Pituitary enlargement and asymptomatic pituitary hemorrhage as complication of Spontaneous Intracranial Hypotension: critical issues in differential diagnosis

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Background

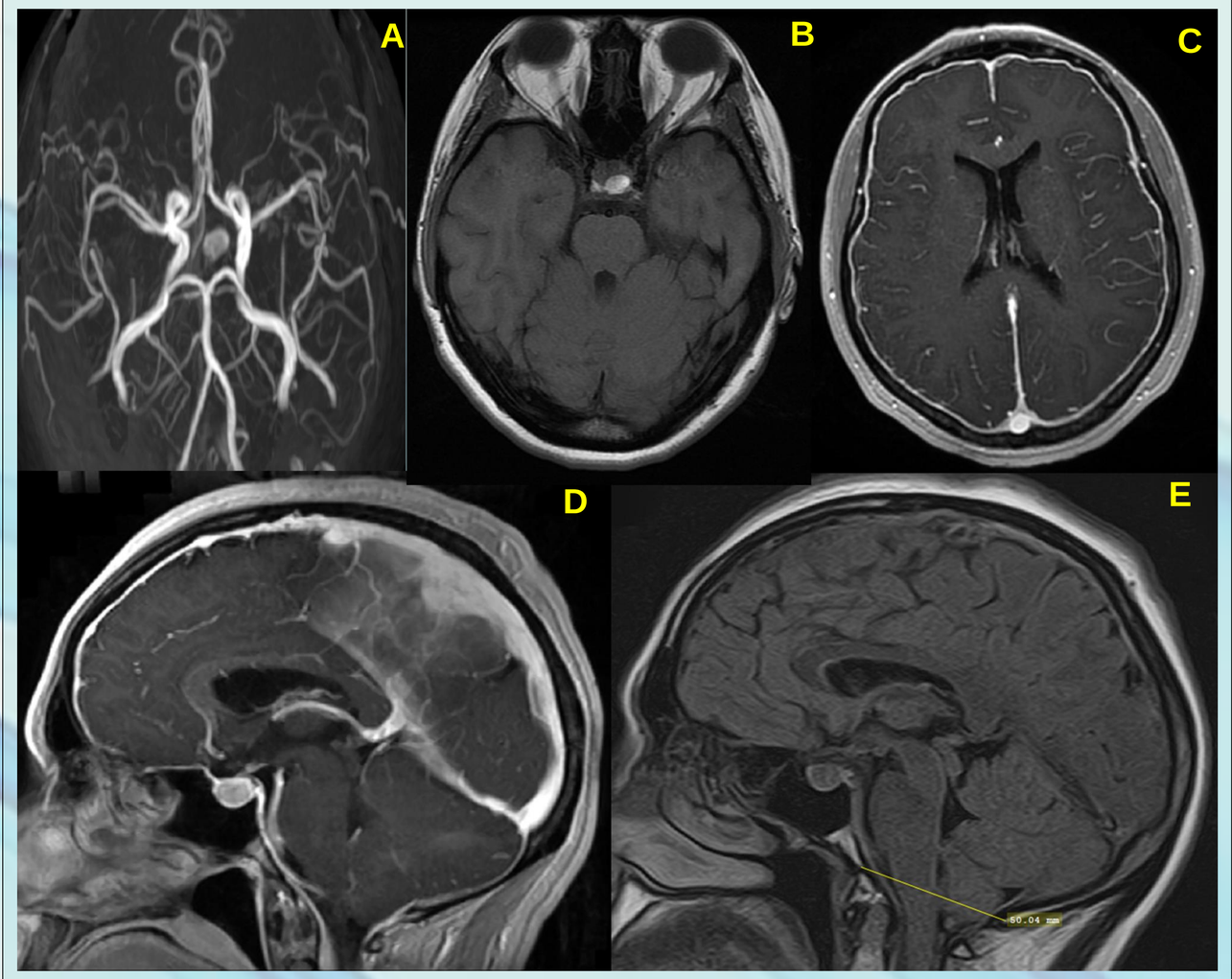
Spontaneous intracranial hypotension (SIH) is caused by a cerebrospinal fluid (CSF) leak causing a volume depletion and usually low CSF opening pressure. The typical presentation is orthostatic headache, however some authors had reported atypical cases with acephalalgic forms and thunderclap headache, making troublesome diagnosis. Rare MRI findings as subdural fluid collections, enlargement and hemorrhage of pituitary gland might make harder the diagnosis.

