the literature, aims at bringing a better understanding of this disease.

***Methods:***

PBV is defined as inflammation of the ventricular system that were not iatrogenic, or secondary to ruptured brain abscess. Cases were identified in operation record listing from July 2009 to June 2019. Demographics, imaging, microbiology, intervention, complications, and modified Rankin scale (mRS) at 1 month and 12 months were recorded.

***Results:***

Seventeen cases were identified. Risk factors included diabetes (33%) and nasopharyngeal carcinoma (27%). Klebsiella pneumoniae was the commonest cause (40%). External ventricular drain (EVD) was inserted in all patients. Around half of the cases received intraventricular antibiotics. However, it did not alter outcome. Five of 6 cases of Klebsiella pneumoniae ventriculitis originated from liver abscess, much higher than that caused by other bacteria (83% vs 45%, p=0.13). Neurological complications such as chronic hydrocephalus and entrapped horns happened in 15 cases. Ten required further intervention including CSF shunting and neuro-endoscopy. Mortality rate is 18% and 47% at 1 month and 12 months respectively. Patients with cortical infarct might have higher mortality than those without (75% vs 38%, p=0.2). Only 20% of the patients achieved good outcome (mRS 1-3) at 1 year.

***Conclusions:***

Neurocritical care for PBV should be multi-dimensional, including broad-spectrum antibiotics, EVD, active search for underlying septic focus and vigilance in neurological complications.