

A BASIC GUIDE TO OCULAR ROSACEA



The fundamentals for eye care providers.

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Rosacea is a common, chronic facial skin condition that affects more than 16 million Americans.^{1,2} It is most often inflammatory in nature, and it has a high prevalence among adults with fair skin and those of Northern European descent.³ Symptoms often present in a variety of combinations of subtypes and severity and commonly fluctuate between periods of exacerbation and remission.³ If left untreated, the condition will become progressive.

Ocular rosacea is a subtype of facial rosacea (see *Subtypes of Rosacea*),^{3,4} and is a condition that optometrists will undoubtedly encounter and therefore must be able to manage confidently. This article provides a basic foundation of knowledge on

ocular rosacea, including common signs and symptoms, what to look for in the clinical examination, and treatment options.

SYMPTOMS, CAUSES, AND TRIGGERS

Rosacea typically presents in patients 30 years of age or older, with facial redness and flushing the first signs to emerge.^{2,4} As many as 50% of patients with facial rosacea also have ocular symptoms,² which often include dry, burning, and/or itchy eyes; redness; light sensitivity; blurry vision; fluctuations in vision; and a history of frequent hordeolum. The cause of rosacea is unclear, but it is linked to various factors such as a malfunctioning immune response, the vascular system including the neurovascular system, genetic

predispositions, and hypersensitivity to *Demodex*.^{2,5}

An association has been noted between rosacea and increased risk of certain systemic diseases such as cardiovascular disease, gastrointestinal disease, and neurologic and autoimmune diseases, suggesting that rosacea may be linked to systemic inflammation.² Because there is a genetic component to rosacea, it often affects multiple family members; therefore, it is important to ask patients about family history. Common triggers that worsen rosacea symptoms include harsh, windy climates; prolonged exposure to sunlight; alcohol consumption; coffee and other hot beverages; spicy foods; exercise; hot showers; and emotional stress.



Figure 1. Patient with facial rosacea. Photo posted with patient permission.

EXAMINATION AND SIGNS

In preparing to examine a patient for ocular rosacea, be sure to look at the individual's entire face, paying special attention to the cheeks and nose, where signs can be masked with makeup (Figure 1). You can also simply ask patients if they have rosacea, facial flushing, or blotchy, uneven skin, and if they know of any triggers that make their facial redness worse. Be aware, however, that patients may have ocular signs without facial redness. In fact, as many as

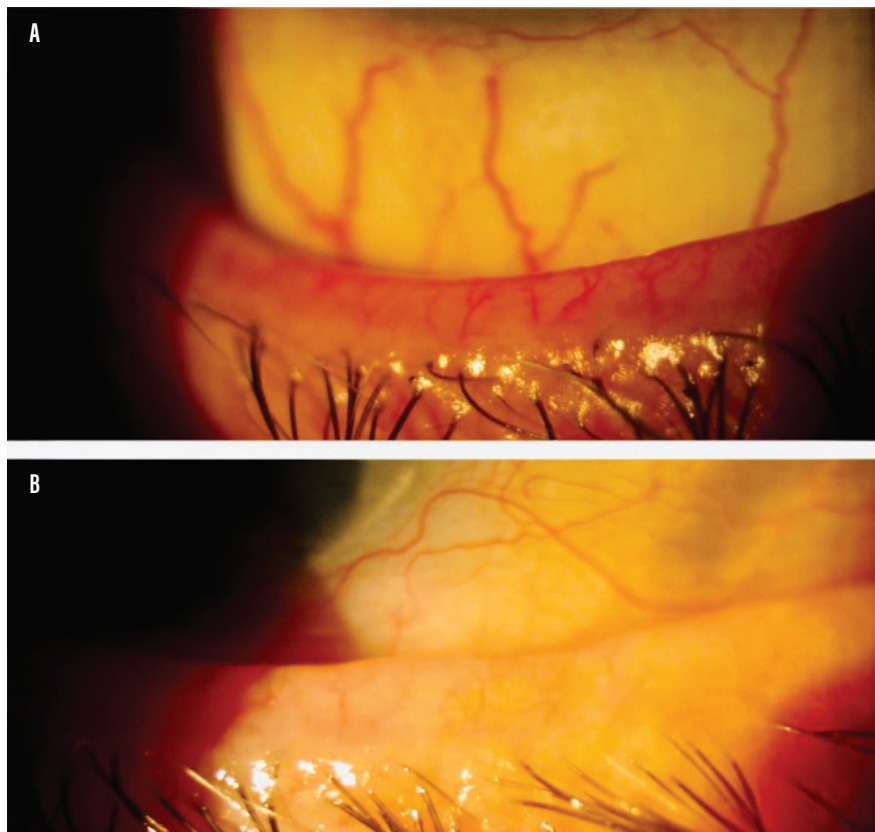


Figure 2. Eyelid of a patient with ocular rosacea before (A) and after (B) three treatments of IPL. Note the marked decrease in redness and telangiectasia along the lid margins.