Methods

A 39-years old woman, previously healthy, complained of orthostatic, thunderclap-like headache, not responsive to common medications. MRI showed thin subdural fluid collections over the cerebellar and cerebral convexity, a caudal descent of the cerebellar tonsils and an ovoid T1 hyperintense -T2* hypointense image in pituitary region, interpreted as pituitary hemorrhage from a rupture of an intrasellar aneurysm. For these reasons she was hospitalized in our Stroke Unit to undergo endovascular treatment.

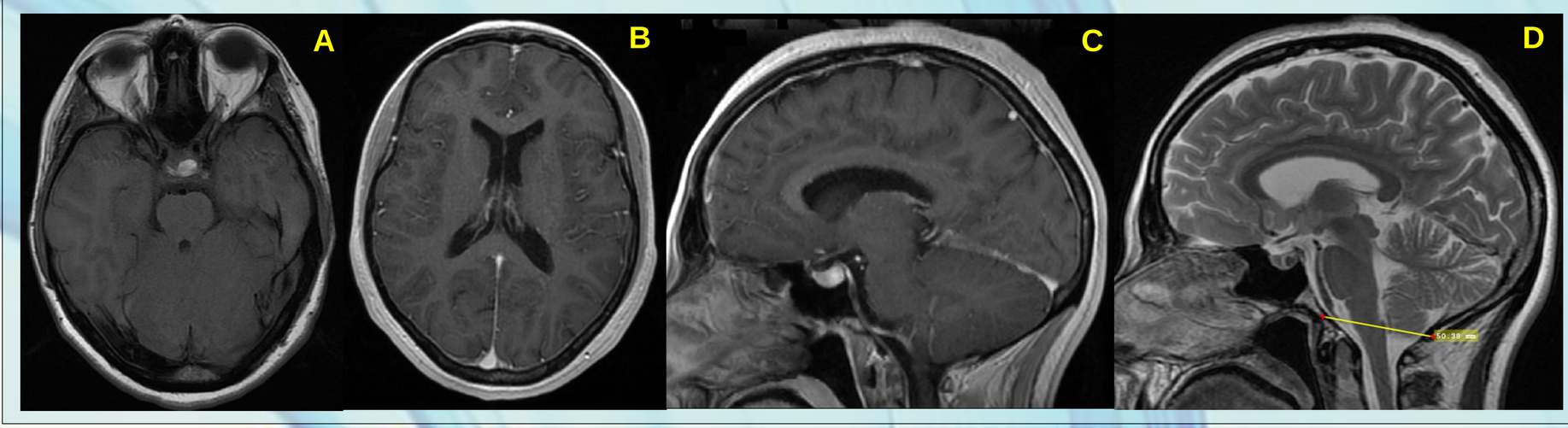
Her neurological examination was normal. At a review of previous MRI, our neuroradiologists excluded the intrasellar aneurysm. A second MRI with gadolinium infusion showed a T1 homogenous pachymeningeal enhancement in the supratentorial and infratentorial compartments. The pituitary gland was enlarged with an ovoid haematoma in its context, that gave a false image of a saccular aneurysm in Time-of-flight magnetic angiography (Figure 1). At this point a diagnosis of SIH was formulated. Myelographic scans failed to identify CSF-leaks. Pituitary hormonal levels were normal, despite of the haematoma. Bed rest and over-hydration were recommended and an intravenous steroid infusion was begun. Headache rapidly improved, so blind epidural-blood-patch was not necessary. At discharge the patient was asymptomatic.

Figure 1: A) MRA; B) T1 weighted image; C-D) axial and sagittal T1 post contrast images; E) sagittal FLAIR weighted image



A follow-up MRI at four months showed a complete regression of supra-tentorial and sub-tentorial pachymeningeal enhancement; the pituitary gland was still enlarged with a partially resorption of hematoma in its context (Figure 2).

Figure 2: A) T1 weighted image; B-C) axial and sagittal T1 post contrast images; D) sagittal T2-weighted image



Discussion and conclusions

SIH was a condition with potentially life-threating complications as subdural fluid collections and cerebral venous thrombosis, that require immediate and adequate intervention. The diffuse availability of MRI has changed radically the diagnosis and management of SIH and its complications. Pituitary hemorrhage is a rare event that could be caused by a rupture of an enlarged vein in the setting of an increased volume of the pituitary fossa content due to compensatory hyperaemia. Adequate recognition of all radiological features can avoid misdiagnosis and can guarantee the best therapy.

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