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The most common external ocular disorder primary care optometrists see is blepharitis, which is an acute or chronic inflammatory process of the eyelids caused by staphylococcal bacteria, seborrhea or meibomian gland dysfunction. We often see an associated conjunctivitis and lipid layer abnormalities, which can destabilize the tear film and cause dry eye signs and symptoms.

Some of our most clinically challenging patients are those with blepharitis and associated dry eyes who want to wear contact lenses. So it's imperative that we have a thorough knowledge of the disease process and treatment options to improve our patients' ocular health and quality of life.

Telltale signs and symptoms

Patients with blepharitis typically complain of chronic irritation in both eyes, with one eye usually more symptomatic than the other. Often, the symptoms are nonspecific and varied. They can include burning, itching, mild discomfort, foreign body sensation, photophobia, epiphora and crusting around the eyes upon waking.

Gross external observation and careful slit lamp biomicroscopy often reveal erythema or edema of the lid margins, prominent blood vessels within thickened (tylotic) eyelids, crusting of the eyelashes, mild mucus discharge, trichiasis (misdirected lashes), madarosis (missing lashes), conjunctival injection and superficial punctate keratitis that's usually located inferiorly. Disorders associated with these symptoms include hordeolum, chalazion, marginal corneal ulcer, keratoconjunctivitis sicca and acne rosacea.

The signs and symptoms associated with blepharitis are numerous and varied, so it's helpful to classify the condition to determine an effective course of therapy. The most logical approach is to classify blepharitis based on the presenting signs and symptoms:

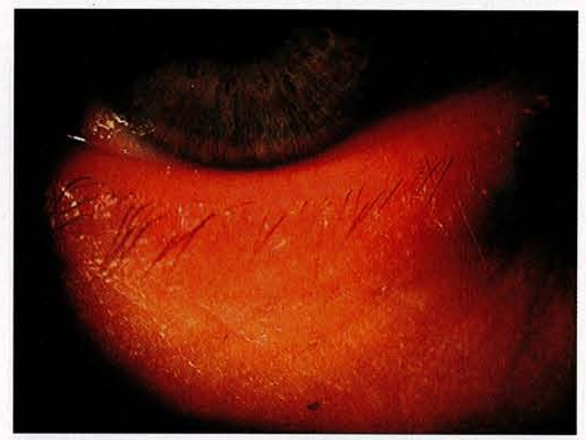
- Anterior blepharitis, which can be subdivided into staphylococcal, seborrheic or mixed origin
- Posterior blepharitis, which manifests as meibomian gland dysfunction
- Mixed anterior and posterior blepharitis, which is a combination of the first two types.

We'll discuss these categories to help simplify the diagnosis and treatment plan for these conditions. However, keep in mind there can be considerable overlap in their clinical expression.

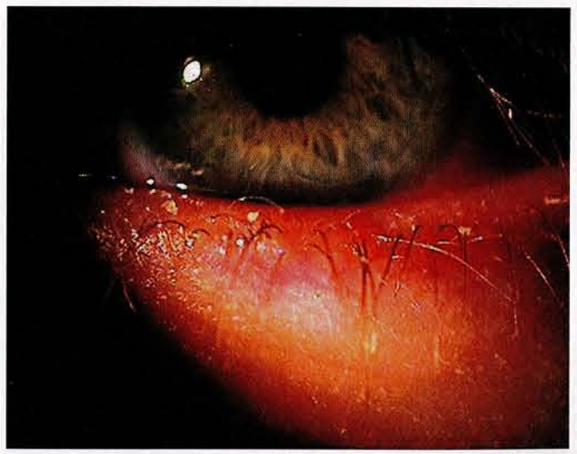
Anterior blepharitis

Anatomically, anterior blepharitis involves the anterior ciliary portion of the eyelid and the cilia. As mentioned, the origin of anterior blepharitis may be staphylococcal, seborrheic or mixed.

