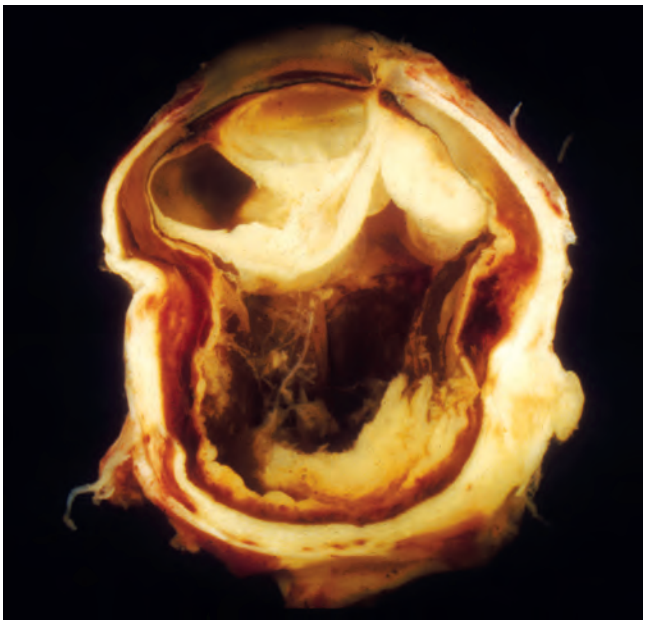

Figure 29-13 Exogenous panophthalmitis. This eye was removed after a foreign body injury. Note the suppurative inflammation behind the lens that is drawn up to the right of the lens to the cornea, the site of the wound. The central portion of the vitreous humor was extracted surgically (by vitrectomy). Note the adhesions to the surface of the eye at the 8 o'clock position, indicating that the intraocular inflammation has spread through the sclera into the orbit: panophthalmitis. (From Folberg R: The eye. In Spencer WH (ed): Ophthalmic Pathology—An Atlas and Textbook, 4th ed. Philadelphia, WB Saunders, 1985.)

KEY CONCEPTS

- The term **cataract** describes opacities of the lens that may be congenital or acquired.
- The term **glaucoma** describes a group of conditions characterized by distinctive changes in the visual field and the size and shape of the optic nerve cup and usually by an elevation in intraocular pressure.
- Glaucoma may develop in the context of either an open or closed angle. Open angle and angle closure glaucomas are further subclassified into primary and secondary types.
- Mutations in the myocilin (*MYOC*) and optineurin (*OPTN*) genes have been associated with subsets of individuals with juvenile and adult primary open-angle glaucoma
- **Endophthalmitis** is a term used to describe inflammation of the interior of the eye involving the vitreous humor and panophthalmitis is the term used to describe inflammation of the interior of the eye that also extends into the uvea and sclera.
- Endophthalmitis may originate from infection within the body (endogenous endophthalmitis complicating generalized sepsis) or as a complication of corneal infection or a wound, accidental injury, or a surgical procedure (exogenous endophthalmitis).
- In panophthalmitis, inflammation extends from the interior of the eye into the ocular coats: the retina, choroid, and the sclera.

Uvea

Together with the iris, the choroid and ciliary body constitute the uvea. The choroid is among the most richly vascularized sites in the body.

Uveitis

The term *uveitis* can be applied to any type of inflammation in one or more of the tissues that compose the uvea. Thus, the iritis that develops after blunt trauma to the eye or that accompanies a corneal ulcer is technically a form of uveitis. However, in clinical practice the term *uveitis* is restricted to a diverse group of chronic diseases that may be either components of a systemic process or localized to the eye. Uveal inflammation may be manifest principally in the anterior segment (e.g., in *juvenile rheumatoid arthritis*) or may affect both the anterior and posterior segments. The complications of chronic anterior segment inflammation were discussed earlier; the remainder of this discussion therefore focuses on the effects of uveal inflammation on the posterior segment of the eye. As will be described briefly, uveitis is frequently accompanied by retinal pathology. Uveitis may be caused by infectious agents (e.g., *Pneumocystis carinii*), may be idiopathic (e.g., sarcoidosis), or may be autoimmune in origin (sympathetic ophthalmia). Examples are described later.

Granulomatous uveitis is a common complication of sarcoidosis (Chapter 15). In the anterior segment it gives rise to an exudate that evolves into "mutton-fat" keratic precipitates described earlier. In the posterior segment, sarcoid may involve the choroid and retina. Thus, granulomas may be seen in the choroid. Retinal pathology is characterized by perivascular inflammation; this is responsible for the well-known ophthalmoscopic sign of "candle wax drippings." Conjunctival biopsy can be used to detect granulomatous inflammation and confirm the diagnosis of ocular sarcoid.

Numerous infectious processes can affect the choroid or the retina. Inflammation in one compartment is typically associated with inflammation in the other. Retinal *toxoplasmosis* is usually accompanied by uveitis and even scleritis. Individuals with AIDS may develop cytomegalovirus retinitis and uveal infection such as *Pneumocystis* or mycobacterial choroiditis.

Sympathetic ophthalmia is an example of noninfectious uveitis limited to the eye. This condition is characterized by bilateral granulomatous inflammation typically affecting all components of the uvea: a panuveitis. Sympathetic ophthalmia, which blinded young Louis Braille, may complicate a penetrating injury of the eye. In the injured eye, retinal antigens sequestered from the immune system may gain access to lymphatics in the conjunctiva and thus set up a delayed hypersensitivity reaction that affects not only the injured eye but also the contralateral, noninjured eye. The condition may develop from 2 weeks to many years after injury. Enucleation of a blind eye (which can be the sympathizing eye rather than the directly injured eye) may yield diagnostic findings. It is characterized by diffuse granulomatous inflammation of the uvea (choroid, ciliary body, and iris). Plasma cells are typically absent, but eosinophils may be identified in the infiltrate (Fig. 29-14).