Severe infectious corneal ulceration commonly causes loss of vision. Management comprises antimicrobial medication and diverse approaches that aim to restore the integrity of the corneal surface. With this mind, amniotic membrane transplantation (AMT) has been recently introduced into the treatment regimen. In this chapter, clinical aspects and pathogenesis of the major groups of infectious corneal ulcerations and the basis and clinical application of AMT for the management of these corneal lesions are reviewed.

Herpetic stromal keratitis (HSK) is a common infectious cause of blindness and is prevalent worldwide. Herpes simplex virus (HSV) establishes a latent infection in the neurons of the peripheral ganglia and in the eye, and may eventually become reactivated and cause lesions to recur. In a previous study, the prevalence of her-
Herpes infections of the cornea present a broad range of clinical features. Infectious epithelial keratitis may appear as dendritic or geographic ulcerations (Fig. 2.1) that are caused by viral replication and epithelial cytolysis.

Stromal HSV keratitis has been classified as non-necrotizing or necrotizing. Immune-mediated stromal keratitis typically appears with infiltration, immune ring, scarring, and neovascularization. It often corresponds with a prior or current infectious epithelial lesion. The necrotizing ulcerating keratitis that occurs in about a third of patients with stromal keratitis shows dense, white, opaque inflammatory infiltration of the stroma (Fig. 2.2) and carries a high risk of keratolysis and corneal perforation occurring within only a few days.

The characteristic aspects of neurotrophic keratopathy are irregular epithelium, oval-shaped, persistent epithelial defects with smooth borders, and a lack of scalloped edges that are typical for infectious lesions. The corresponding ulceration has a gray–white opacification at the ulcer bed and overhanging epithelial border (Fig. 2.3). Ulceration and melting is a serious complication that can lead to perforation and loss of vision.

2.2.1.2 Treatment

As the infectious epithelial lesions are caused by viral replication, the lesions are treated with antiviral agents. In all patients with stromal ulceration and infiltration, other infective causes must be excluded, e.g., bacteria, fungi, *Acanthamoeba*.

The management of HSV-induced, immune-mediated keratitis with ulceration includes medical and surgical approaches. The immune-mediated inflammation is mostly treated with topical corticosteroids [75, 100]. However, corticosteroids may impair corneal re-epithelialization and wound-healing, and corneal melting and perforation have sometimes been the consequence. Topical application of cyclosporin A has been recommended, therefore, in order to avoid the potential side effects of corticosteroids [30].

**Fig. 2.1** Infectious dendritic ulcer in herpes simplex keratitis