Man with swollen eye

CASE PRESENTATION
A previously healthy 69-year-old man presented to the emergency department with right orbital pain and blurred vision for 1 day. He denied fever or recent trauma history. On examination, he had subconjunctival haemorrhage, chemosis and proptosis (figure 1). His neurologic examination revealed right-sided ophthalmoplegia. His vital signs were stable, and the rest of the physical examination and laboratory study were unremarkable.

QUESTION
What is the most likely diagnosis for this patient?
A. Orbital cellulitis.
B. Orbital lymphoma.
C. Carotid-cavernous fistula.
D. Grave’s ophthalmopathy.

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ANSWER: C

Orbital cellulitis commonly presents with redness and swelling of the eyelid, discharge from the eye as well as fever and leucocytosis. Patients with orbital lymphoma typically demonstrate a ‘salmon-coloured lesions’ of swollen conjunctiva and a palpable mass in the orbital. CT scanning may reveal an orbital mass. The eye involvement is frequently bilateral and symmetric in Grave’s ophthalmopathy. The time course of symptoms also provides some clues. Carotid-cavernous fistulas (CCFs) is an abnormal vascular shunt between the carotid artery and the cavernous sinus. The retrograde blood flow from the cavernous sinus resulted in an engorged superior ophthalmic vein (figure 2) and leads to the classic triad of exophthalmos, ocular bruit and episcleral congestion.1 Cerebral angiography of the patient revealed right internal carotid artery aneurysm rupture with direct type CCF.

According to the anatomy, haemodynamic status and aetiology, CCFs may be divided into direct or indirect, low-flow or high-flow and traumatic or spontaneous.2 Spontaneous CCFs account for approximately 30% of all CCFs and may be due to cavernous carotid aneurysm, venous thrombosis and collagenopathy.3 Clinical manifestations include proptosis, chemosis, subjective bruit, orbital pain, visual disturbance and diplopia. Most direct CCFs are symptomatic and endovascular obliteration should be considered.3

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