CASE REPORT

Ocular rosacea: an underdiagnosed cause of relapsing conjunctivitis-blepharitis in the elderly

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SUMMARY

Red eye and relapsing conjunctivitis-blepharitis are among the most common ocular disease in elderly patients. In these cases the search for causes is difficult and frustrating. We report the case of a 79-year-old woman with a long history of red eye and relapsing conjunctivitis-blepharitis caused by ocular rosacea. In this patient the proper diagnosis was performed after 10 years of ocular disease, and repeated evaluations by general practitioners and clinical specialists, only after the appearance of facial signs of erythematotelangiectatic rosacea. Adequate therapy with oral doxycycline led to the improvement of the clinical picture that previously had shown a poor response to several topical treatments. The possibility of ocular rosacea should be considered in evaluating an elderly patient with persistent red eye and relapsing conjunctivitis-blepharitis. Making the proper diagnosis is crucial because ocular rosacea does not respond as expected to topical therapy and may lead to severe corneal involvement.

BACKGROUND

Red eye and conjunctivitis-blepharitis are among the most common ocular diseases in elderly patients.¹ These conditions can sometimes have a relapsing or chronic course. In these cases the search for causes is difficult and often frustrating for the medical doctor and the patient. Rosacea is a relatively common disease occurring in adults and peaking between 40 and 50 years of age. The standard classification system for rosacea, developed by the National Rosacea Expert Committee, defines four subtypes of the disease: erythematotelangiectatic rosacea, papulopustular rosacea, phymatous rosacea and ocular rosacea.² The evolution from one subtype to another is possible but does not occur in every case.^{2–3} Although considered one of the most common chronic inflammatory diseases of the skin, rosacea may involve the eyes in 58–72% of patients causing eyelid and ocular surface inflammation.⁴ In most cases, ocular signs and symptoms are preceded by cutaneous ones, although the latter are not prerequisite for the diagnosis of ocular rosacea.⁵ Untreated rosacea may cause varying degrees of ocular morbidity and about one-third of patients may develop potentially sight-threatening corneal involvement. Therefore the importance of early diagnosis and adequate treatment cannot be overemphasised. Ocular rosacea is often underdiagnosed because the diagnosis relies on observation of clinical features. The diagnosis of ocular rosacea may be challenging not only when accompanying roseatic skin but also in

cases with evident facial dermatosis, because changes are subtle or non-existent. The ocular manifestations of rosacea usually involve one or more of the following symptoms and signs: foreign body sensation, burning or stinging, dryness, itching, light sensitivity, blurred vision, tearing, redness, interpalpebral conjunctival hyperaemia, telangiectasias of the conjunctiva and lid margin erythema, irregularities and telangiectasias. Ophthalmic complications such as blepharitis, conjunctivitis, Meibomian gland dysfunction, chalazia, superficial punctate keratitis and iritis may also occur.^{6–7}

Rosacea is closely associated with the dysfunction and inflammation of the Meibomian glands. These glands are considered as differentiated sebaceous glands and are the target of inflammation in rosacea. Meibomian gland dysfunction causes an abnormal lipid composition of the tear film, which leads to thickened secretions, lower tear break-up time (TBUT) and consequently dryness of the ocular surface. Eye dryness due to Meibomian gland dysfunction is usually the first sign of the ophthalmic disease.⁸ Tear function tests, like the Schirmer test and TBUT, although not specific, could contribute to the screening and early diagnosis of ocular rosacea to prevent the potential development of sight-threatening conditions.⁸

CASE PRESENTATION

A 79-year-old woman presented with a 10-year history of red eye, photophobia, ocular burning and foreign body sensation, relapsing conjunctivitis-blepharitis and episodes of blurred vision. She also reported dry eye symptoms but the Schirmer test had showed a normal quantity of tears. The patient had been evaluated by general practitioners, ophthalmologists, dermatologists and allergists but the cause of her disease was not identified, and she had received several topical treatments with poor response. Finally, the patient was referred to our unit with the request of evaluation for the search of food allergy because of the appearance in the last year of facial flushing and blushing in response to dietary intake of spicy food and alcoholic beverages. Examination showed erythema and telangiectasias on the nose, cheeks, glabella and forehead, and a bilateral conjunctivitis-blepharitis (figure 1 upper panel). Telangiectasias were visible on the inflamed eyelid margins, and bulbar conjunctiva was hyperaemic with dilated blood vessels of tortuous shape (figure 1 lower panel). A diagnosis of erythematotelangiectatic rosacea with ocular rosacea was performed.

