Recognizing Diseases and Disorders of the Eye

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As explained in the previous paper on ocular anatomy, the eye can be divided into several portions, each portion dealing with a specific area and its surrounding structures.

This paper will give an overview of some of the more common diseases and disorders likely to be encountered by athletic trainers and therapists, such as eye manifestations in systemic disease, ocular emergencies, and ocular trauma incurred in activities other than sports. It will also include instruction on how to conduct a thorough history and physical exam of the eye, the important first step in any assessment of the patient.

KEY POINTS

- Any investigation of eye disease or disorder always begins with a history and physical examination.
- Many systemic diseases have ocular findings that can be seen during the physical exam.
- Certain eye emergencies demand immediate evaluation.

Ophthalmic History and Physical Examination

Any assessment of the eye begins with the ocular examination. This includes a thorough history followed by a physical exam of the eye and surrounding structures. Of all the organs in the body, the eye is most accessible to direct examination (Vaughan et al., 1995). Its external anatomy and visual function can easily be examined and tested largely without the need for special equipment. The eye is the only part of the body where blood vessels and central nervous system tissue (retina and optic nerve) can be viewed in a noninvasive manner (Duke-Elder, 1976). This is especially useful in the case of systemic disease and its effects on the eye.

Taking a thorough history is the first step in the physical exam. Some patients present with a chief complaint involving the eye. In this situation it is important to ascertain when the symptoms first appeared, their severity, the circumstances involved in the onset of the problem, and other issues such as duration, rapidity of onset, and frequency or intermittency of the complaint (Vaughan et al., 1995). An overview of a patient's past medical history and family history is important as well. This includes a list of any medications the patient is currently taking, especially eye medications. Here are some common questions to ask:

- How long have the symptoms lasted?
- Was the onset of symptoms immediate or have the symptoms progressively worsened over a specific period?
- Where are the symptoms located?
- Does the pain or sensation radiate to other parts of the eye or surrounding structures?
- How does the patient characterize the degree of pain or discomfort, if any?

Subjective Findings

It is essential to investigate any loss or abnormality of vision. This may include decreased central or peripheral vision, deficiency in color
vision, or a new problem with adaptation to light or dark (Newell, 1996). Other abnormalities in vision include diplopia (double vision) involving one or both eyes; visual aberrations such as flashing or flickering lights that may signal retinal disease; floating spots in the visual field; and glare or halos, which might result from excessive pupillary dilatation, uncorrected refractive error, scratches on spectacle lenses, or corneal edema and cataracts (Vaughan et al., 1995).

Miscellaneous ocular complaints (other than visual) include abnormal secretions such as excessive tear production, mucus, pus, and dry eyes; physical signs described by the patient such as “red eye,” which needs to be differentiated between redness of the lids versus redness of the globe; abnormal protrusion of the globe; pupillary abnormalities such as anisocoria (unequal pupil size); and abnormal position of the eyes or eyelids, such as ptosis, or drooping of the eyelid (Newell, 1996).

Eye pain and discomfort are common complaints that need to be investigated. Eye pain can be periocular, ocular, retrobulbar (behind the globe), and sometimes it is poorly localized. Periocular pain can be from the tear sac, lids, or sinuses. Ocular pain may come from the surface or from deeper structures. Damage to the corneal epithelium can produce a sharp pain or the sensation of a foreign body in the eye (Vaughan et al., 1995).

Itching as a primary symptom is likely a sign of allergy. Dry eyes or corneal irritation may manifest as symptoms of dryness or burning. Nonspecific, poorly localized complaints include “eyestrain,” “fullness,” and “pressure” (Vaughan et al., 1995). Pain may also be associated with a superficial sensation of a foreign body or with photophobia, which is an abnormal ocular sensitivity to light (Newell, 1996).

Eye tearing may be secondary to irritation of the surface of the eye, usually causing reflex tearing, or it may be due to an abnormality of lacrimal drainage which generally results in chronic watering and tears rolling down the cheek.

Once an accurate and thorough history is taken, the next step is the physical exam. The exam should start with a basic assessment of visual acuity. This includes testing whether a patient can identify an object at a designated testing distance, usually 20 feet, and whether the patient can read at an up-close distance, usually 16 inches. Assessment of vision should also include whether each eye sees near and far objects equally when measured separately.

If there is any abnormality in one eye’s visual acuity, such as the inability to see an object while the other eye is covered, it may signal a neurologic or anatomic disorder that calls for further investigation.

Testing ocular motility is an important part of the eye exam. Normally patients have binocular vision. Each eye generates a visual image that is independent of the other eye. The brain then fuses these images together. Any abnormality in fusion of these images may result in what we call “double vision” (Vaughan et al., 1995).

To test extraocular motility, the patient is asked to follow a target such as a penlight or finger with both eyes as it moves in the four cardinal directions of gaze (up, down, left side, right side). Take note of any difference in speed or range of motion between each eye. Also look for the presence of nystagmus (unsteadiness of fixation on an object). Any variation in eye movements should signal the need to refer the patient to an ophthalmologist (Vaughan et al., 1995).

External physical examination of the eyes should be done in a systematic way that begins with the eyelids and periocular area. Look for any abnormality in symmetry, evidence of skin lesions or growths, erythema, warmth, or tenderness (Vaughan et al., 1995).

Next examine the conjunctiva for any signs of redness, excessive tearing, or irritation. Then move to a direct exam of the globe itself, looking for signs of protrusion of one or both eyeballs (proptosis); unequal pupillary size (anisocoria); differences in color of the irises, which may signal uveal inflammation or