1. Staphylococcal blepharitis. Frequently associated with dry eyes, this type of blepharitis usually involves patients between 10 and 30 years of age and is more commonly seen in women. Patients usually complain of itching, burning, mild photophobia and irritation that worsens in the morning. The anterior



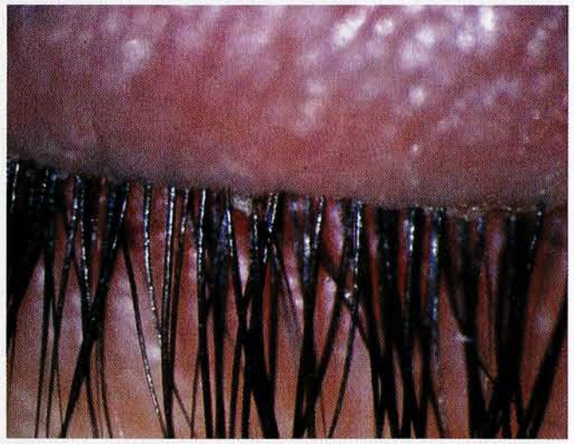
Erythematous response of the eyelid tissues most commonly associated with protracted residence of staphylococcal bacteria. Patients usually complain of itching, burning, mild photophobia and irritation.



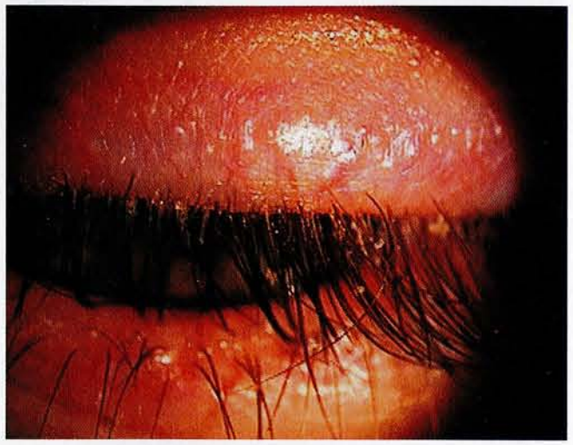
A chronic blepharitis patient presenting with misdirected lashes (trichiasis) and associated eyelid margin erythema.

lid margin also can be inflamed. However, these symptoms tend to wax and wane. Keep in mind that the eyelashes provide a great environment for infection, because they collect bacteria and environmental debris. The main bacterial offenders are staphylococcus epidermidis and staphylococcus aureus. A classic characteristic of staphylococcal blepharitis is collarettes, which are scales centered around the bases of the eyelashes. In chronic cases, lashes may fall out (madarosis), become misdirected (trichiasis) or turn white (poliosis). Exotoxins produced by the staphylococcal bacteria cause most of the tissue inflammation.

2. *Seborrheic blepharitis.* Usually seen in patients age 40 to 60, seborrheic blepharitis is likely to be chronic and is frequently associated with seborrheic dermatitis. These patients typically complain of mild but persistent burning with some mucoid excess and foreign body sensation. Clinically, we commonly see significant oily buildup of scales and flakes (scurf) on the eyelashes but less eyelid inflammation.



Thickened tylotic eyelids along with greasy, flaky marginal debris are commonly seen in patients with mixed and anterior blepharitis.



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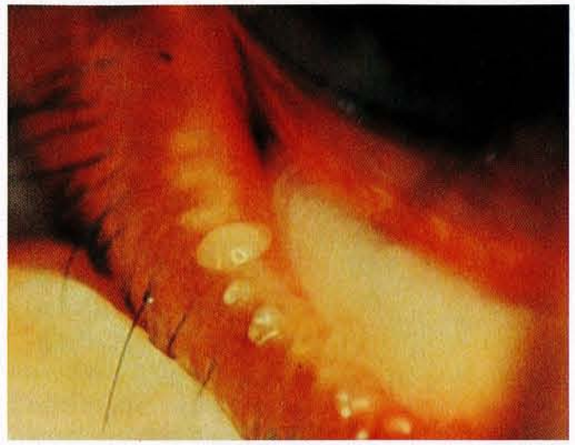
3. *Mixed anterior blepharitis.* A patient with mixed anterior blepharitis normally presents with signs and symptoms of both staphylococcal and seborrheic blepharitis. Often, the patient has a history of acute episodes of eyelid inflammation and chronic but mild discomfort. A biomicroscopic evaluation will reveal both collarettes and scurf on the eyelashes. Many of these patients will have associated dry eyes and seborrheic dermatitis on the scalp (dandruff) and possibly keratoconjunctivitis.

Posterior blepharitis

Posterior blepharitis results from dysfunction of the meibomian glands and is commonly called meibomianitis (meibomitis) or meibomian gland dysfunction. It can be associated with seborrheic blepharitis or acne rosacea. A patient's main complaint is stinging of the eyes.

