

Acute brainstem haemorrhage as a presenting feature of high-grade glioma

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DESCRIPTION

A 7-year-old previously healthy girl presented with 1-day history of headache and unsteady gait. Neurological examination revealed intranuclear ophthalmoplegia, vertical nystagmus and ataxic gait. CT scan showed hyperdense haemorrhagic lesion in the fourth ventricle ([figure 1](#)) and MRI further demonstrated a large focus of haemorrhage in the posterior pons and surrounding oedema with two small foci of enhancement along the anterior margin of the mass ([figure 2](#)). Craniotomy was performed for evacuation of the haemorrhage and

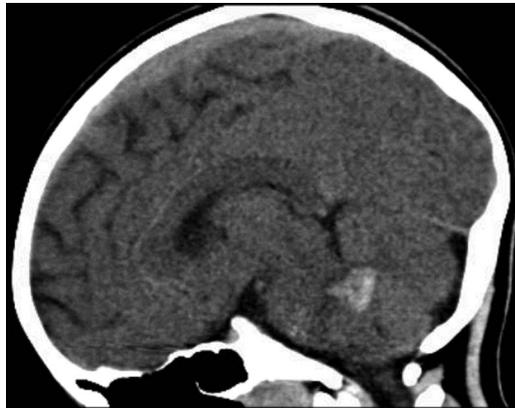


Figure 1 Sagittal CT image demonstrating hyperdense haemorrhagic lesion in the fourth ventricle.

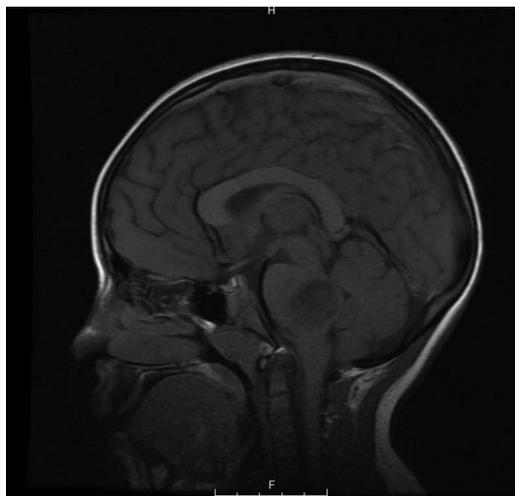


Figure 2 Sagittal T1 weighted image with contrast reveals large hypointense focus of haemorrhage in the posterior pons.

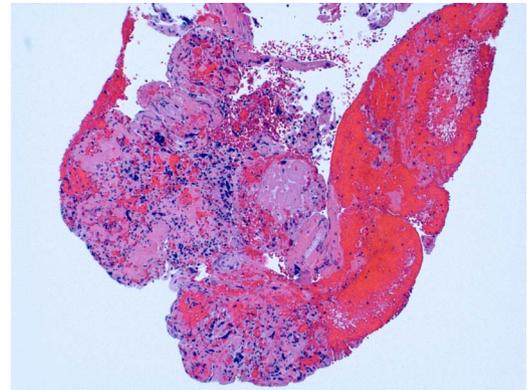


Figure 3 H&E stain reveals hypercellular glial tumour with pleomorphic nuclei and haemorrhage consistent with a high-grade glioma (×40).

biopsies were taken from the area. Neuropathology demonstrated a hypercellular glial tumour with pleomorphic nuclei and haemorrhage consistent with a high-grade glioma ([figure 3](#)). Molecular sequencing of the tumour showed mutations in *p53*, *PDGFRα*, *PI3K*, *ASXL1* and *H3F3A*. The patient died 5 months after diagnosis due to disease progression.

The patient's acute presentation of brainstem findings in conjunction with a haemorrhagic brainstem lesion is more commonly seen with aetiology of vascular origin, making this a unique presentation of a high-grade brainstem tumour. The differential diagnosis of brainstem lesions in children includes neoplastic, vascular, infectious and postinfectious causes^{1 2}. This case highlights that it is important to include high-grade glioma in the differential of acute brainstem haemorrhage and the essential role of biopsy in establishing the diagnosis.

Learning points

- ▶ Gliomas may be indistinguishable from ruptured cavernomas on CT imaging and should be considered in the differential diagnosis of acute brainstem haemorrhage.
- ▶ Brainstem biopsy may be warranted in selected cases of acute brainstem haemorrhage to establish a diagnosis by an experienced neurosurgeon.



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