

## Case Report

# Convulsive State Following Vaccination, Case Report and Literature Review

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## Introduction

Febrile convulsions occur in young children peaking at the age of 1 year and are triggered by a sudden rise in body temperature. The fever can be associated with an infection or can occur with some paediatric vaccines. For live vaccines such as the combined Measles, Mumps and Rubella (MMR) vaccine there is an elevated risk of a convulsion 6-11 days later when the viraemia and associated fever occur, the absolute risk being in the range of 1 in 600 to 1 in 3000 doses [1-2].

We report the case of an 18-month-old female infant with having a post-vaccination febrile convulsion after the use of a vaccination against Diphtheria-POLIO-rubeole.

## Case Report

We report the case of an 18-month-old female infant with a history of a post-vaccination febrile convulsion at the age of 12 months, hospitalized for two days.

The history of her symptoms dates back to a day after her vaccination against Diphtheria-POLIO-rubeole at an age of 18 months, by the onset of a fever 7 hours later, vomiting and generalized convulsions.

The Patient was admitted to the care unit, she received 2mg of midazolam intravenously. The clinical examination found a post-critical glasgow at 7, with equal and reactive pupils, no deficit, a normal blood pressure at 112/71 cm Hg, a heart rate at 160 bpm, a pulsed saturation at 98%, with a cerebral CT showing a discreet cerebral edema.

The patient was intubated and ventilated; the cerebrospinal fluid culture was negative, a correct metabolic assessment, a negative toxic assessment and a negative infectious assessment.

The patient received gardenal with sedation by midazolam

and fentanyl, antibiotic therapy based on ceftriaxone, gentamicin, associated to acyclovir and paracetamol.

The outcome was favorable by extubation after 48 hours after resuming a state of consciousness without deficit or convulsions, hemodynamic and respiratory stability. The mlalade was at her home 5 days later.

## Discussion

Febrile convulsions occur in young children peaking at the age of 1 year and are triggered by a sudden rise in body temperature. The fever can be associated with an infection or can occur with some paediatric vaccines. For live vaccines such as the combined Measles, Mumps and Rubella (MMR) vaccine there is an elevated risk of a convulsion 6-11 days later when the viraemia and associated fever occur, the absolute risk being in the range of 1 in 600 to 1 in 3000 doses [1-2]. For inactivated vaccine such as whole cell pertussis-containing vaccines, the risk period is within a day or so of vaccination [2,3].

W.E. Barlow et al. [4] showed, in a large population, that the number of febrile seizures attributable to the DTP vaccination was 6 to 9 per 100,000 children (relative risk 5.70).

P. Farrington et al. [5] also found a risk of febrile convulsion every 16,000 vaccinations, an increased risk after the third vaccination and for children aged over 10 months.

It should nevertheless be emphasized that, although the majority of studies show a cause and effect relationship between DTP-pertussis vaccination and the occurrence of febrile seizures, this essentially concerns vaccinations with the combined whole-germ DTP-pertussis vaccine. More recent publications on the use of the combined DTP-acellular pertussis vaccine are still incomplete. A study carried out in Denmark on the use of the acellular pentavalent DTP-pertussis-Haemophilus influenzae b vaccine (5) did not find an increase in the overall risk of febrile seizures in vaccinated children compared to a reference cohort of unvaccinated children for a period of 7 days following vaccination.

The question is whether the overall increase in the rate of febrile seizures observed with many vaccines, including the MMR vaccine, is related to neurological toxicity of the vaccine or just to the occurrence of post-vaccination fever. Currently, many arguments point in the direction of a direct responsibility for the fever and not of a "neurological toxicity" of the vaccines: for proof, the absence of subsequent increase in the afebrile seizures, and therefore of epilepsy, in vaccinated children, even in those who presented febrile seizures after vaccination and the questioning of the concept of vaccine encephalopathy. We must therefore continue to weigh the recognized, but moderate risk of post-vaccination febrile seizures against the risk of complications related to infection not prevented by vaccination: neurological complications (measles encephalitis, for

example), respiratory or even febrile seizures related to fever induced by infection [6].

According to the follow-up carried out by the researchers, the seizures following a vaccination do not have long-term consequences on the neurological development of the children, do not make them more likely to have further seizures, and do not increase their risk of suffer from epilepsy. For those in favor of childhood immunization, this is further proof that immunization is the best way to fight infectious diseases, which themselves cause many serious health problems [7].

## Conclusion

According to the follow-up carried out by the researchers, the seizures following a vaccination do not have long-term consequences on the neurological development of the children, do not make them more likely to have further seizures, and do not increase their risk of suffer from epilepsy. For those in favor of childhood immunization, this is further proof that immunization is the best way to fight infectious diseases, which themselves cause many serious health problems.

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