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TRANSIENT MONOCULAR VISUAL LOSS DUE TO MULTIPLE CNS VASCULAR PATHOLOGY: REPORT OF TWO CASES

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ABSTRACT

BACKGROUND: The frequency of the transient monocular visual loss (TMVL), lasting minutes or longer, varies from a single to many episodes, which are usually followed by complete recovery of vision. TMVL is related most commonly to occlusive carotid disease. The therapy of patients with TMCL is divided into surgical and medical. CASE 1: A 55-year-old female was admitted to the clinic, with 4 months history of TMVL of the right eye, lasting 2-3 minutes, followed by complete recovery. Neuro-ophthalmological examination was normal. Neuroimaging investigations revealed proximal part right internal carotid artery (ICA) stenosis of 70%, left ICA stenosis of 40%, King-King in the middle segment of ICA, causing stenosis of 14%, and incidental aneurysms of the intracranial part of right ICA and in M2 segment of right middle cerebral artery. CASE 2: A 74-year-old female was admitted to the clinic, with 1 year history of TMVL of the right eye, lasting 4-5 minutes, followed by complete recovery. Neuro-ophthalmological examination was normal. Duplex scaning showed hemodynamically significant stenosis of the right ICA, with King-King in the left. MRI revealed diffuse vascular pathology. CONCLUSION: These cases demonstrated a co-occurrance of hemodynamically significant carotid artery occlusion with multiple or diffuse vascular pathology in patients with TMVL. We suggest that the detailed history, neuro-ophthalmological, and neuroimaging examinations might be useful to determine the correct etiologic diagnosis and discuss the most effective therapeutic strategy in TMVL patients.

Key words: transient visual loss, occlusive carotid disease

INTRODUCTION

Varied use of common terminology, referring to a transient loss of vision in one or both eyes, may cause some confusion when reading the literature. Some authors suggest that "amaurosis fugax" implies a vascular cause for the visual loss, but the term continues to be often used when describing visual loss from any origin (3,5,8,11). The existing nomenclature includes: amaurosis fugax - brief attack of monocular partial or total blindness that lasts seconds to minutes; transient monocular visual loss (TMVL) - more persistent visual loss, lasting minutes or longer; and transient bilateral visual loss (TBVL) - episode affecting either both eyes or both cerebral hemispheres, causing visual loss or bilateral homonymous events. The frequency of these visual disturbances varies from a single to many episodes, which are usually followed by complete recovery of vision (6,10). According to the literature, amaurosis fugax and TMCL are related most commonly to occlusive carotid disease, although TBVL are occasionally related to vertebrobasilar circulatory disorders (1,5,8,9,11,13). Different neurovascular investigations are indicated: carotid duplex scanning, computerized tomographic angiography and magnetic resonance angiography (2,3,7). The therapy of these patients is divided into surgical - carotid endartectomy and medical - antithrombotic (12,14,15).

