

# A diffuse intrinsic pontine glioma in a neonate diagnosed by MRI

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## DESCRIPTION

A 4-day-old full-term girl with a maternal history of polyhydramnios during the third trimester was transferred from an outside nursery for hypotonia, poor feeding and abnormal respirations. Barium swallow evaluation prior to transfer revealed laryngeal penetration with silent aspiration and absent cough reflex. On physical examination the infant had stridor, increased oral secretions, axial hypotonia, right esotropia and facial weakness. MRI of the brain (figure 1) demonstrated a large tumour centred in the pons without reduced diffusivity on diffusion-weighted sequences and absent gadolinium enhancement consistent with a diffuse intrinsic pontine glioma (DIPG). The parents opted for palliative care without autopsy and the infant died within 7 days of birth.

Brainstem tumours constitute approximately 10–15% of all childhood brain tumours and are classified based on anatomic location within the brainstem. DIPGs represent a specific subset of brainstem tumours diagnosed during childhood by MRI alone and have the poorest survival among all paediatric brain tumours.<sup>1</sup> Two cases of neonatal DIPGs have been reported in the literature with similar neuroimaging features.<sup>2</sup> Our case highlights the congenital nature of a DIPG whose molecular features had been largely unknown due to its rarity and lack of biological material available for study. Most recent molecular analysis of DIPGs have demonstrated novel mutations in histone H3 and p53, as well as amplifications of platelet-derived growth factor receptor  $\alpha$  in a large number of

cases.<sup>3</sup> It is the hope that these advances will lead to targeted therapies and improved survival.

## Learning points

- ▶ Diffuse intrinsic pontine glioma presents in childhood with cranial neuropathy and may be diagnosed by MRI features alone without biopsy.
- ▶ Diffuse intrinsic pontine glioma may present in the neonatal period and should be considered in the differential diagnosis of neonatal brainstem tumours.

**Contributors** All the authors have contributed equally to the design and execution of the manuscript. All the authors agree with the contents of the submission.

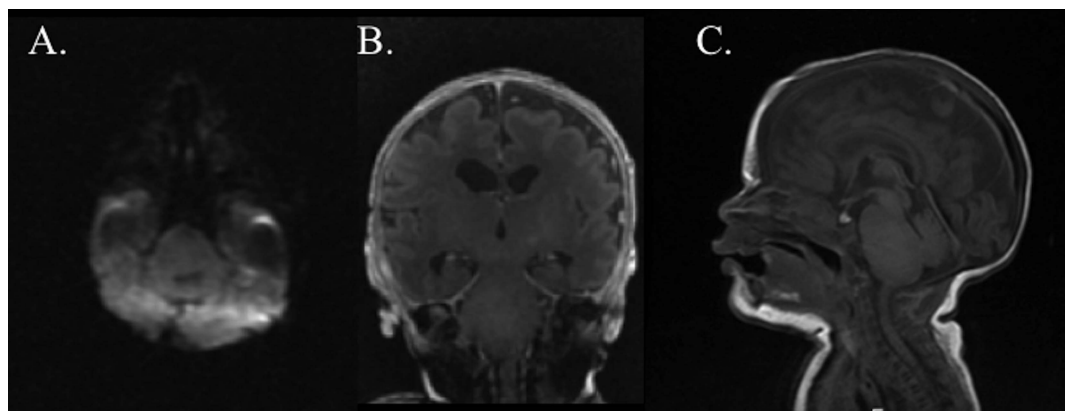
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**Figure 1** MRI revealing an expansile tumour in the pons without reduced diffusivity (A) or gadolinium enhancement (B), and normal midline structures that fill the posterior fossa (C) consistent with a neuroradiographic diagnosis of diffuse intrinsic pontine glioma.



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