

## Treatment of Blepharitis: Recent Clinical Trials

STEPHEN C. PFLUGFELDER, MD,<sup>1</sup> PAUL M. KARPECKI, OD,<sup>2</sup> AND VICTOR L. PEREZ, MD<sup>3</sup>

**ABSTRACT** Blepharitis is a chronic inflammatory disease of the eyelids that is frequently encountered in clinical practice. The etiology of the disorder is complex and not fully understood, but the general consensus is that bacteria and inflammation contribute to the pathology. Blepharitis can be classified into anterior blepharitis, involving the anterior lid margin and eyelashes, and posterior blepharitis, characterized by dysfunction of the meibomian glands. Long-term management of symptoms may include daily eyelid cleansing routines and the use of therapeutic agents that reduce infection and inflammation. A cure is not possible in most cases, and subjective symptoms may persist even when a clinical assessment of signs indicates that the condition has improved. There are no established guidelines regarding therapeutic regimens, but recent clinical trials have shown that antibiotics and topical corticosteroids can produce significant improvement in signs and symptoms of blepharitis. Fixed combinations of a topical antibiotic and a corticosteroid offer an effective and convenient treatment modality that addresses both infectious and inflammatory components of the disease. Further clinical trials are needed to determine optimal therapies for managing blepharitis.

**KEY WORDS** antibiotics, bacteria, blepharitis, corticosteroids, cyclosporine, inflammation, meibomian gland dysfunction

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From <sup>1</sup>Baylor College of Medicine, Houston, TX, <sup>2</sup>Kentucky Center for Vision, Lexington, KY, and <sup>3</sup>Bascom Palmer Eye Institute, University of Miami Miller School of Medicine, Miami, FL, USA.

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Single-copy reprint requests to Stephen C. Pflugfelder, MD (address below).

Corresponding author: Stephen C. Pflugfelder, MD, Cullen Eye Institute, Department of Ophthalmology, Baylor College of Medicine, 6565 Fannin, NC-205, Houston, Texas 77030 USA. Tel: 713-798-6100. Fax: 713-798-4231. E-mail address: [stevenp@bcm.edu](mailto:stevenp@bcm.edu)

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### I. INTRODUCTION

**B**lepharitis, a chronic inflammatory condition of the eyelid margin, is one of the most common ocular disorders seen by ophthalmic practitioners.<sup>1,2</sup> While generally not sight-threatening, blepharitis can induce permanent eyelid margin alterations and even vision loss from superficial keratopathy, corneal neovascularization, or ulceration.<sup>3</sup>

#### A. Incidence and Prevalence

Blepharitis affects all age and ethnic groups.<sup>2,3</sup> While children can develop blepharitis, onset is typically during middle age.<sup>1</sup> Although blepharitis is commonly encountered in clinical practice, its true incidence and prevalence in the general population has not been well documented apart from some regional studies. In one survey, ophthalmologists and optometrists in the United States reported that 37% to 47% of their patients had evidence of blepharitis.<sup>2</sup> A recent cross-sectional study in Spain based on a randomly selected sampling population reported rates of asymptomatic and symptomatic meibomian gland dysfunction (a condition closely linked with posterior blepharitis) of 21.9% and 8.6% of individuals, respectively.<sup>4</sup>

#### B. Classification

Various classification systems have been used to categorize blepharitis over the years, and some controversy remains with regard to blepharitis terminology. The most recent American Academy of Ophthalmology (AAO) Preferred Practice Pattern for blepharitis classifies the condition according to anatomic location.<sup>1</sup> *Anterior blepharitis* affects the base of the eyelashes and follicles and includes the traditional classifications of staphylococcal and seborrheic blepharitis. *Posterior blepharitis* involves the posterior lid margin (segment that contacts the cornea and bulbar conjunctiva) and has a range of potential etiologies, the primary cause being meibomian gland dysfunction (MGD). MGD is characterized by functional abnormalities of the meibomian glands and altered secretion of meibum, which plays an important role in slowing the evaporation of tear film; this change in protective function leaves the eye susceptible to surface damage and discomfort.<sup>3</sup> Other causative factors in posterior blepharitis include infectious (herpes simplex, varicella zoster) and inflammatory conditions (e.g., meibomitis, atopic blepharoconjunctivitis, graft vs host disease, chalazia). To further complicate the classification of blepharitis,