20% of patients with ocular rosacea have ocular signs before dermatologic findings, and as many as 90% of patients with ocular rosacea have only minimal skin changes.¹

Begin your slit-lamp examination by looking closely at the patient's lids

and lashes, as they provide a wealth of information about inflammation. Look for characteristic signs including telangiectasia, hyperemia of the lid margin, meibomian gland inspissation, keratinization of the lids, notching, blepharitis, and evidence of *Demodex*.

In evaluating the cornea and conjunctiva, look for inflammation, conjunctival hyperemia, superficial punctate keratitis, tear-film debris, abnormal tear breakup time, a foamy tear film, and reduced tear meniscus. Ocular rosacea is a large contributor to and cause of dry eye disease (DED). In patients with advanced disease, corneal manifestations can progress from superficial punctate keratitis to peripheral neovascularization.¹ The main difference in confirming ocular rosacea as a contributing factor to a patient's DED is the noticeable increase in redness, inflammation, and telangiectasia along the lid margin,

AT A GLANCE

- ▶ Rosacea typically presents in patients 30 years of age or older.
- ▶ As many as 50% of patients with facial rosacea also have ocular symptoms, which often include dry, burning, and/or itchy eyes; redness; light sensitivity; blurry vision; fluctuations in vision; and a history of frequent hordeolum.
- ▶ Ocular rosacea and its signs are a large contributor to and cause of dry eye disease.

SUBTYPES OF ROSACEA^{3,4}

Rosacea is generally divided into four subtypes.



Type 1. Erythematotelangiectatic or Vascular Rosacea

Areas on the skin are often associated with visible blood vessels or telangiectasia.



Type 2. Papulopustular or Inflammatory Rosacea

Along with facial redness there are often erythematous papules and pustules.



Type 3. Phymatous Rosacea

This subtype of rosacea most commonly affects the nose. Patients present with tissue hypertrophy manifesting as skin thickening and hyperplasia of sebaceous glands.



Type 4. Ocular Rosacea

Characterized by inflammation of the eyes and eyelids, blepharitis, conjunctival injection, lid margin telangiectasia, chalazion, and hordeolum formation.

as well as the possible accompanying facial rosacea component.

TREATMENT TACTICS

Traditionally, treatment for ocular rosacea has focused on symptom suppression to improve patient quality of life and to help manage the disease. Treatment should be initiated even in patients with mild disease, as early intervention can be key in minimizing both the progression of rosacea and its effects on symptoms and visual function.

Treatment options include omega-3 fatty acids (FAs) and gamma lino- lenic acid (GLA), lipid-based artificial tears, lid hygiene with a mild cleanser, hypochlorous acid, and warm com- presses. Omega-3 FAs and GLA sup- plements have been shown to reduce symptoms, lid margin inflammation, and meibomian gland dysfunction (MGD). Omega-3 and GLA supple-

ments have been shown to be effec- tive in the treatment of MGD and dry eye.⁵ Lipid-based artificial tears can be used to help supplement the tears and restore better vision quality. Hypochlorous acid products contain antiinflammatory and antibacterial properties that decrease the signs and symptoms of ocular irritation that occur when there is an excessive quantity of bacteria on the lids.⁶

If a patient has *Demodex* then we recommend that he or she use a tea tree oil-based soap to wash the entire face in order to get the *Demodex* under control. Once that is accomplished, the patient should switch to a mild and gentle facial cleanser so as not to exac- erbate facial redness. Warm compresses are helpful but may cause irritation for some patients and should be used only sparingly if that is the case.

For patients with moderate ocular rosacea, topical prescription drops



Figure 3. Patient wearing corneal shields for IPL treatment.

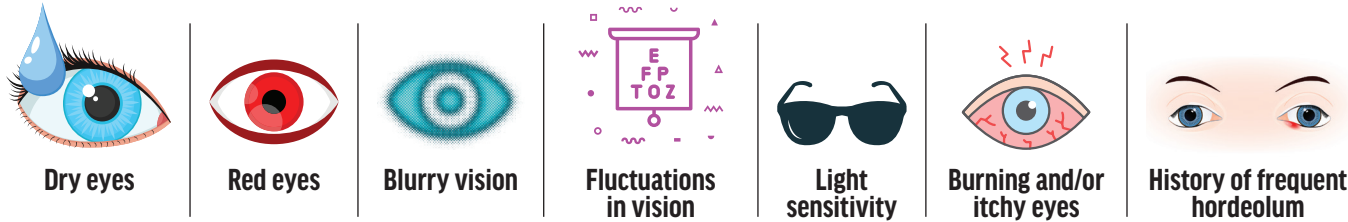
can reduce ocular surface inflam- mation. Medications such as topical cyclosporine, lifitegrast ophthalmic solution 5% (Xiidra, Novartis), or a short course of a topical steroid can be helpful. Historically, oral antibiotics such as doxycycline, minocycline HCl (Minocin, Rempex Pharmaceuticals), and azithromycin have been used to treat ocular rosacea due to their antiinflammatory effects, and these have worked well in some patients. The drawback to oral medications is that patients may need to use them for long periods of time, sometimes months or even years.⁷

