Case Report

Insights of Clinical and Medical Images

Diagnosis In View A Boy With Acute Paresis Of The Right Arm

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1. Case

A 5-year-old boy presented to the emergency department because of paresis of his right arm, which had been developing for several days. His illness started with a day with slight fever. The next day he woke up with a stiff neck. After 24 hours, he could still lift his arm, but could no longer squeeze it. The following 48 hours, his arm became completely paralysed. General paediatric examination was normal. Neurological examination showed reduced strength in the biceps (MRC 5/0), triceps (MRC 5/0), wrist flexors (MRC 5/1) and wrist extensors (MRC 5/1), with a reduced biceps (1/-1) and triceps tendon reflex (1/-1), sensibility was unaffected in his right arm. Other neurological examination was normal. Laboratory tests: BSE value 7 mm, CRP 0.07 mg/L. Liquor examination: pleiocytosis of monocytes. PCR faeces positive for enterovirus subtype D68; viral PCR in liqour was negative. MRI showed hyperintense abnormalities of the grey matter of the central myelum at the level of cervical 1 to cervical 6 on T2-weighted images, particularly of the right anterior horn. Based on the clinical picture and the MRI, the diagnosis of acute flaccid myelitis (AFM) was made. AFM is usually caused following viral infections , often enterovirus subtype D68, but enterovirus A71 and coxsackie virus have also been described.

AFM often occurs in an epidemic, usually children between 2 and 5 years of age. Most patients have a prodromal phase with fever and respiratory complaints (cough, rhinorrhoea, pharyngitis). Gastrointestinal complaints are less frequent. Neurological symptoms appear 1-10 days after the prodromal phase, characterised by headaches and a stiff neck. Subsequently, muscle weakness of affected extremities develops, with the upper extremities being affected more often than the lower extremities.

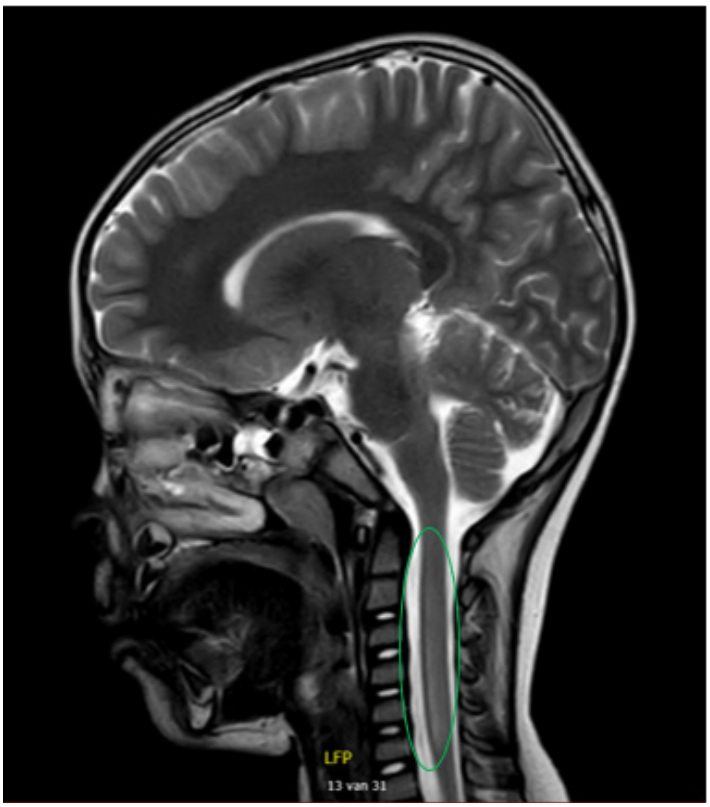

Figure 1: Sagittal T2 image. Linear high signal centrally in the myelum extending from C1 to C6.

Also typical is the asymmetry of the muscle weakness, sometimes associated with muscle weakness of diaphragm or respiratory muscles. The diagnosis of AFM is made on the basis of the clinical picture and MRI findings (hyperintensity of the grey matter). Treatment consists of support in case of respiratory insufficiency and monitoring of neurological complications In this patient, methylprednisolone was started for 5 days. By inhibiting the inflammatory reaction with prednisone, it is possible to reduce the reaction of the myelum and recover the clinical picture. The patient received additional treatment with intravenous immuglobulins (IVIG). The pathophysiology of AFM is not yet fully understood, as is the optimal treatment not clear, with limited effect. IVIG is given because of its possible antiviral and immunomodulatory effect, as well as a favourable side effect profile. The results of steroids are unknown and the therapeutic effect versus side effects is controversial. In cases of complete paralysis, the chances of a full recovery are not high. Patients with AFM based on enterovirus A71 often have milder muscle weakness and better recovery

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than patients with AFM based on enterovirus D68. [1]

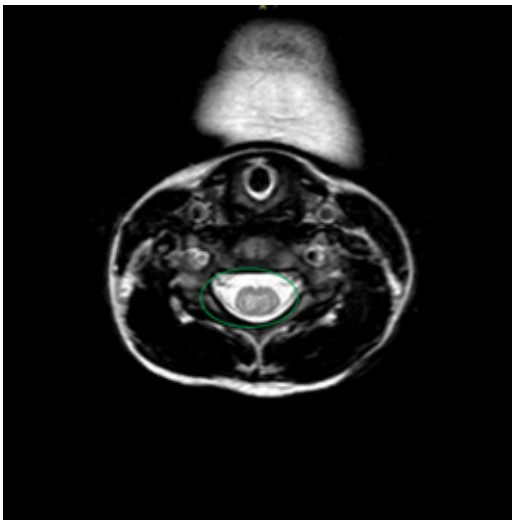

Figure 2: Transverse T2 image of the myelum at the level of disc C4-C5 with increased signal from the central grey matter. The right side is more affected than the left side.

2. Diagnosis

Acute flaccid myelitis caused by enterovirus subtype D68

Reference

1. Murphy OC, Messacar K, Benson L, Bove R, Carpenter JL, Crawford T, et al. Acute flaccid myelitis: cause, diagnosis, and management. Lancet. 2021 Jan 23; 397(10271): 334-346. doi: 10.1016/S0140-6736(20)32723-9. Epub 2020 Dec 23. PMID: 33357469; PMCID: PMC7909727.