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No Vaccine – No Protection: Mumps Meningoencephalitis and Hydrocephalus in an Unvaccinated Adult

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Sir

Mumps virus is a rare cause of hydrocephalus. A non-immunised, healthy 23 year-old male presented to the Emergency Department, 12 days after diagnosis of mumps parotitis. He reported a gradual improvement until the onset of headache and vomiting 48 hours earlier. He had never been immunised, having been born prior to implementation of the Irish measles, mumps and rubella (MMR) vaccination programme in 1986. He was afebrile, normotensive, bradycardic, disoriented in time and examination, including fundoscopy was normal. Computerised tomography (CT) scan of the head revealed marked dilatation of the lateral and third ventricles, with early sub-ependymal oedema adjacent to the temporal and frontal horns of the lateral ventricles. The basal cisterns remained patent. The fourth ventricle was normal in size, suggesting that ventricular enlargement was due to aqueductal stenosis.

At lumbar puncture, cerebrospinal fluid (CSF) opening pressure was elevated. The CSF white cell count was elevated; 1,153 cells per cubic millimetre (mm3), 99% lymphocytes and red cell count was 8 cells/mm^3. CSF protein was elevated at 3.16 g/L. CSF was not tested for glucose. CSF was cultured and also sent to the National Virus Reference Laboratory. Empiric vancomycin, cefotaxime and aciclovir were commenced. He was transferred to a neurosurgical unit for emergency insertion of an external ventricular drain (EVD). Post-operatively, brain magnetic resonance imaging (MRI) revealed mild diffuse enlargement of lateral and third ventricles with high signal intensity around the lateral ventricle ependymal lining.

Mumps virus was detected in CSF. Other viruses were not detected. CSF culture was negative. Thus, empiric therapy was discontinued. CT at day eight revealed a fully decompressed ventricular system, favouring diagnosis of acute hydrocephalus and the EVD was removed. The patient was discharged after ten days and remained well at follow-up over the subsequent year. Mumps is highly transmissible with an incubation period up to 21 days. Cases are generally infectious for five days following symptom onset.[1] A significant proportion of patients have no or mild symptoms. The hallmark of mumps is parotitis. Mumps is a neurotropic virus, with CSF pleocytosis described in 35% of patients with parotitis and without signs of meningitis.[2] With about 20 case reports of mumps hydrocephalus, this a rare complication.[3] First described in a rodent model in 1967, the proposed pathogenesis is viral infection of ependymal cells, resulting in perivascular inflammation with shedding of ependymal cells, which obstruct the aqueduct causing hydrocephalus.[4]

In Ireland, routine MMR vaccination was introduced in 1988, with the subsequent addition of a second dose to improve immunity. In 1999, the administration age for the second MMR dose was reduced from 10 to four years. In recent years, there has been a resurgence in reported mumps infection in Ireland.[5] In 2008, 1,385 mumps cases, involving 57 outbreaks, predominantly from universities were notified. (Source: Health Protection Surveillance Centre: Annual Report 2008). This patient required hospitalisation for a serious complication of mumps, highlighting the need for awareness of neurological complications in the context of recent mumps infection.

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