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Figure 1 Bilateral conjunctivitis-blepharitis, erythema and telangiectasias on the nose, cheeks, glabella and forehead (upper panel). Hyperaemia of bulbar conjunctiva with dilated blood vessels of tortuous shape and telangiectasias on the inflamed eyelid margins (lower panel).

INVESTIGATIONS

Prick skin testing and patch testing were performed to investigate IgE-mediated food hypersensitivity and allergic contact dermatitis. Prick testing was performed with a wide range of foods including cereal flours, rice and soy, egg, yeast, milk, meat, fish, shellfish, fruit and vegetables (Lofarma, Milan, Italy). A drop of solution containing the food allergen was placed on the forearm. The skin was gently pricked with a small plastic probe to allow a tiny amount of the solution to enter just below the surface. Patch testing was performed with the European baseline series (Lofarma, Milan, Italy) extended for some preservatives contained in ophthalmic preparations (benzalkonium chloride, chlorhexidine, ethylenediaminetetra-acetate and phenylmercuric salts) in Finn Chambers on Scanpor tape (SmartPractice, Phoenix, Arizona, USA). Patch tests were applied with 2 days of occlusion, and readings were performed at D2, D3, D5 and D7. We did not find any positive reaction in the prick test and patch test in our patient. As the patient reported dry eye symptoms we performed the Schirmer test to determine whether the eye produced enough tears. The test result was considered normal because there were 11 mm of moisture on the filter paper in 5 min in both eyes. Therefore we measured the TBUT, a method of determining the stability of the tear film and checking for evaporative dry eye. Sodium fluorescein dye was added to the eye and the tear film was observed under the slit lamp while the patient avoided blinking until tiny dry spots developed. In our patient the TBUT was short (6 s) indicating a poor tear film. Generally a time longer

than 10 s is thought to be normal. An unstable tear film can explain dry eye symptoms in patients who have a normal quantity of tears. In patients affected with rosacea, the Meibomian gland dysfunction, where not enough lipid is secreted by the Meibomian glands to 'seal' the aqueous tears and retard evaporation, may be the cause of tear film instability. This alteration can lead to the shortening of the TBUT.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis includes contact dermatitis of the eyelids and dermatitis conjunctivitis, seborrhoeic dermatitis of the eyelids, and staphylococcal blepharoconjunctivitis in the chronic form.

Allergic contact dermatitis of the eyelids and dermatitis conjunctivitis is caused by agents applied to the eyelids or conjunctiva, more commonly cosmetics or ophthalmic preparations. Vesiculation may occur early, but by the time the patient seeks care the eyelids usually appear thickened, red and chronically inflamed. If the conjunctiva is involved, there is tearing, hyperaemia and chemosis. Pruritis is the cardinal symptom, rubbing the eyes intensifies the itching and, in severe cases, keratitis can result. An elimination-provocation procedure and patch test can identify the offending substances.

Seborrhoeic blepharitis occurs as part of seborrhoeic dermatitis. It is associated with oily skin, seborrhoea of the brows and usually scalp involvement. The scales, which occur at the base of the cilia, tend to be greasy, and if these are removed no ulceration is seen.

Staphylococcal blepharoconjunctivitis in the chronic form is characterised by erythema of the lid margins, matting of the eyelids on awakening and discomfort, all of which are usually worse in the morning. Examination frequently shows yellow crusting of the margin of the eyelids with collarette formation at the base of the cilia, and disorganised or missing cilia. If the exudates are removed, ulceration of the lid margin may be visible.

TREATMENT

The patient was treated with oral doxycycline. The starting dose of 100 mg was continued for 2 weeks and followed by a maintenance dose of 50 mg/day for a total of 2 months of therapy.

OUTCOME AND FOLLOW-UP

The patient responded well to this course of oral therapy, which improved the disease and increased the TBUT to 11 s. In the 6 months of follow-up she experienced no further episodes of conjunctivitis-blepharitis.

