

Central Retinal Artery Occlusion by Left Atrial Myxoma

Dear Editor,

Central retinal artery occlusion (CRAO) is an ophthalmic emergency and the ocular analogue of cerebral stroke. This condition mostly occurs in patients with high blood pressure, heart disease, diabetes, or carotid artery atherosclerosis in elderly people [1]. Left atrial myxoma, the most common primary cardiac tumor, is usually fatal unless surgically resected [2]. We report a case of left atrial myxoma with sudden headache, dizziness, cerebral infarction and retinal artery occlusion as its manifestations.

A 25-year-old woman presented with sudden onset headache, dizziness, and vision loss in her left eye for 1 day. The best-corrected visual acuity in her left eye was hand motion and a left relative afferent pupillary defect was noted. She had no medical history. Fundus examination of the

left eye showed retinal artery attenuation and whitening of the retina with a cherry-red spot in the fovea (Fig. 1A). Optical coherence tomography of the left eye showed severe edema in the macula and fluorescein angiography of the left eye showed a delay in arterial filling at the early to late phase (Fig. 1B and 1C). The patient was diagnosed with CRAO. During the ophthalmologic examination, the patient complained of persistent headache and vomiting, so she was transferred to the emergency room and received systemic examinations. Laboratory findings showed no abnormalities and her electrocardiogram showed a normal sinus rhythm. Neck computed tomography angiography showed no abnormalities. Brain diffusion-weighted magnetic resonance imaging showed acute multiple signal changes in the left middle cerebral artery territory (Fig. 1D), so she was diagnosed with cerebral infarction. Echocardiography showed, there was an intracardiac tumor. Contrast-enhanced chest computed tomography scan showed a heterogeneous mass with fluid density in the left atrium (Fig. 1E). She was transferred to cardiovascular surgery and underwent resection of the mass. An irregular, gelatinous friable mass was surgically removed. Micro-

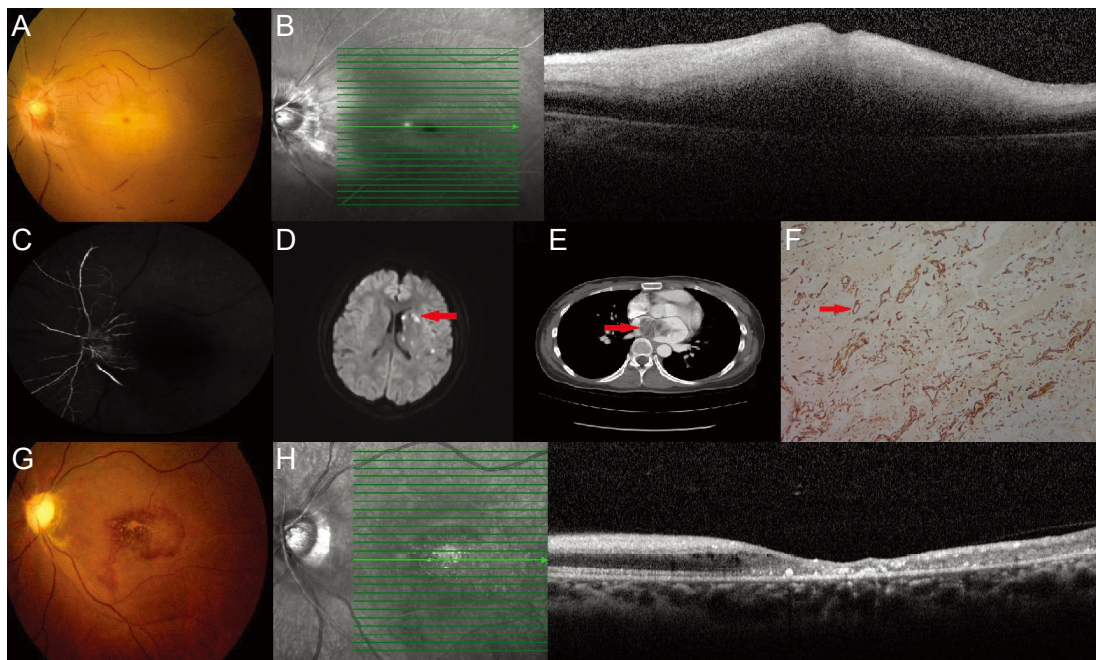


Fig. 1. (A) Fundus photograph of the left eye shows retinal artery attenuation and a cherry-red spot. (B) Optical coherence tomography shows severe edema in the macula. (C) Fluorescein angiography of the left eye shows a delay in arterial filling at 5 minutes 37 seconds. (D) Brain diffusion-weighted magnetic resonance imaging shows acute multiple signal changes (red arrow) in the left middle cerebral artery territory. (E) Contrast-enhanced chest computed tomography scan shows a heterogeneous mass (red arrow) with fluid density in the left atrium. (F) Section from excised tissue shows CD31 positivity in the abundant blood vessels (red arrow), original magnification $\times 100$. (G,H) Follow-up fundus photograph and optical coherence tomography show atrophy of macula and optic disc.

scopic analysis of the surgical specimen confirmed that it was an atrial myxoma. CD31 stains showed vascular endothelial cells [3]. One of the characteristic aspects of a myxoma is that it has abundant blood vessels (Fig. 1F). The patient recovered uneventfully from cardiac surgery and was discharged 1 week later. She was stable at 3-month follow-up, and was taking 100 mg prophylactic aspirin regularly. At 3 months postoperatively, the best-corrected visual acuity in her left eye was hand motion. Fundus examination and optical coherence tomography of the left eye showed atrophy of the macula and optic disc (Fig. 1G and 1H). But, she had no recurrence and the right eye was normal.

In this case, a young patient with no medical history or laboratory findings was diagnosed with CRAO due to left atrial myxoma, which did not recur or worsen after surgery. Also, she was diagnosed with cerebral infarction due to multiple emboli from the atrial myxoma. In the literature, there was a case report of patient with retinal artery occlusion caused by left atrial myxoma. Rafuse et al. [4] reported a 45-year-old woman presented with sudden onset right-side hemiparesis, aphasia and a painful left eye. Fundus examination revealed a bone-white appearance with no retinal circulation perfusion and magnetic resonance imaging revealed multiple areas of signal changes consistent with old and new infarcts. Echocardiographic examination revealed a left atrial tumor which was confirmed as a myxoma following surgery. CRAO caused by acute ischemia of the retina may lead to severe irreversible visual impairment. One of the causes of CRAO is cardiac myxoma, which is a source of emboli to the central nervous system and elsewhere in the vascular tree. The presence of embolic phenomena, especially in young patients with neurological symptoms, should prompt early neuroimaging

and echocardiography, even in the absence of electrocardiographic or auscultation abnormalities [2]. In conclusion, ophthalmologists should be alert that myxoma may cause multiple embolic problems, such as CRAO and stroke, thus should perform systemic examinations and find the associated lesions.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Varma DD, Cugati S, Lee AW, Chen CS. A review of central retinal artery occlusion: clinical presentation and management. *Eye (Lond)* 2013;27:688-97.
2. O'Rourke F, Dean N, Mouradian MS, et al. Atrial myxoma as a cause of stroke: case report and discussion. *CMAJ* 2003;169:1049-51.
3. Pucci A, Gagliardotto P, Zanini C, et al. Histopathologic and clinical characterization of cardiac myxoma: review of 53 cases from a single institution. *Am Heart J* 2000;140:134-8.
4. Rafuse PE, Nicolle DA, Hutnik CM, Pringle CE. Left atrial myxoma causing ophthalmic artery occlusion. *Eye (Lond)* 1997;11 (Pt 1):25-9.