Rosacea and atopic dermatitis

Two common oculocutaneous disorders

Benjamin Barankin, MD  Lyn Guenther, MD, FRCPC

ABSTRACT

OBJECTIVE To increase awareness of the oculocutaneous manifestations of two common skin diseases.

QUALITY OF EVIDENCE We reviewed clinically relevant articles from the dermatologic and ophthalmologic literature. The PubMed database was searched from January 1965 to January 2001 to locate retrospective and prospective cohort and descriptive studies using the MeSH terms acne rosacea; eczema; and dermatitis, atopic. Most literature on the topic is based on descriptive research.

MAIN MESSAGE Several dermatologic problems are known to have ophthalmologic sequelae. Rosacea and atopic dermatitis are two common skin conditions that can have concomitant eye disease. Degrees of skin and eye disease vary; certain cases require specialty referral and other cases can be managed effectively by family physicians.

CONCLUSION Better appreciation of how rosacea and atopic dermatitis overlap with eye disease will result in more appropriate referrals and more comprehensive patient care.

RÉSUMÉ

OBJECTIF Accroître la sensibilisation aux manifestations oculo-cutanées de deux maladies fréquentes de la peau.


PRINCIPAL MESSAGE Plusieurs problèmes dermatologiques sont reconnus pour avoir des séquelles ophthamologiques. L’acné rosacée et la dermatite atopique sont deux maladies courantes de la peau qui peuvent présenter une affection concomitante de l’œil. Les degrés de sévérité des maladies de la peau et de l’œil varient; certains cas exigent un aiguillage vers un spécialiste et d’autres peuvent être efficacement pris en charge par les médecins de famille.

CONCLUSION Une meilleure appréciation de la façon dont l’acné rosacée et la dermatite atopique peuvent être concomitantes à une maladie de l’œil se traduira par des aiguillages plus appropriés et des soins plus complets aux patients.

This article has been peer reviewed.
Cet article a fait l’objet d’une évaluation externe.
Primary care providers often encounter cutaneous and ocular complaints. As gatekeepers in our health care system, primary care physicians need to have some appreciation of the relationship between eye and skin complaints. The ectodermal origin of the epidermis and of many eye structures can in part explain the association.

Rosacea, atopic dermatitis, seborrheic dermatitis, psoriasis, bullous disorders, and other less common skin conditions can have concomitant ocular complaints. Rosacea and atopic dermatitis are reviewed because of the frequency with which both skin and ocular complaints present to primary care practices.

Quality of evidence
A PubMed search of English-language literature from January 1965 to January 2001 revealed a combination of prospective cohort studies and descriptive studies, with a predominance of descriptive studies based on clinical experience. The MeSH terms eye; skin; acne rosacea; eczema; and dermatitis, atopic, were used, as were the non-MeSH terms ocular and oculocutaneous. Articles were selected for assessment if they provided complete clinical reviews that would be relevant to family physicians. Thus, while several prospective cohort studies were used in this review, particularly for treatment options, most papers were selected because they provided a thorough review of the clinical presentation of these disorders.

Rosacea
Rosacea is a relapsing chronic inflammatory skin condition affecting up to 10% of the population.\(^1,2\) It is characterized by erythema, telangiectasia, papules, pustules, sebaceous gland hypertrophy, and rhinophyma in severe cases.\(^3,4\) Lesions are usually symmetric and are found on the nose, cheeks, chin, and forehead, and less commonly on the neck, scalp, and chest.\(^1,4\) Episodic flushing is also common and can be provoked by consumption of hot beverages, spicy foods, and alcohol.\(^4\) This condition is distinguished from acne vulgaris by the absence of comedones.\(^3\)

Although patients can be affected at any age, peak incidence is in the fourth to seventh decades.\(^1,3\) While the condition is often thought to be more common in women and people of northern European descent,

| Dr Barankin is a dermatology resident at the University of Alberta in Edmonton. Dr Guenther is a Professor in the Division of Dermatology at the University of Western Ontario in London. |

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the literature is unresolved on this issue.\(^3,4\) The pathogenesis of this condition is multifactorial and still under debate, but includes such factors as increased flushing, solar elastosis damage to the dermis, and possibly mites (Demodex folliculorum).\(^1\)

Ocular involvement with rosacea is an underappreciated and underdiagnosed manifestation, despite its presence in as many as 50% of patients with this condition (Table 1).\(^5,6\) In patients with ocular and cutaneous rosacea, approximately 53% have the cutaneous eruption first, 20% the eye findings first, and 27% both simultaneously at onset.\(^8\) Peak incidence for ocular rosacea is later (sixth and seventh decade) than for cutaneous rosacea, which affects women twice as often as men; there is no sex predilection in ocular rosacea.\(^2\) There is a strong correlation between the degree of ocular involvement and the tendency to flush.\(^9\)

Ocular findings can be considered as either minor or major; minor findings are more common.\(^6\) Ophthalmic findings are nonspecific on their own and are independent of the severity of the skin disease.\(^1,3,6\) Initial ocular complaints consist of sensation of a foreign body, tearing, pain, photophobia, scratchiness, stinging and burning, and blurred vision.\(^7,3,10,12\) Abnormal tear
breakup time causes dry spots to form more readily. Blepharitis has been reported in 93% of patients with ocular rosacea and conjunctival hyperemia in 86%. A history of recurrent hordeolum and chalazion (22%) is also common, as is keratoconjunctivitis sicca in as many as 40% of patients. Approximately 60% of patients with chalazion have rosacea.