DISCUSSION

Red eye, ocular dryness, burning and foreign body sensation and relapsing conjunctivitis-blepharitis are frequently encountered in the elderly population. The search for causes is difficult and often frustrating in many of these patients. Ocular rosacea is a relatively common disease that is mostly underdiagnosed and untreated because the diagnosis relies on observation of clinical features. The diagnosis of ocular rosacea may be challenging not only when accompanying roseatic skin changes but also in cases with evident facial dermatosis as symptoms are subtle or nonexistent. Most of the time the correct diagnosis is performed when either erythema with telangiectasias or signs of papulopustular rosacea are seen on the facial skin together with the relevant ophthalmic symptoms and signs.

In our patient, the diagnosis of ocular rosacea was complicated because the disease had appeared in old age when other

ophthalmic disorders can present with similar findings. Further challenges existed because for a long time the typical skin manifestations were not present. Indeed, in this patient the proper diagnosis was performed after nearly 10 years of ocular disease, and after repeated evaluations by general practitioners and clinical specialists, including ophthalmologists, dermatologists and allergists, only after the appearance of facial signs of erythematotelangiectatic rosacea. Therefore, the possibility of ocular rosacea should be considered when evaluating an elderly patient with persistent red eye and relapsing conjunctivitis-blepharitis. A detailed history should be taken in the search of any symptoms suggestive of rosacea including facial flushing and blushing. A careful examination of the central areas of the face should be performed to identify any skin roseatic changes, since they can be subtle or absent for a long time.

Tear function tests, like the Schirmer test and TBUT, although not specific, could contribute to the screening and early diagnosis of ocular rosacea. In our patient the TBUT was short, indicating a poor tear film due to Meibomian gland dysfunction. In the Schirmer test we found 11 mm of moisture on the filter paper in 5 min in both eyes. Interestingly, in a recent paper Lazaridou *et al*⁸ reported that, although pathological Schirmer test values (<5 mm) were not found in any patient, the rosacea group had a total mean value of 12.9 mm, which was significantly lower compared with the controls (21.5 mm). Age is a factor impacting the tear system and the Schirmer test value decreases with aging eyes.⁹ We think that our finding may be in accordance with the results of Lazaridou *et al*⁸ because our 79-year-old patient was considerably older than patients studied by these authors whose mean age was 58 years.

For a patient with ocular rosacea it is important to receive the appropriate treatment, not only because of the ocular morbidity of the longstanding disease, but also because of the impact of the ocular disease on everyday life. Therefore, it is essential to be aware of the presence of rosacea to appropriately treat ocular surface disease that is not responding as expected to topical therapy.^{6 10 11} Indeed, our patient, who had previously received several topical treatments with a poor response, improved with a 2-month course of oral doxycycline.

A final point that needs some consideration is how a biopsy of lesional skin may help in establishing the diagnosis of rosacea and ocular rosacea. Biopsy is rarely performed for rosacea in routine clinical practice, as the primary accepted diagnostic features of rosacea are clinical. Yet biopsy may help where symptoms are atypical or when the differential diagnosis with sarcoidosis, lupus miliaris or lupus erythematosus remains unclear. Inflammatory infiltrate and vascular changes can both be easily observed, characterised and quantified under microscope, using routine staining and immunohistochemistry. While some textbooks consider the microscopic signs of rosacea to be

Learning points

- ▶ The possibility of ocular rosacea should be considered in evaluating the elderly patient with persistent red eye and relapsing conjunctivitis-blepharitis.
- ▶ Making the proper diagnosis is crucial because ocular rosacea is not responding as expected to topical therapy and may lead to severe corneal involvement.
- ▶ A detailed history should be taken in the search for any symptoms suggestive of rosacea, including facial flushing and blushing.
- ▶ A careful examination of the central areas of the face should be performed to identify any skin roseatic changes, since they can be subtle or absent for a long time.
- ▶ This case report may be of interest to general practitioners as well as clinical specialists who evaluate these patients, including ophthalmologists, dermatologists and allergists.

non-diagnostic, experienced dermatophatologists are generally able to make the diagnosis via histology.¹²

Competing interests None.

Patient consent Obtained.

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