

Differentiate Polyradiculoneuropathy (PRN) accidents after rabies prophylaxis of Paralytic Rabies.

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Abstract :

A 13-year-old girl developed acute flaccid paralysis 10 days after receiving the first dose of mouse brain rabies vaccine (SMBV), wherein distinction between paralytic rabies and Guillain-Barré Syndrome may be difficult.

I. Introduction :

Guillain-Barré syndrome (GBS) is an inflammatory disease of the peripheral nervous system (PNS) and is the most common cause of acute flaccid paralysis. GBS starts frequently 1-3 weeks after various infections and vaccinations (1-2). Neuroparalytic accidents (similar to Guillain-Barre, facial paralysis) developing after rabies vaccination are known from the literature. (3-4). However, flaccid paralysis of the affected extremity was considered to be the exceptional clinical feature of human rabies. (5)

This article will present a case of flaccid paralysis developing after rabies vaccination (VAR) where it is interesting to describe the diagnostic problems.

II. Case report :

A 13-year-old girl, with no particular history, was admitted to pediatric intensive care CHU Oran, Algeria for acute ascending flaccid paralysis after rabies vaccination.

14 days before her admission, while she was with her friend outside, she was bitten on the right leg by a stray dog, suffering from a category II injury, which was carefully cleaned at the level of the first health center.

It was decided to administer postexposure rabies prophylaxis with Suckling Mouse Brain Rabies Vaccines (SMBV) plus human rabies immune globulin.

The patient received a total of seven 2 mL subcutaneously doses in the peri-umbilical region of SMBV (0, 1, 2, 3, 4, 5 and 6 day after contact in subcutaneously in the peri-umbilical region). She did not receive rabies immunoglobulins. She tolerated the vaccinations well.

Few hours after 8th dose of rabies vaccine, 10 day after contact (the first dose of the booster) she experienced dysesthesia and mild pain in her right leg.

The next day she experienced legs weakness with difficulties in walking or standing, and she was admitted from pediatric emergencies to PICU.

On examination, she was awake, her temperature was 37 °C, her heart rate was 110 / min, her blood pressure 130/85 mmHg, her respiratory rate 17 / min and her SpO₂ 98% and the Peak expiratory flow : 130 l / min.

She denied having any fever, chills, sore throat, cough, headache, joint pain, gastrointestinal symptoms.

The neurological examination detected a flaccid tetraparesis: the rating of the muscular force was considerably reduced [lower extremity 1/5, upper extremity (3/5)] with an areflexia (the

superficial and deep tendon reflexes were absent) and urinary retention. There were no Babinski's signs. There was no facial asymmetry or weakness.

After 20 hours of hospitalization, respiratory paralysis (Peak expiratory flow : 50 l / min, SpO₂ at 84%) caused tracheal intubation and ventilatory assistance.

The cerebrospinal fluid showed 10 cells / mm³, 0.70 g / l protein and 0.62 g / l glucose with serum glucose corresponding to 1.18 g / l. CT Scanning of the Head was normal.

The ENMG, performed on the 7th day of the onset of weakness, revealed a significant reduction in the amplitudes of the motor responses of the proximal and distal nerves, without signs of active denervation, raising suspicion of an acute polyneuroradiculopathy.

The patient remained lucid and conscious throughout the duration of the stay, the evolution was punctuated by complications like hypertension put on account of neurovegetative disorder controlled by clonidine for 19 days (from 17th day to 36th day of the onset of weakness) and a nosocomial pneumonitis acquired under ventilation with pseudomonas aerogenosae. A tracheostomy was performed on 23th day.

Slow improvement in her general condition and an increase in strength were noted during the first month, and the patient was fully recovered, 16 weeks, after onset of weakness.

III. Discussion

Rabies is transmitted by saliva during contact with an animal (licking, griffwe and / or bite), its prevention in post exposure based on active or passive immunization remains the only effective treatment (6). The aim is to gain enough immune resistance during the incubation period.

In Algeria, rabies is a reportable disease, it continues to be enzootic. Indeed, each year, 900 cases of animal rabies, on average, are declared, nearly 120,000 people are exposed to rabies risk and it is deplored between 15-20 cases of clinical human rabies. (7) There are two

types of rabies vaccine used in Algeria: the first is cellular imported from abroad and the second Suckling Mouse Brain Rabies Vaccines (SMBV), produced locally by the Pasteur Institute. For active immunisation (SMBV, Institut Pasteur, Algeria), our country uses 07 basic doses : 0, 1, 2, 3, 4, 5 and 6 day after contact in subcutaneously in the peri-umbilical region completed with 04 booster doses : 10, 14, 29 and 90 day after contact administered intradermal in the anterior aspect of the forearm. (7)

Anti-rabies vaccine can be followed by an acute polyneuropathy which is indistinguishable from that of GBS (1, 8). The incidence of neuroparalytic complications in the use of nerve tissue vaccines varies between 1 in 600 to 1 in 2500. (9, 10) The complications are divided into major (encephalitis, myelitis, polyradiculitis, meningitis) and minor (fever, myalgia, and skin reactions). Guillain-Barre syndrome and facial paralysis cases are known from the literature (11, 12).

The lack of administration of rabies immunoglobulins in our case raised concerns about the diagnosis of paralytic rabies, even if the classic symptoms of rabies were absent. A provisional diagnosis of Guillain-Barré syndrome was made and she was treated with polyvalent intravenous immunoglobulin at a rate of 0.4 g / kg / day combined with Dexamethasone 0.4 mg / kg / day for 05 days.

In fact, the paralytic rabies is more common in patients who received post-exposure anti-rabies vaccination without rabies immunoglobulins. (13, 14) Paralytic rabies represents 20% of cases, where patients often lack hydrophobia and may present with acute flaccid quadriplegia imitating Guillain-Barré syndrome (13, 14, 16), as was mentioned in our case.

In addition in human cases, the incubation period typically ranges from weeks to several months but may vary from less than a week to more than a year. (14)

Brain and spinal MRI is an important diagnostic tool for describing encephalitis or post-vaccine demyelination. In our case magnetic resonance imaging (MRI) could not be performed for technical reasons.

Points favouring the diagnosis of rabies are the presence of fever, urinary dysfunction, muscle fasciculation, altered sensorium, CSF pleocytosis and an abnormal spine MRI scan, typified by spinal cord involvement demonstrating T2 hyperintensity spanning more than one vertebral segment. **(13, 17, 18,19)**

In our case, apyrexia, albumin-cytology dissociation and absence of altered state of consciousness and a good response to initial treatment were in favor of the diagnosis of GBS. We did not find any other aetiological factors for acute flaccid paralysis. The patient had no history of an upper respiratory tract or gastrointestinal tract illness during the previous three months; it was thought that symptoms could be a complication of the rabies immunisation, but it was also a possible coincidence.

GBS treatment often involves specific treatment with IVIG 0.4 g / kg / day for 5 days and supportive therapy (ABC's, intubate if hypoxia, rapidly increasing muscle weakness) In these cases, corticosteroids are the general choice for treatment. However, there is insufficient information in the literature about steroid use combined with rabies immunisation. The literature recommends that after immunisation the antibody titre of these patients should be examined to check whether sufficient levels have been reached. **(11, 6)**

The stool collection and all documents were sent to the National Expert Committee (National Polio Surveillance Project) as a special case. They classified the case as non-Polio.

IV. Conclusion

Most of the neurological complications after the administration of suckling mouse brain vaccine are of the GBStype. The diagnosis remains easy, if you think about it. The prognosis would be better with appropriate care.

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