It is also important that rosacea patients wear sunscreen with sun protection factor 30 or higher daily because sun exposure is a major trigger for rosacea flare-ups and can cause an increase in redness and telangetasia.²

Intense pulsed light (IPL) therapy is a noninvasive, nonpharmacologic option in which high intensity light with specific filters is used to target the inflammation, redness, and abnor- mal vasculature associated with facial and ocular rosacea (Figure 2). As Rolando Toyos, MD, has explained the mechanism of action behind IPL is, “the light that is emitted is absorbed

OCULAR ROSACEA FAST FACTS

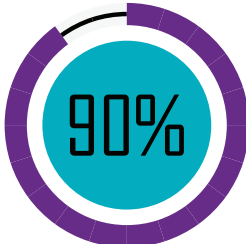
SYMPTOMS



Ocular rosacea is equally distributed between the two sexes.⁴



Of patients with ocular rosacea, 20% have ocular signs before dermatologic findings.¹



Of patients with ocular rosacea, as many as 90% have only minimal skin changes.¹

by the oxyhemoglobin in the blood vessels on the skin's surface; the absorption generates heat that coagulates the cells, leading to thrombosis of the blood vessels."⁸

Direct application of IPL to the eyelids can be accomplished using metallic laser-grade corneal shields (Figure 3). The face is also treated, with special focus on the cheeks and nose. By treating the abnormal vasculature, IPL therapy is able to address the root cause of the inflammation. IPL therapy has been shown to be highly effective for the treatment and management of ocular rosacea, MGD, and dry eye disease, working just as well as previous therapies such as meibomian gland expression when used alone and even better in combination with other therapies such as meibomian gland expression, artificial tears, topical cyclosporine, warm compresses, and/or punctal plugs.⁹⁻¹²

IPL therapy has also been shown to kill *Demodex*, a contributor to rosacea symptoms.¹³ Lumenis received FDA

approval this year specifically to treat DED due to MGD with its OptiLight IPL device.¹⁴

KEEP AN OPEN MIND

Ocular rosacea is a common precursor to MGD and DED. Symptoms and treatment are often similar; therefore, ocular rosacea should be considered in your differential diagnosis in patients with complaints of dry eyes. However, because symptoms, signs, and disease severity can vary from patient to patient, we should be ready to customize our treatment and management plans for each individual to maximize results. ■

1. Yuan M, Marmalidou A, Brissette A. Ocular rosacea: essentials for providers. *Millennial Eye*. November/December 2020. <https://millennialeye.com/articles/2020-nov-dec/ocular-rosacea-essentials-for-providers/>. Accessed June 16, 2021.
2. Information for patients. National Rosacea Society. www.rosacea.org/patients/information. Accessed June 16, 2021.
3. Rainer BM, Kang S, Chien AL. Rosacea: epidemiology, pathogenesis, and treatment. *Dermatoendocrinol*. 2017;9(1):e1361574.
4. Rosacea Overview. InformedHealth.org. Institute for Quality and Efficiency in health Care (IQWiG);2006. [Updated 2020 Sept 10]. www.ncbi.nlm.nih.gov/books/NBK279476/. Accessed June 22, 2021.
5. Dhingra D, Malhotra C, Jain AK. Ocular rosacea—a review. *US Ophthalmic Review*. 2017;10(2):113-118.
6. Epitropoulos AT. Lid hygiene product helps reduce blepharitis, MGD symptoms.

Ophthalmology Times. November 15, 2015. Accessed June 16, 2021.
7. Voils SA, Evans ME, Lane MT, et al. Use of macrolides and tetracyclines for chronic inflammatory diseases. *Ann Pharmacother*. 2005;39(1):86-94.
8. Kent C. Intense pulsed light: for treating dry eye. *Review of Ophthalmology*. November 2010.
9. Sagaser S, Butterfield R, Kosiorek H, et al. Effects of intense pulsed light on tear film TGF-β and microbiome in ocular rosacea with dry eye. *Clin Ophthalmol*. 2021;15:323-330.
10. Kim BY, Moon HR, Ryu HJ. Comparative efficacy of short-pulsed intense pulsed light and pulsed dye laser to treat rosacea. *J Cosmet Laser Ther*. 2019;21(5):291-296.
11. Luo Y, Luan XL, Zhang JH, Wu LX, Zhou N. Improved telangiectasia and reduced recurrence rate of rosacea after treatment with 540 nm-wavelength intense pulsed light: a prospective randomized controlled trial with a 2-year follow-up. *Exp Ther Med*. 2020;19(6):3543-3550.
12. Mejia LF, Gil JC, Jaramillo M. Intense pulsed light therapy: a promising complementary treatment for dry eye disease. *Arch Soc Esp Ophthalmol (Engl Ed)*. 2019;94(7):331-336.
13. Fishman HA, Periman LM, Shah AA. Real-time video microscopy of in vitro *Demodex* death by intense pulsed light. *Photobiomodul Photomed Laser Surg*. 2020;38(8):472-476.
14. Hutton D. FDA approves IPL device to manage dry eye disease. *Ophthalmology Times*. April 29, 2021.

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