What is the best treatment approach for severe blepharitis?

Abstract

Blepharitis is one of the most common disorders encountered in ophthalmology. Despite this, it can often be overlooked and misdiagnosed. Blepharitis can manifest as anterior and/or posterior disease. The form of blepharitis can be determined based on patient symptoms or clinical presentation. An appropriate treatment plan can be made once the form of blepharitis is elucidated. Three key strategies should be addressed in the treatment of blepharitis: (1) management of symptoms, (2) control of any inflammation that is present to prevent long-term damage, and (3) prevention of recurrence. This review focuses on the treatment of this disease as well as suggestions for treating the most severe cases while keeping these goals in mind.

Key words: Blepharitis; clinical management; eye disorders

Relevant evidence-based information

Although multiple classification schemes have been introduced over the last century, there has not been a uniformly accepted classification scheme. Elsching is credited for first describing the condition in 1908. Thysgeson established the first major classification scheme in 1946. He defined the disorder as a chronic inflammation of the lid border and described the disease in two general categories: squamous and ulcerative. McCulley provided a much more complex classification, splitting blepharitis into 6 categories. Recently, the American Academy of Ophthalmology’s Preferred Practice Patterns have offered a more simplified classification of blepharitis, splitting it into anterior blepharitis, posterior blepharitis, and a combination of the two. Anterior blepharitis includes such entities as seborrheic or staphylococcal disease. Posterior blepharitis refers to meibomian gland dysfunction.

The type of blepharitis can occasionally be determined based on patient symptoms. For example, symptoms of early morning irritation or eyelid sticking are more typical for anterior blepharitis, whereas symptoms that worsen as the day progresses suggest posterior disease. However, there are often overlap, and it can be difficult to determine the etiology based on symptoms alone. Patients often complain of redness, irritation, burning, tearing, itching, eyelash crustings, blurry or fluctuating vision, photophobia and contact lens intolerance. They may describe a history of multiple styes and/or chalazia. Other factors, such as rosacea or atopy, can contribute to the diagnosis as well.

The clinical presentation of anterior blepharitis usually signals the underlying cause. Staphylococcal anterior blepharitis is more common in young to middle-aged women. It is often associated with the presence of “scurf” or collarettes at the eyelid margin and on lashes as well as madarosis and trichiasis. In more severe cases, other findings associated with staphylococcal hypersensitivity, such as peribulbar infiltrates and corneal neovascularization, can be found. In contrast, seborrheic disease tends to affect an older population without a predilection for gender. These patients will exhibit erythematous and flaking skin around the eyelids and eyebrows with oil hypersecretion on the skin and sebhorrheic hypertrophy. Other causes, such as rosacea and Demodex infestation, must also be considered as treatment strategies may vary.

Posterior blepharitis and meibomian gland disease can be acquired or secondary. However, the clinical presentation will often be similar. Patients may present with internal hordeola or chalazia. The meibomian gland orifices can be obstructed with epithelial debris or may express turbid secretions with pressure.

In the most advanced form, meibomian secretions can be difficult to express due to a paste-like consistency. Chronic disease will lead to telangiectasia of the eyelid margin with cicatricial changes resulting in an irregular lid margin and misdirection of the meibomian gland orifices. It is also important to note that recurrent or irregular appearing chalazia can be a harbinger for malignancy. While this is rare, these lesions should be biopsied to rule out potential sebaceous cell carcinoma.

Once the type of blepharitis has been categorized, it is possible to target the specific pathophysiology with the appropriate treatment. Treatment goals will vary based on the clinical presentation, but three key strategies should be addressed: (1) management of symptoms, (2) control of any inflammation that is present to prevent long-term damage, and (3) prevention of recurrence.

