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Clinical Image Open Access

Enterovirus 71 Neuroimaging: "The New Polio of the 21st Century"

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Clinical Image

Figure 1: T2 weighted image showing hyperintensity of the central grey matter of the cervical and thoracic spinal cord segment in EV71.

Enterovirus 71 (EV71) typically causes uncomplicated hand foot and mouth disease in young children. However, a minority of patients may develop neurological complications that include brainstem encephalitis, acute flaccid paralysis, encephalomyelitis, encephalitis and pulmonary oedema. In the wake of near complete global polio eradication, EV71 has emerged as a significant infectious cause of severe neurological dysfunction and morbidity is preferentially associated with paralysis and central respiratory impairment. Human and animal studies have demonstrated that transmission of EV71 into the CNS is by retrograde peripheral motor nerve, similar to poliovirus [1]. In 2014, an outbreak of Enterovirus D68 (EVD68) occurred where 12 children developed acute flaccid paralysis and cranial nerve dysfunction [2,3]. The typical neuroimaging findings of EV71 and EVD68 related to acute flaccid paralysis are similar with predilection to the central grey matter (Figure 1), and enhancement of unilateral or bilateral anterior nerve roots (Figure 2). These findings are suggestive of neurotropism for motor neurons and consistent with involvement of the anterior horn cells.

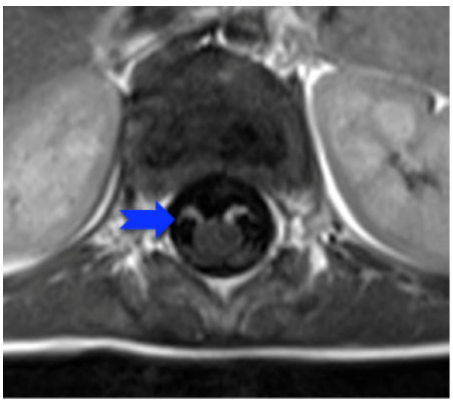

Figure 2: MRI with gadolinium enhanced anterior nerve roots in EV71.

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