

## Neuropathological events in an animal model resembling human fetal post-hemorrhagic hydrocephalus

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### Introduction

In premature newborns, intraventricular hemorrhages (IVH) probably trigger the disruption of the neurogenic ventricular zone. Most of the cases with severe IVH develop post-hemorrhagic hydrocephalus (PHH). A mouse model with IVH has been developed to research into the common neuropathological events present in PHH and into possible therapies.

### Methods

In two-day-old mice, the blood serum from littermates was injected into the ganglionic eminence of one hemisphere or both hemispheres. Fourteen days later, a histopathological analysis was carried out. In the case of injection in one hemisphere, the effects were compared with the contralateral non-injected hemisphere.

### Results

Mice with IVH developed the following neuropathological effects. The ependyma was found denuded and replaced by reactive astrocytes. A reaction of astrocytes over-expressing aquaporin-4 and of NG2 cells was also found developed in the white matter. Alterations in the neurogenesis were also common in the ventricular zone and in the white matter.

### Conclusions

The animal model of IVH developed shows similar neuropathological events to other forms of congenital hydrocephalus and can be used to research into therapies for PHH.

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