Results

Treatment of anterior blepharitis

The basis of the treatment of blepharitis is improving the local environment of the eyelids. Therefore, one of the first interventions that should be undertaken is patient education and effective lid hygiene, including warm compresses and lid scrubs. Warm compresses liquefy debris and oils, making it easier to remove them with lid scrubs. Compresses should be performed at least twice daily early in the disease course and can be performed daily or once every few days once symptoms are controlled. Lid scrubs can be performed with either dilute baby shampoo (e.g. Johnsons® Natural® baby shampoo) or commercially available scrubs, such as OcuSoft® Lid Scrub®. Patients should be instructed not to use cotton tipped applicators or cotton swabs for the lid scrubs, since these are generally ineffective.
Lid scrubs help control the impetus for inflammation by removing not only debris but also any bacterial toxins, and by reducing the bacterial load of the eyelids. Cosmetics should be avoided during flares. Make-up may incite inflammation and prevent clearance of debris from the lid margin.

Improving the local surface can prove to be difficult in contact lens wearers, since the lens may act as a reservoir for debris and can lead to the formation of more deposits. It may be best for patients wearing extended-wear soft contact lenses to switch to daily wear lenses or rigid gas permeable lenses. Discontinuation of contact lens wear may be necessary.

The local environment must be approached differently in patients with anterior blepharitis in combination with seborrhea. It is thought that fungi and yeast may feed on lipids in the skin and perpetuate the inflammatory response in patients with seborrhea. Cleansing the periocular skin and eyebrows with a gentle, non-detergent antifungal shampoo in addition to warm compresses and lid scrubs can be helpful.

Given that dry eye states and tear film insufficiency often accompany anterior blepharitis, artificial tears can provide substantial symptomatic relief. Preserved tears may be adequate between flares. However, when the patient is acutely symptomatic, non-preserved tears should be used since they can be used frequently (i.e. more than four times a day) without fear of worsening preservative-related surface toxicity. Thicker formulations such as gels and ointments can be used for more severe cases.

Antibiotic therapy is warranted for moderate to severe cases of anterior blepharitis. Traditionally, this has been accomplished with bacitracin and aminoglycosides (gentamicin and tobramycin). More recently, macrolide antibiotics (including azithromycin and erythromycin) have been advocated due to possible anti-inflammatory properties in addition to their anti-infective properties. Azithromycin is particularly desirable, since it has a long half-life in both oral and topical forms. Using ointments, which are best tolerated when instilled at bedtime due to their propensity to blur vision, can increase contact time of the drug with the eye. One must be wary of the acute worsening of symptoms after initiating an antibiotic as an indication of a possible allergic reaction to the drug. Use of the antibiotic should be stopped immediately, and the reaction should be allowed to subside prior to initiation of another drug.

Antibiotic therapy can be helpful in not only the acute stage, but in long-term therapy as well. Azithromycin can be dosed at 1 gram by mouth weekly for three consecutive weeks. This can then be repeated after a 3-4 week period, until symptom control is achieved and on an “as needed” basis thereafter. Azithromycin is relatively well tolerated when taken orally; however, there have been cases of acute cardiac arrest induced by the medication. Although more recent studies have disputed this, it may be best to obtain clearance from a cardiologist prior to initiating systemic azithromycin therapy in patients with a cardiac history. Topical azithromycin is used twice daily in the acute phase for rapid control of the bacterial load and inflammation but can be used once daily on a long-term basis for prevention.

Treatment for rosacea requires long-term therapy as well. Oral tetracyclines have been established as efficacious in the treatment of ocular rosacea. Doxycycline is the preferred agent, since it is better tolerated than first-generation tetracyclines and possesses anti-angiogenic and anti-inflammatory properties (via anti-matrix metalloproteinase inhibition) as well. The treatment dose for doxycycline usually starts at 100mg once or twice daily for a period of 6-12 weeks. It often takes a few weeks for the therapeutic effect of doxycycline to be realized, so the aforementioned methods of immediate symptomatic control should be used early in the treatment course. Oracea® is a controlled-release tablet of doxycycline that has been used for the treatment of rosacea. It contains 30 mg of an immediate-release form and 10 mg as a delayed-release doxycycline that can be taken once daily. It has been shown to improve symptoms and findings of ocular rosacea significantly with minimal side effects. Doxycycline is also beneficial in those patients with moderate to severe staphylococcal-related anterior blepharitis.