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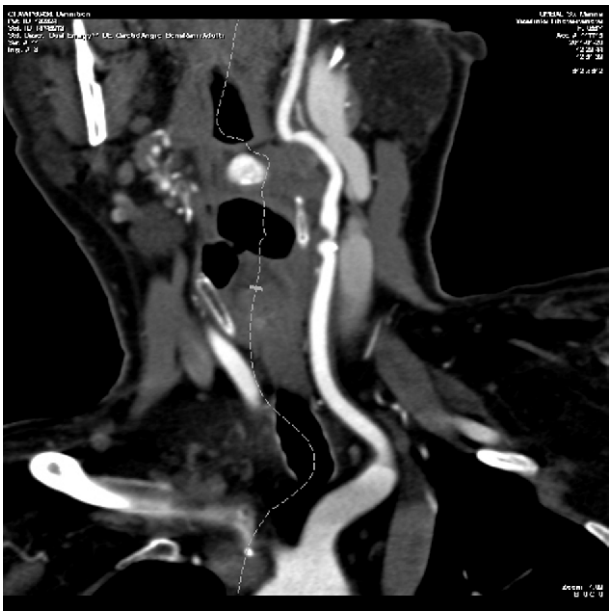
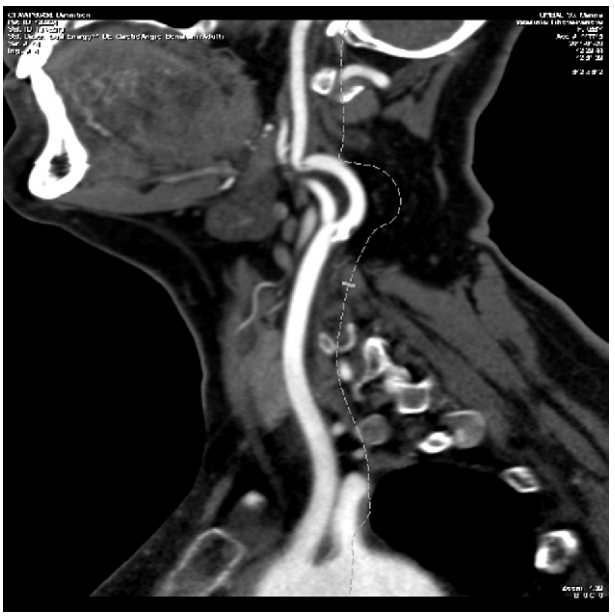
CASE REPORTS

Case 1. A 55-year-old caucasian female was admitted to the clinic, with 4 months history of sudden, painless TMVL of the right eye, lasting 2-3 minutes and followed by complete recovery. Neuro-ophthalmological examination showed normal visual acuity in both eyes, no afferent pupillary defect, normal visual fields and intraocular tension. On dilated fundus examination there were signs of atherosclerotic vascular changes. Carotid duplex scanning and CT carotidography revealed proximal part right ICA stenosis of 70% (Pic.1), left ICA stenosis of 40%, and King-King in the middle segment of ICA, causing stenosis of 14% (Pic.2). CT scan of the brain was normal without ischemic



Pic.1. CT carotidography - 70% stenosis in the proximal part of the right ICA



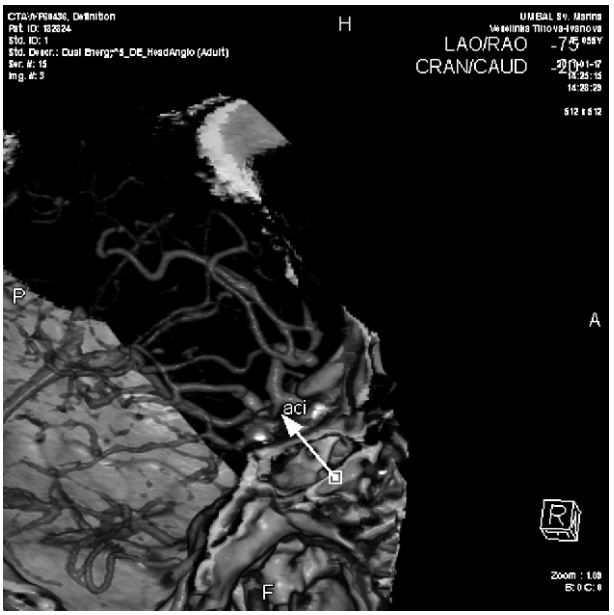
Pic.2. CT carotidography - 40% stenosis in the middle segment of left ICA and King-King

pathology, but CT angiography evaluated the presence of incidental aneurysms of the intracranial part of right ICA (Pic.3) and in M2 segment of right middle cerebral artery (Pic.4).

