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Levator palpebrae superioris nuclear palsy in a child with artery of Percheron infarction

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DESCRIPTION

A 10-year-old girl with a history of obesity and short stature presented following 4 days of vomiting. CT scan of the brain revealed a calcified suprasellar mass with associated hydrocephalus. The patient underwent external ventricular drain placement followed by endoscopic transsphenoidal resection of the tumour, where pathology was consistent with a diagnosis of adamantinomatous craniopharyngioma. Postoperative MRI of the brain showed no evidence of residual disease, but revealed areas of reduced diffusivity in the vascular region of the artery of Percheron (figure 1A,B). Subsequently the patient developed hypersomnolence, bilateral ptosis and ophthalmoplegia. In the 2 years following the surgery, the patient had minimal improvement in bilateral ptosis with no further hypersomnolence or ophthalmoplegia, suggestive of levator palpebrae superioris nuclear palsy. MRI 2 years later showed bithalamic encephalomalacia after infarction with no areas of tumour recurrence (figure 1C).

The artery of Percheron is a rare anatomic variant of the paramedian arteries, in which a single thalamoperforating artery arises from the P1 segment of one of two posterior cerebral arteries and supplies the paramedian thalamus bilaterally.^{1,2} Since the perforating arteries also often supply the midbrain, occlusion of the artery of Percheron results in bilateral paramedian thalamic infarcts with possible midbrain infarcts.^{1,2} Common symptoms of infarctions in the territory of the artery of Percheron include vertical gaze palsy, altered mental status and memory impairments.^{1,2} If the midbrain is affected, additional clinical behaviours include oculomotor disturbances, cerebellar ataxia, hemiplegia and movement disorders.^{1,2} While the prevalence of the artery of Percheron is unknown, infarctions in the artery of Percheron account for approximately 0.1%–2% of ischaemic strokes.² Infarction in the artery of Percheron associated with

endoscopic transsphenoidal resection has previously been reported in one adult patient.¹

The levator palpebrae superioris is a somatic extraocular muscle that elevates the upper eyelid through innervation by the oculomotor nerve.³ Within the nuclear complex of the third nerve, the levator subnucleus is unpaired and supplies both levator muscles.³ Thus, lesions of the levator subnucleus result in bilateral ptosis.³ Causes of oculomotor nuclear lesions include infarction, intraparenchymal haemorrhage and metastasis.³ Third nerve palsies resulting from ischaemia typically resolve within 3 months.³ For persistent third nerve palsies, surgery can help improve vision and cosmetic appearance.³

In conclusion, we present the case of a 10-year-old child with levator palpebrae superioris nuclear palsy secondary to artery of Percheron infarction after endoscopic transsphenoidal resection of craniopharyngioma. This represents the first reported case of artery of Percheron infarction in a child following endoscopic transsphenoidal tumour resection and highlights the finding of persistent levator nuclear palsy and bilateral ptosis despite resolution of ophthalmoplegia associated with the infarction.

Learning points

- ▶ Infarction in the artery of Percheron results in bilateral thalamic infarcts with possible midbrain infarcts.
- ▶ Artery of Percheron infarctions are rare, comprising 0.1%–2% of ischaemic strokes. We present the first reported case of artery of Percheron infarction in a child following endoscopic transsphenoidal resection.
- ▶ Lesions at the level of the unpaired levator subnucleus result in bilateral ptosis.

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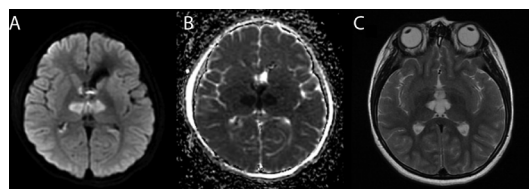


Figure 1 Postoperative MRI reveals areas of reduced diffusivity on diffusion-weighted (A) and apparent diffusion coefficient (B) sequences in the vascular territory of the artery of Percheron. MRI 2 years after surgery demonstrates areas of bithalamic encephalomalacia after infarction on T2-weighted sequences (C).



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