Severe cases of blepharitis often necessitate a short course of topical corticosteroid treatment to modulate the inflammatory component of the disease. It is crucial to start with the lowest effective dose of steroid to avoid any of the potential complications of chronic topical corticosteroid use, such as cataract formation, ocular hypertension, and exacerbation of the potential complications of chronic topical corticosteroid use, such as cataract formation, ocular hypertension, and exacerbation of the infectious process leading to a superinfection. Induction therapy during an acute flare can be accomplished by using a steroid-antibiotic combination, such as tobramycin with dexamethasone. However, some severe cases require long-term treatment with steroids, in which case it would be best to use low-dose formulations with less intraocular penetration and activity than their counterparts, such as fluorometholone 0.1% or loteprednol 0.5%. Corticosteroid use can also be avoided all together in patients requiring long term therapy by using topical cyclosporine 0.05%.

Cases of anterior blepharitis that are resistant to the above therapies should raise concern for less common etiologies. Herpes simplex-related blepharitis will require therapy with systemic and/or local antiviral therapy. Demodex-related disease can be treated with eyelid scrubs combined with tea tree oil or sulfur oil. Phthiriasis pubis-related disease is treated by carefully removing the lice and louse eggs and local application of a pediculocide. Sexual contacts will also need treatment to prevent re-infestation.

**Treatment of posterior blepharitis**

There is significant overlap in the modalities used in anterior and posterior blepharitis, particularly since some etiologies are a combination of anterior and posterior
Control of inflammation is an important part of the treatment of meibomian gland disease. This is partly modulated with the use of tetracyclines and azithromycin, but can necessitate the use of topical corticosteroids for more rapid and complete control of inflammation in severe cases. Additionally, the use of corticosteroids will often be necessary when blepharitis is complicated by phyctenular keratitis. The previous discussion on the need for caution during the use of corticosteroids is applicable to posterior disease as well.

Multiple other modalities have been proposed as therapies for treatment of meibomian gland disease. The LipiFlow® system is a newer thermodynamic method of expressing meibum from obstructed glands. It consists of an eye cup that is placed on the external surface of the eye and a lid warmer that is placed in the inner surface of the lid. The lid warmer is insulated, thus shielding heat from the eye and vaults over the surface of the cornea to prevent contact. The lid warmer applies continuously-monitored directional heat to the inner eyelid while inflatable air bladders underneath the eye cup apply variable pressure to the outer eyelids. This facilitates expression of meibum into the eye cup. A single LipiFlow treatment has been shown to be at least as effective in the treatment of meibomian gland dysfunction as a 3-month, twice daily lid margin regimen of topical corticosteroids.22 Intralid meibomian gland probing has also been proposed as a method of relieving meibomian gland obstruction. Topical anesthesia is administered and a 2-mm probe is passed through the meibomian gland orifices. This is then followed by a 4-mm probe for deeper probing and expression of the meibum. This has been reported to provide instant relief of symptoms in 96% of patients (24/25), with all patients achieving relief at 4 weeks.23

Conclusion and recommendation

Blepharitis is a common ocular condition and is a frequent cause for office visits. The presentation can be varied, but signs and symptoms often reflect underlying dry eye, infection/inflammation, and inflammation. Once the etiology has been elucidated and the severity of signs and symptoms has been graded, therapy can be individualized.

All therapy should start with patient education, lid hygiene and warm compresses. Management of remaining symptoms can be accomplished with appropriate topical and systemic drug therapy. Inflammation must also be controlled to improve symptoms and prevent long-term damage. Once the acute flare is resolved, the therapy can be tailored and tapered to a regimen focused on preventing recurrence.