Clinically, you can see excess oil in the precorneal tear film, which often reduces tear film breakup time. The oily buildup can cause mild blurring of vision in some patients. Under slit lamp examination, you can see inspissated (plugged) meibomian gland orifices. Inflammation around the meibomian glands may be present, and the eyelids may appear tylotic. A foamy substance from the excessive lipid secretions often collects in the inferior tear meniscus and on the mucosal surface of the lower lids.



Inspissated, or lipid-capped, meibomian glands are common manifestations of chronic meibomian gland dysfunction. You can express the oil by applying gentle pressure to the eyelids.

Mixed anterior and posterior blepharitis

Meibomianitis associated with anterior blepharitis is known as mixed anterior/posterior blepharitis. Patients generally complain their eyes burn in the morning, sometimes to a degree that doesn't match the low-grade clinical signs. The meibomian glands are inspissated, but the oil can be expressed by applying gentle pressure to the eyelids. Applying warm compresses to the eyes beforehand can enhance this maneuver. We usually see the buildup of excessive oil secretions on the eyelashes in conjunction with blocked meibomian gland openings. In addition, a foamy residue normally is present in the lateral portion of the inferior tear meniscus.

Tailoring a treatment plan

Classifying blepharitis is critical to choosing the appropriate treatment. Your treatment goals are twofold: 1) control the specific blepharitis so the patient becomes asymptomatic; and 2) taper the number of treatment steps required to keep the patient symptom-free. To reach these goals, therapy should include patient education, warm compresses, mechanical expression, lid hygiene, topical antibiotics or antibiotic/steroid combinations, and oral minocycline or doxycycline. Also, you'll need to treat any associated ocular and systemic manifestations of blepharitis.

◗ **Patient education.** As soon as you confirm a blepharitis diagnosis, inform the patient that this is a chronic condition with no known cure. You can explain to patients that, like arthritis, blepharitis has a tendency to flare up on occasion. When it does, it should be treated appropriately.

A patient with significantly thickened eyelids from chronic meibomian gland dysfunction. Warm compresses followed by eyelid massages and oral minocycline or doxycycline can reduce symptoms.

By comparing these two diseases, the patient likely will have a better understanding of the chronic nature of the condition and the need for vigorous treatment to remain asymptomatic. One key factor in successful blepharitis treatment is how well you motivate the patient.

◗ **Warm compresses.** Once you've educated the patient, his homework begins with applying warm compresses on the eyes for 5 to 10 minutes, up to three times a day. The patient should moisten a clean washcloth under warm water, place it over the eyelids and as the heat dissipates, reheat the washcloth as necessary. Warm compresses loosen eyelash debris for easy removal during the lid hygiene procedure. Also, they soften the meibomian gland secretions in posterior blepharitis and enable the patient to express the excess oils.

◗ **Mechanical expression.** Once the excess lipid debris is softened, patients must express the meibum by gently massaging the eyelids with their fingers or a cotton-tipped applicator. This procedure reduces eye irritation quickly.

◗ **Lid hygiene.** Lid hygiene is fundamentally important for all types of blepharitis. Patients should clean the base of

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their eyelashes thoroughly to remove the debris creating inflammation. They should scrub the eyelids two to three times a day with one of the eyelid hygiene cleansing products available. Patients can shorten the regimen to once or twice daily when their lid inflammation is controlled. For best results, describe and even demonstrate for patients how this procedure should be performed. Optimally, suggest that patients perform the lid hygiene procedure during their normal daily bodily hygiene routine.

The many commercial eyelid scrub kits that are available provide patients with a complete package of care. These commercial products help walk patients through the lid hygiene procedure and, therefore, boost compliance. The soap formulas in these commercial lid scrubs also provide antibacterial action by breaking down the bacteria's cell membrane.

Antibiotics. If there's an indication that staphylococcal organisms are present, an ophthalmic antibiotic ointment or an antibiotic/steroid ointment can be beneficial. Erythromycin, bacitracin, polysporin, the aminoglycosides and the fluoroquinolones are effective against staphylococcal bacteria. Be aware, however, that if patients use erythromycin for several days or weeks, staphylococcal resistance may develop. About 60% to 70% of common staphylococcal organisms are resistant to sodium sulfacetamide. However, bacitracin is highly effective against gram-positive organisms, including all staphylococcus bacteria, making it the drug of choice for staphylococcal blepharitis.