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it is common for patients to have a mixture of anterior and posterior lid margin disease.<sup>1,5</sup>

**C. Clinical Characteristics**

Figure 1 illustrates various presentations of blepharitis. While the clinical features of the blepharitis categories can

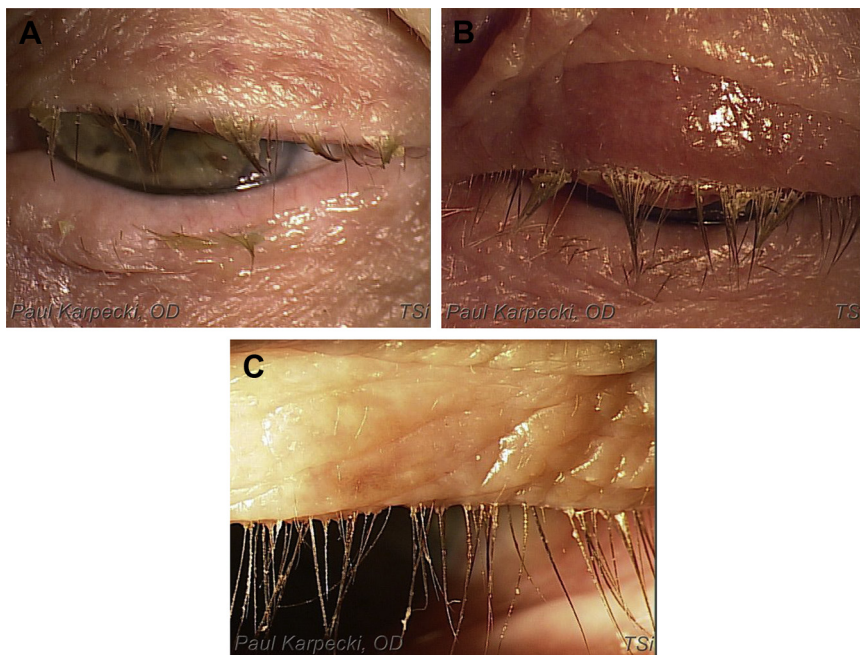
overlap, certain signs and symptoms are more commonly associated with particular subtypes.<sup>1</sup> Patients with staphylococcal (anterior) blepharitis frequently exhibit eyelash loss and/or misdirection, signs that are rarely seen with other types of blepharitis. Other signs of staphylococcal blepharitis can include eyelid ulceration (severe cases), eyelid scarring, hordeolum, mild-to-moderate conjunctival injection, corneal changes (erosions, infiltrates, scarring, neovascularization and pannus, thinning, phlyctenules), and matted, hard scales/collarettes. Seborrheic (anterior) blepharitis is often accompanied by seborrheic dermatitis, with ocular findings typified by oily or greasy eyelid deposits, mild conjunctival injection, and inferior punctate epithelial erosions. Eyelash changes are rare.

Posterior blepharitis/MGD, often associated with rosacea, typically features plugging or displacement of the ductal openings, dilated and telangiectatic lid margin blood vessels, and decreased lipid secretion with foamy tears. Chalazia may be a cause or consequence of MGD. Eyelash misdirection and eyelid scarring can occur in long-standing posterior blepharitis, and corneal changes can include inferior punctate epithelial erosions, marginal infiltrates, scarring, neovascularization and pannus, and ulceration.

Aqueous tear deficiency is a frequent finding in all types of blepharitis.<sup>1</sup> Cases of suspected *Demodex* blepharitis are often associated with rosacea and individuals over the age of 70, but can affect any patient.<sup>6</sup> The presentation is characterized by chronic inflammation of the base of the lashes and eyelid margins, a clear “sleeve” or scurf surrounding the base of the lashes with significant debris, irregular eyelid margins, madarosis, and symptoms of itching and irritation.<sup>6,7</sup>

**D. Etiology**

The underlying causes of blepharitis and associated inflammation are not fully understood but probably involve several pathogenic mechanisms.



**Figure 1.** Clinical photographs of (A) staphylococcal blepharitis with matting of the eyelids, (B) severe blepharitis, (C) *Demodex* blepharitis in a patient complaining of itchy eyelid margins.

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