Rosacea keratitis can be associated with pain, photophobia, and sensation of a foreign body. It consists of a triangular peripheral vascularization of the cornea, often the inferior cornea. Each recurrence results in vascularization and scarring migrating toward the central cornea. Rosacea keratitis is a serious concern because ulcers can develop both peripherally and centrally; deep ulcers can result in perforation. Superficial punctate keratopathy (41%), corneal vascularization, infiltrations, ulceration, perforation, and reduced visual acuity sometimes appear. Interstitial keratitis (7%) and iritis (10%) are less common complications.

Rosacea is a clinical diagnosis that is controlled by medical management and patient education. In chronic or severe cases where telangiectasia and rhinophyma exist, surgery, electrocautery, or laser therapy are beneficial. Patient education should focus on realistic expectations for the condition and on avoidance or minimization of triggers, such as exposure to extreme heat or cold or excessive sun, ingestion of hot or spicy foods, and alcohol.

The mainstay of treatment is oral tetracycline, although minocycline and doxycycline are good alternatives. Erythromycin can be used if patients are intolerant of tetracyclines. Topical metronidazole in a 0.75% gel or cream or 1% cream can be applied daily, has been shown to reduce inflammatory lesions and erythema, and might prevent relapse. Ocular rosacea is best managed with oral antibiotics and lid hygiene. Both tetracycline and doxycycline are effective for cutaneous and ocular rosacea. Low-dose isotretinoin is used occasionally for severe, antibiotic-resistant ocular rosacea.

Cessation of therapy can lead to relapses; many patients require long-term maintenance therapy. Thorough lid hygiene with warm soaks or dilute baby shampoo is highly beneficial in managing blepharitis. Corticosteroids, if carefully used, can be helpful for the blepharitis, episkleritis, keratitis, and iritis seen with this condition. Schirmer tests often reveal reduced tear production, which can be managed with tear substitutes.

Primary care physicians can manage this condition if they feel comfortable doing so. Dermatology and ophthalmology consultation is beneficial in many circumstances, and the psychosocial aspects of the condition should not be overlooked.

**Atopic dermatitis**

Atopic dermatitis is a common, pruritic, chronically relapsing skin disease often seen in association with personal or family history of hay fever, asthma, allergic rhinitis, or atopic dermatitis. Onset is often in the first few months of life, by the first year in 60% of cases. The skin in atopic dermatitis can appear erythematous, excoriated, lichenified, and hypopigmented; cutaneous infections frequently compound the condition. Patients are prone to viral infections, such as herpes simplex, molluscum contagiosum, and human papillomavirus; superficial fungal infections; and bacterial infections, such as *Staphylococcus aureus*. In infants, lesions are often exudative and crusted and are distributed on the forehead, cheeks, and extensor surfaces of the extremities. Older children and adults typically have lichenification and flexural involvement of the extremities. Adults often have chronic hand dermatitis.

Eye complications in atopic dermatitis can be a source of substantial morbidity (Table 2). Generally, patients report photophobia and pruritus. A Dennie-Morgan fold, infraorbital darkening, eyelid dermatitis, and blepharitis are common. Atopic keratoconjunctivitis occurs in one quarter of patients, often presenting

### Table 2. Eye features of atopic dermatitis

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<td>Dennie-Morgan fold</td>
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<td>Punctate corneal staining</td>
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<tr>
<td>Retinal detachment</td>
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<tr>
<td>Atopic keratoconjunctivitis</td>
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<tr>
<td>Corneal staining, scarring, ulceration, and vascularization</td>
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<tr>
<td>Cataracts</td>
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<tr>
<td>Scarring and shrinking of fornices</td>
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<tr>
<td>Increased mucus production</td>
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<tr>
<td>Superficial and herpes simplex keratitis</td>
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<td>Loss of lateral portion of eyebrow</td>
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with bilateral itchy, watery eyes and copious mucoid discharge. Atopic keratoconjunctivitis usually begins in the late teens. Papillary hypertrophy, hyperemia, scarring and shrinking of the fornices, punctate corneal staining, scarring, ulceration, and vascularization can occur. Due to the vascularization and risk of rejection, corneal transplantation is often unsuccessful. Keratoconus (cone-shaped corneal ectasia), cataracts (typically posterior subcapsular cataracts), and retinal detachment have also been associated. Along with the increased incidence of herpes simplex infection of the skin in atopic patients, herpetic keratitis is frequently observed. This keratitis can be severe and bilateral, and can recur frequently.

There does not appear to be any correlation between the severity of the cutaneous condition and ocular changes. Management of ocular manifestations includes use of cold compresses and vasoconstrictors to reduce swelling, avoidance of inciting allergens, and refraining from rubbing the eyes. As a systemic disease, atopic dermatitis often requires the assistance of a dermatologist. A multidisciplinary approach to this condition, which can include the assistance of ophthalmologists, allergists, immunologists, or psychiatrists, is beneficial.

Competing interests

None declared

Correspondence to:
Dr Lyn Guenther, 835 Richmond St, London, ON N6A 3H7; e-mail dguette@uwo.ca; telephone (519) 435-1738; fax (519) 435-17-40

References