Neuro-Ophthalmology Cases for the Neurologist

Stacy V. Smith, MD[a], Alec L. Amram, MD[b], Elsa M. Rodarte, MD[c], Andrew G. Lee, MD[a,b,d,e,f,g,h,*]

KEYWORDS

• Giant cell arteritis • Arterial dissection • Intracranial aneurysm
• Pituitary adenoma and apoplexy • Mucormycosis

KEY POINTS

- Neurologists should be aware of specific urgent and emergent neuro-ophthalmic conditions, including giant cell arteritis, arterial dissection, intracranial aneurysm, pituitary apoplexy, and invasive sino-orbital fungal infection (eg, mucormycosis).
- Early recognition and treatment of these disorders can greatly impact patient morbidity and mortality, including the preservation of both vision and life.
- Neurologists should be cognizant of the key and differentiating clinical and radiographic features for these presentations.

INTRODUCTION

Neurologists may be the first point of medical contact for patients with neuro-ophthalmic disorders, which can threaten life or vision. This article presents the key clinical and radiographic features for the following neuro-ophthalmic emergencies: (1) giant cell arteritis (GCA), (2) sino-orbital mucormycosis, (3) pituitary apoplexy, (4) pupil-involving third nerve palsy due to aneurysm, and (5) carotid dissection with

Disclosures: None of the authors have any disclosures.
[a] Department of Ophthalmology, Blanton Eye Institute, Houston Methodist Hospital, 6560 Fannin Street, Scurlock 450, Houston, TX 77030, USA; [b] Department of Ophthalmology, University of Texas Medical Branch, 301 University Boulevard, Galveston, TX 77555, USA; [c] Department of Neurobiology and Anatomy, University of Texas Health Science Center at Houston, 6431 Fannin Street, MSB 7.420, Houston, TX 77030, USA; [d] Department of Ophthalmology, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA; [e] Department of Ophthalmology, Weill Cornell Medicine, 1300 York Avenue, New York, NY 10065, USA; [f] Department of Neurology, Weill Cornell Medicine, 1300 York Avenue, New York, NY 10065, USA; [g] Department of Neurosurgery, Weill Cornell Medicine, 1300 York Avenue, New York, NY 10065, USA; [h] Section of Ophthalmology, UT MD Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030, USA
* Corresponding author. Department of Ophthalmology, Blanton Eye Institute, Houston Methodist Hospital, 6560 Fannin Street, Scurlock 450, Houston, TX 77030.
E-mail address: AGLee@HoustonMethodist.org

Neurol Clin 34 (2016) 611–629
http://dx.doi.org/10.1016/j.ncl.2016.04.005 **neurologic.theclinics.com**
0733-8619/16/$ – see front matter

Horner syndrome. Representative, composite case-based examples are used to illustrate specific points.

CASE 1: GIANT CELL ARTERITIS

An 80-year-old man presented to the emergency room with new onset, severe, temporal headaches, and 2 transient visual loss episodes in the right eye (oculus dexter; OD). He also experienced 3 episodes of transient binocular horizontal diplopia over the course of the last week. He was seen by an outside ophthalmologist and had a normal eye examination and was referred to a neurologist. His past medical history was significant for well-controlled hypertension on amlodipine. Visual acuity was 20/20 in both eyes (oculus utro; OU) and the remainder of the eye and neurologic examinations were normal. The patient was admitted to an outside hospital for work-up of transient ischemic attack (TIA). A carotid ultrasound, electrocardiogram, echocardiogram, and MRI of the brain and magnetic resonance angiography (MRA) of the head and neck were normal. The episodes were attributed to migraines and TIA and the patient was started on aspirin 81 mg per day and discharged. Three days later, however, the patient again presented to the emergency room but now with complete vision loss OD. Neuro-ophthalmology examination showed a vision of no light perception (NLP) OD and 20/20 in the left eye (OS). The right pupil was nonreactive and amaurotic with a relative afferent pupillary defect OD. Fundoscopic examination demonstrated pallid optic disc edema OD (Fig. 1). The remainder of the eye examination was normal OU. The left fundus showed a normal optic nerve but the cup to disc ratio was 0.4 OS. Palpation over the right temple elicited localized pain and tenderness. Laboratory tests showed an elevated C-reactive protein (CRP) of 2.3 mg/dL (normal 0.8 mg/dL or less) and erythrocyte sedimentation rate (ESR) of 75 mm/h (normal for a man aged 80 years = 40 mm/h). The platelet count was elevated at 550 per uL (normal <450 per uL). Due to concern for GCA the patient was immediately started on 1000 mg of intravenous (IV) methylprednisolone for 3 days and then continued on oral prednisone at 1 mg/kg. A temporal artery biopsy confirmed the diagnosis of GCA. The patient continued on high-dose oral steroid therapy but the vision remained NLP OD.

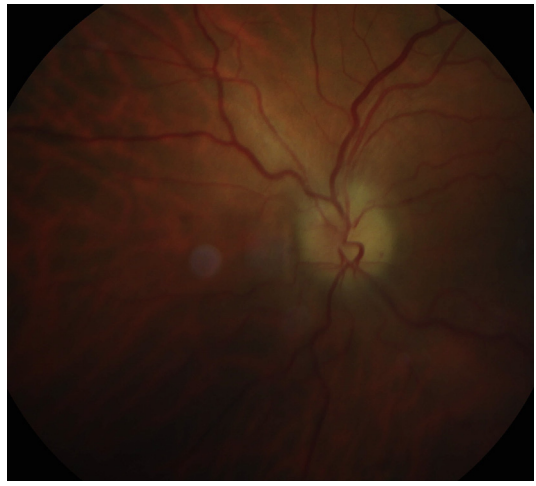

Fig. 1. Pallid disc edema of the right eye.