Introduction

Neuro-ophthalmic emergencies are rare. Although their incidence is much lower than other ophthalmic emergencies, such as retinal detachment or ruptured globe, their outcomes carry a much higher morbidity and even mortality. The ocular manifestations of neuro-ophthalmic emergencies may be predictors of more dangerous central nervous system or systemic pathology. The vision threatening and potentially life-threatening nature of these disorders requires prompt recognition and diagnosis on the physician's part. A delay of even a few hours could result in a dire outcome. Therefore, the clinician must be familiar with the manifestations of these disease entities and initiate appropriate testing and treatment without delay.

An adequate understanding of physiology and, increasingly, molecular genetics is important in understanding disease and potential treatments, anatomy is the foundation. Important anatomical topics for the neuro-ophthalmologist include the anatomy of the globe (both the anterior and posterior segments), the orbit and adnexal structures, and the afferent and efferent visual pathways with their intracranial projections.

Neuro-ophthalmologic disorders, affecting the afferent and efferent visual pathways, are often encountered by neurologists in clinical practice. Combining an understanding of neuro-ophthalmologic anatomy with proper examination technique provides a powerful means to detect and localize lesions that involve the visual system.

The importance of obtaining a detailed history cannot be overemphasized. The most common complaints are decreased vision, diplopia
or pain. The onset, nature and course of the patient complaint should be
explored in detail, with attention to any associated neurologic symptoms.
The patient, of course, should be asked about any prior ophthalmologic
conditions, medications, allergies and medical history.

Signs and symptoms of visual pathway dysfunction commonly occur as
initial presenting features of potentially treatable neurologic disorders,
including strokes, multiple sclerosis, tumors, aneurysms, central nervous
system infections, and certain movement disorders. Visual loss and ocular
motility disorders may also occur as manifestations of systemic disorders,
such as cardiac disease, diabetes mellitus, hypertension, and drug toxicity.
Prompt recognition and localization of neuro-ophthalmologic signs and
symptoms are crucial to effective diagnosis and management.

Combining an understanding of neuro-ophthalmological anatomy with
proper imaging techniques provides a powerful method to detect lesions
involving the afferent and efferent visual pathways. Precise documentation
of the extent of injury within the nervous system is becoming increasingly
important to assess and monitor the effect of neurological therapies.

Advances in neuroimaging and interventional techniques have
revolutionized the early diagnosis, prognosis, and treatment of neuro-
ophthalmic disorders. These techniques include computed tomography
(CT), magnetic resonance imaging (MRI), CT and MR angiographic
techniques, catheter digital subtraction angiography, functional MRI,
positron emission tomography, and single photon emission computed
tomography.

There are few true ophthalmologic emergencies. While rare, the
outcomes of neuro-ophthalmic emergencies are associated with high
morbidity and even mortality. The ocular manifestations of neuro-ophthalmic emergencies are predictors of more dangerous central nervous system or systemic pathology. The vision threatening and potentially life-threatening nature of these disorders requires prompt recognition and diagnosis on the physician’s part. A delay of even a few hours could result in a dire outcome. Therefore, the clinician must be familiar with the manifestations of these disease entities and initiate appropriate testing and treatment without delay.