



Intracranial hypertension associated with complex dural fistula after traumatic brain injury, cerebral venous thrombosis and venous stenosis

Danielle Mesquita Torres¹; Matheus Andrighetti Rossi²; Morgana Feitosa de Queiroga¹; Samia Thabida de Oliveira Rabelo¹; Reed Andre Siqueira Severo¹; Henrique Coelho Silva¹; Felipe Araújo Rocha¹; Francisco Jose Arruda Mont' Alverne¹; Milena Sales Pitombeira¹

Instituto São Carlos de Ensino e Pesquisa - ISCEP, Fortaleza - CE - Brasil.

Categoria: Cefaleias Secundárias

Introduction

Intracranial arteriovenous fistulae (dAVFs) are rare lesions, accounting for 10 to 15% of all intracranial vascular malformations. DAVFs are typified by pathological anastomoses between meningeal arteries and dural venous sinuses or cortical veins. These fistulae frequently reside within the dural leaflets surrounding a venous sinus, characteristically at the transverse-sigmoid junction but also at the cavernous sinus (CS), superior sagittal sinus, anterior cranial fossa, tentorium, and other locations. The etiology of dAVFs is unclear in many instances; however, they are thought to be acquired after trauma, surgery, venous stenosis, or sinus thrombosis. Various treatment modalities are used to manage aggressive dAVFs, including endovascular techniques, surgery, radiosurgery, or a combination of these treatments.

Purpose

Our purpose is to report a case of a patient presenting headache with alarm signs later diagnosed with intracranial hypertension secondary to multiple etiological factors.

Case report

A 43-year-old man came to our hospital complaining of a persistent, pulsating headache associated with reduced visual acuity and diplopia for 6 months. Furthermore, he had frequent episodes of transient visual obscuration. He had suffered an automobile trauma 2 years ago with brachial plexus and right external jugular injuries. The patient also had lower limb thrombosis two years ago, without a diagnosis of thrombophilia. On physical examination, he had visual acuity of 20/40 LE and 20/30 RE. There was grade 4 papilledema on fundoscopy. The strength in the right arm was grade 4+ due to previous trauma. Neuroimaging showed signal failure in the distal portion of the superior sagittal sinus, extending to the torcula, communicating with large and tortuous vascular structures, suggestive of posterior dural arteriovenous fistulae. There was also stenosis of the middle third of the transverse sinuses. Cranial MRI showed signs of intracranial hypertension, with posterior straightening of the eyes, licorice accentuation of the optic nerve sheath, and partially empty sella turcica. A lumbar puncture was performed, with an opening pressure of 43cm H₂O. Arteriography showed complex arteriovenous fistulae in the posterior region, associated with the superior sagittal sinus and torcula thrombosis. The patient received acetazolamide (2g/day) to treat intracranial hypertension, and his visual complaints improved. Full anticoagulation was chosen because of its contribution to intracranial hypertension. The patient continued with neurological and neuroophthalmological monitoring. Two months later, the fistula was embolized with 70% occlusion. The patient is now stable, with improvement of the headache and visual complaints.

Conclusion

Endovascular treatment remains the first line of treatment in cases of complex dural fistulas. We emphasize the need to perform a fundoscopy in the emergency department as a fundamental step of the physical examination to recognize severe conditions.

Keywords: Intracranial hypertension; Fistula; Traumatic brain injury.