If there's significant secondary inflammation, you can prescribe a combination antibiotic/steroid ointment, such as tobramycin 0.3%/dexamethasone 0.1% ophthalmic suspension (TobraDex). Applying the ointment to the eyelids twice daily, especially at bedtime, should help reduce the bacteria causing lid tissue inflammation. Severe blepharitis that threatens corneal integrity requires a topical antibiotic eye drop q.i.d. If the blepharitis persists despite the warm compresses, lid scrubs and the appropriate ointment, discontinue the ointment for several days and take cultures to identify the causative organism. Stopping the antibacterial ointment to find the root cause of persistent blepharitis is rarely necessary. But once you've identified the organism, you can prescribe the most effective ointment to be used along with the other measures until the blepharitis is under control.

Keep in mind that you should avoid long-term use of combination antibiotic/steroid medications because of the potential for increased IOP and posterior subcapsular cataract development. These drugs can be very helpful short-term if there's significant tissue inflammation or if the patient is severely symptomatic. If the patient is hypersensitive to staphylococcal exotoxins, presenting with peripheral marginal ulcerations, superficial punctate keratitis or pronounced conjunctival inflammation, you can use tobramycin 0.3%/dexamethasone 0.1% ophthalmic suspension (TobraDex) or loteprednol etabonate 0.5%/tobramycin 0.3% (Zylet) for short-term control.

Lid hygiene is fundamentally important for all types of blepharitis. Patients should clean the base of their eyelashes thoroughly to remove the debris creating inflammation.

In addition, one of the systemic tetracyclines can be useful in treating meibomian gland dysfunction. Although the tetracyclines are not very effective against many strains of staphylococcal bacteria, this isn't a major consideration because the goal is to alter the fatty acid metabolism within the meibomian glands. In hard-to-control posterior blepharitis, use topical or systemic minocycline or doxycycline. However, the systemic tetracyclines are contraindicated in pregnant or lactating mothers and in children less than 8 years of age because they can permanently stain developing teeth. Instead, use systemic erythromycin.

StoneBridge Pharma has introduced Cleeravue-M, a kit that includes an excellent commercial lid scrub and oral minocycline for the treatment of chronic posterior blepharitis. The combination of the two therapeutic modalities in one kit can help improve patient compliance. Patients will be able to take the minocycline and use the accompanying lid scrub as part of their daily hygiene routine. Attacking the blepharitis both externally and internally is a rational therapeutic approach.

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Ocular and systemic manifestations

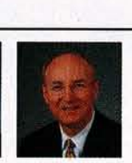
Blepharitis, especially posterior blepharitis, can disrupt the tear film and cause rapid breakup time. So as a rule, it's best to assume the blepharitis patient has an associated dry eye component until proven otherwise. Once you've confirmed the dry eye diagnosis, you can prescribe a lubricating drop two to four times a day, along with the blepharitis treatment regimen. Patients with moderate seborrheic dermatitis commonly have associated seborrheic blepharitis. Do not ignore the scalp and eyebrows in these cases. In fact, you should recommend patients use medicated shampoos as first-line treatment and refer difficult-to-treat cases to a dermatologist.

Manageable disease

Since blepharitis is the most common external eye disorder we encounter, it's extremely important to understand the intricacies of the condition and classify it appropriately. While it's a chronic condition and remains a challenge for patients and doctors alike, the good news is that you can control the signs and symptoms long-term with a diverse treatment regimen that should include educating patients and motivating them to comply with treatment and ultimately improve their quality of life. **OM**

Critical Pointers

- Assume that a patient with blepharitis has associated dry eyes until proven otherwise. This assumption has led to the so-called "triple-S syndrome" (staphylococcus, seborrhea and sicca), which plagues many patients.
- Treat blepharitis aggressively in patients who wish to wear contact lenses. Blepharitis patients can quickly become contact lens failures.
- Educate patients about blepharitis. It's the key to successful treatment. Free patient education information is available through the National Eye Institute at nei.nih.gov.

Drs. Melton and Thomas lecture extensively on the diagnosis and medical management of eye diseases and ocular pharmacology throughout the world. They have contributed numerous articles and chapters to the optometric literature. Both practice full-time in North Carolina and are adjunct faculty members at the Pennsylvania, Pacific University, and SUNY Colleges of Optometry. They are consultants to the American Optometric Association and Fellows of the American Academy of Optometry. Visit their Web site at eyeupdate.com.