



# Rota Virus Infection Associated Neonatal Seizures and White Matter Injury

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*To the Editor:* Rotavirus infection has been overlooked as a cause of neonatal seizures despite significant research interest. Neonatal seizures and specific magnetic resonance imaging (MRI) abnormalities has been associated with rotavirus infection [1–3].

A 5-d-old term female, second born to non-consanguineous married couple who was apparently normal till day 5, when the child developed super refractory seizures. Metabolic workup, serum chemistry, Cranial USG and EEG were normal. MRI brain – Diffusion weighted and ADC sequence image showed bilateral symmetric white matter hyper-intensive areas involving the corpus callosum, internal capsule, corticospinal tract and basal pedunculi of mid brain and subdural hemorrhage in left occipital convexity and bilateral retro cerebellar space. MR spectroscopy was normal. In the background of radiological imaging and absence of other etiologies for seizures, stool was sent for polymerase chain reaction for rotavirus which was positive. Repeat MRI at 4 mo revealed progress with only slight diffusion limitation and age-appropriate myelination and clinical evaluation indicated appropriate development. Despite rota virus being identified as the main cause of symptomatic neonatal encephalitis, the precise mechanism is unknown.

Yeom et al's investigation on neonatal convulsions revealed that nearly one-fourth of the cases showed symmetrical MRI diffusion restriction abnormalities, and all had stool rota virus PCR positivity [4]. Given the parallels to other neonatal viral infections, direct CNS infection is still the most plausible source of injury; nonetheless, the significance of toxin-mediated injury necessitates more research. The rotavirus NSP4 transmembrane glycoprotein functions as a viral enterotoxin that can produce diarrhea by multiple

intricate processes and thus, NSP4 variation may play a significant role in pathogenicity. Our results suggest a possible link between neonatal white matter injury and rotavirus infection. Rotavirus should be listed among the viruses that can cause white matter injuries. For a more accurate etiological diagnosis, DW MRI should be made mandatory for all neonates who develop seizures.

## Declarations

**Patient's Consent** We hereby confirm that a statement of consent to publish these findings and images were gathered from the patient's parents as the patient is a minor.

**Conflict of Interest** None.

## References

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