

## IMAGES IN CLINICAL RADIOLOGY



A



B

### *Idiopathic intracranial hypertension*

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A 19-year-old woman consulted the neurologist for headache and diplopia. Physical examination revealed no focal neurological findings except diplopia due to an abducens nerve paresis. Visual acuity and visual field examinations were normal. Fundoscopy showed bilateral papilledema. The patient was referred to our department for an MRI examination. MRI of the brain was revealed no intracranial mass lesion, hydrocephalus or venous sinus thrombosis. Additional T2 high resolution sequences of the orbits showed however tortuosity of the optic nerves with dilatation of the periorbital subarachnoid spaces (arrows in Fig. A). Also flattening of the posterior sclera and protrusion of the optic nerve papilla into the posterior globes was seen (arrowheads in Fig. A). After gadolinium administration, T1WI of the orbits showed enhancement and protrusion of the prelaminar optic nerve (arrows in Fig. B). Based on the clinical and imaging findings the diagnosis of idiopathic intracranial hypertension was made. The diagnosis was confirmed by lumbar puncture with opening CSF pressure of 38 cm H2O. CSF was evacuated to a closing pressure of 15 cm H2O. The patient was also treated with Diamox and clinical symptoms gradually improved so the patient could be dismissed from hospital.

#### *Comment*

Idiopathic intracranial pressure is a condition of raised intracranial pressure of unknown etiology. It is also known as pseudotumor cerebri or benign intracranial hypertension. It is usually seen in obese young to middle-aged women who present with headache and papilledema. The headache is mostly generalized and aggravated by Valsalva. Papilledema is nearly always present. Diplopia with abducens nerve paresis can be present. The primary goal of imaging is exclusion of other causes of intracranial hypertension, especially venous sinus thrombosis and space-occupying lesions. CT examination is usually normal, sometimes slit ventricles, an empty sella or enlarged optic nerve sheaths can be seen. MRI is the imaging examination of choice. On MRI of the brain small ventricles and empty sella can be seen. The use of high-resolution, thin-slice MR imaging improves the visualisation of the optic nerves and nerve papilla. According to literature flattening of the posterior sclera can be seen in 80% of cases, distension of the periorbital subarachnoid space in 45% and tortuosity of the optic nerves in 40% of cases. After administration of Gadolinium, enhancement of the prelaminar optic nerve can be seen in half of cases.

Differential diagnosis should be made with secondary pseudotumor syndromes associated with certain medications (vitamin A derivatives, tetracyclines) or with systemic lupus erythematosus. The imaging findings should also be differentiated with idiopathic empty sella or optic nerve atrophy.

In conclusion, in patients with headache, papilledema or abducens nerve paresis, MRI of the brain should be performed to exclude intracranial mass lesion or dural sinus thrombosis. The presence of tortuous optic nerves on high-resolution images of the orbits with periorbital subarachnoid space dilation, flattening of the posterior sclera or enhancement of the prelaminar optic nerve strongly suggests the diagnosis of idiopathic intracranial hypertension.

#### *Reference*

Suzuki H. et al. MR imaging of idiopathic intracranial hypertension. *AJNR*, 2001, 22: 196-199.

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