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Letter to the Editor: New Observation

Pituitary Apoplexy Causing Bilateral Internal Carotid Artery Ischemia

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Pituitary apoplexy is a clinical syndrome resulting from infarction of or hemorrhage into the pituitary gland resulting in a sudden severe headache, nausea and emesis, and visual deficits. Pituitary apoplexy resulting in cerebral infarction is a rare complication reported in the literature.[1,2] We present a case of bilateral internal carotid artery (ICA) ischemia from pituitary apoplexy.

A 53-year-old female with a history of hypothyroidism and known pituitary macroadenoma without encasement of surrounding vessels and structures at baseline awoke from sleep due to a severe headache. While showering her headache worsened, she had an episode of emesis, fell to the floor, and stopped responding to her husband. She was taken to a local hospital where she reportedly answered to her name and followed commands without any focal deficits, only noting increased somnolence, but this progressed to unresponsiveness and abnormal movements. She was transferred to our hospital due to her clinical deterioration and she was noted to be decerebrate posturing and with an unresponsive pupil on the left. Magnetic resonance imaging was obtained that demonstrated hypointensity on the gradient recalled echo in the pituitary suggestive of pituitary apoplexy and diffusion restriction with apparent diffusion coefficient match consistent with bilateral ICA infarction (Figure 1A–C). Her clinical condition worsened rapidly and the family withdrew care.

Pituitary apoplexy occurs when a pituitary tumor, typically macroadenoma, hemorrhages, or infarcts resulting in a rapid expansion of the hypophysis. This may lead to compression of adjacent structures, including the ICA. A rare complication of pituitary apoplexy is resultant cerebral ischemia.[1,2] Unilateral occlusion of the anterior circulation has been reported on a case report basis, but only five instances of bilateral occlusion have been reported in the literature.[1]

Proposed mechanisms of cerebral infarction to date include both direct compression and indirect vasospasm of the ICA.[3–5] It has been reported that compression or occlusion of the carotid artery due to pituitary adenoma is rare, given the slow growth of the tumor; however, with rapid expansion or resultant hemodynamic instability and hypotension, as in apoplexy, compromised carotid artery flow may be seen.[6] Vasospasm as a cause is proposed to be from either extravasation of blood into the subarachnoid space or release of vasoactive substances by the tumor itself.[4]

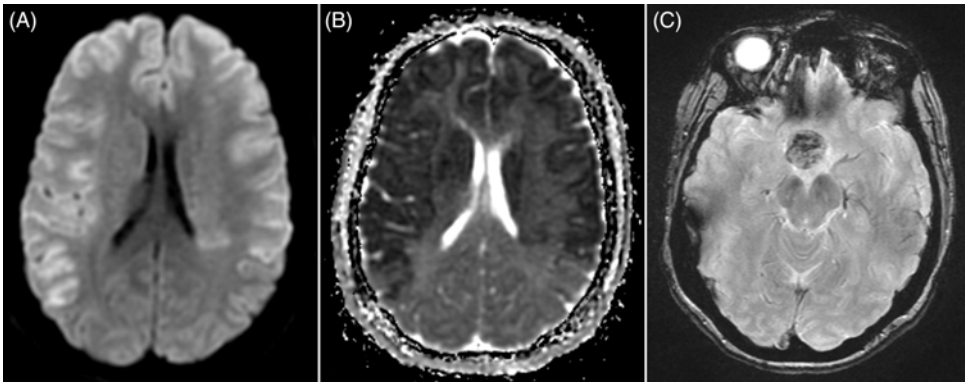


Figure 1: Cerebral magnetic resonance imaging in a patient with pituitary apoplexy. Hyperintense signal on diffusion weighed imaging (A) and hypointense signal on apparent diffusion coefficient (B) demonstrating complete bilateral internal carotid artery infarction. Gradient recovery echo (C) showing hemosiderin deposits in the pituitary gland consistent with pituitary apoplexy.

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This matter and mechanism is still debated in the literature.[1] Notably, bilateral involvement, as in our case, may be indicative and supportive of a vasospasm mechanism.[5]

Singh et al reported a conservative approach for stable patients; those without severe neuro-ophthalmological deficits and for those who respond quickly to early medical therapy.[7] A multidisciplinary approach is necessary due to the variable presentations and difficulty of predicting the clinical course of the patient.[7,8] Delayed decompression with an initial conservative approach with steroids was noted to have better outcomes in patients with cerebral infarct in some cases.[5] If a vasospasm mechanism is suspected, one case recently reported the first perfusion imaging and endovascular intervention performed to restore cerebral perfusion prior to tumor resection.[6] It may be reasonable with continued mental status deterioration that surgical management should be offered in select cases and endovascular management may also be considered initially to emergently address vasospasm.[6,8] Emergent recognition, a multidisciplinary approach, and imaging is imperative to clinical decision-making affecting outcome.

Disclosures. Dr Vargas and Dr Testai report no conflict of interests.

Author Contributions. AV and FT were a part of the design and concept, manuscript process, revisions, and are aware of submission.

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