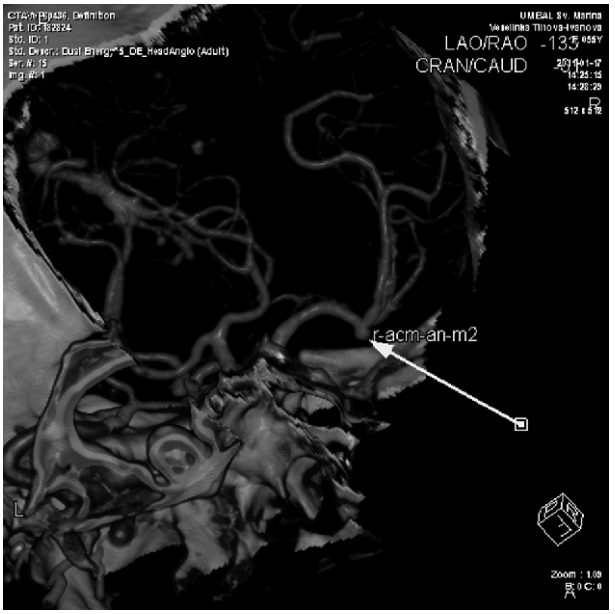
Case 2. A 74-year-old caucasian female was admitted to the clinic with 1 year history of TMVL of the right eye, lasting 4-5 minutes, followed by complete recovery. Neuro-ophthalmological examination revealed normal visual acuity, visual fields, and intraocular tension. It was binocular cataract extraction with posterior chamber lens. On dilated fundoscopy there were atherosclerotic vascular symptoms. Carotid duplex scanning showed hemodynamically significant stenosis of the right ICA, and King-King in the left. MRI revealed diffuse vascular pathology: multiple periventricular microinfarcts bilaterally (Pic. 5).

DISCUSSION

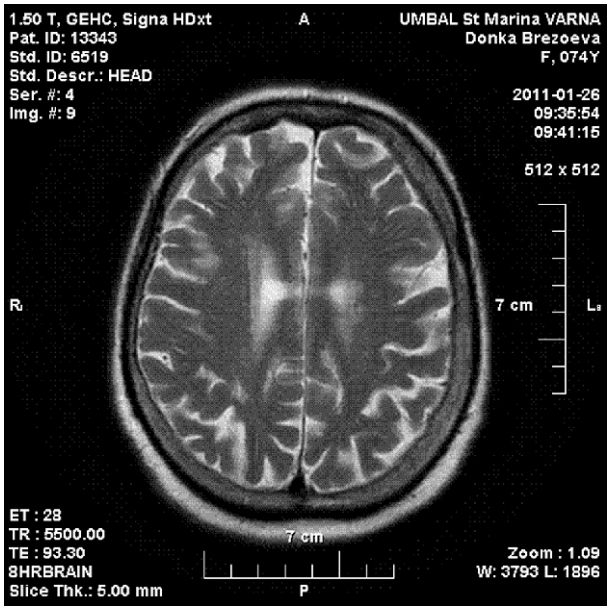
We reported two cases, demonstrating an unusual co-occurrence of hemodynamically significant carotid artery occlusion with multiple or diffuse vascular pathology in patients with TMVL. Upon completion of a detailed history,



Pic.3. CT angiography - aneurysm in the intracranial part of right ICA



Pic.4. CT angiography - aneurysm in the M2 segment of right middle cerebral artery



Pic.5. MRI - multiple periventricular microinfarcts bilaterally

the neuro-ophthalmologist should be considering some priorities for the accurate examination of patient with TMVL. Given the above-mentioned diagnoses, any confounding anterior segment pathology should be ruled out on examination. Following detailed perimetry, a dilated fundoscopy examination should be performed (10,13). A neurovascular investigation, including duplex scanning and echocardiography should be performed if a cardiogenic embolic source is suspected. Brain neuroimaging either computerized tomographic angiography or magnetic resonance angiography is useful in evaluating the presence of brain vascular pathology (2,3,11,15). In the event of a patient presenting with TMVL, it is the neuro-ophthalmologist who can order the initial investigation and effectively diminish the patient's risk for further ischemic events by initiating antithrombotic therapy and referring the patient to an internist for an ischemic risk factor assessment (4,9,10). Data exist that the surgical management of patients with symptomatic carotid stenosis in combination with one or more incidental intracranial aneurysms who meet the required surgical criteria is controversial (8,12,14). Accordingly, the decision which lesion should be treated first and whether these procedures should be done in separate operations or together in one session is considered disputable.

CONCLUSION

We suggest that the detailed history, neuro-ophthalmological, and neuroimaging examinations might be useful to determine the correct etiologic diagnosis and the most effective therapeutic strategy in TMVL patients.

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