Ocular complications in rheumatoid arthritis

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Some of the ocular complications of rheumatoid arthritis can cause significant ocular discomfort, but others are serious threats to vision.

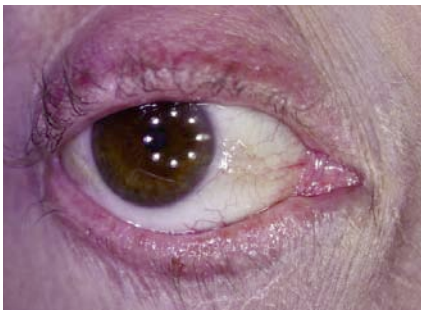

Figure 1. Interpalpebral injection of the patient's eye.

Case presentation

History

A 58-year-old woman presented with a six-month history of progressively uncomfortable eyes. She described a foreign body sensation, a 'burning' feeling and ocular tiredness; both eyes were equally troublesome. She also complained of intermittently blurred vision, which she could improve by blinking.

Specific questioning revealed that her symptoms were exacerbated by prolonged reading and windy weather, and that her mouth often felt dry. She had recently bought some over-the-counter eyedrops 'for red eyes' and felt they gave some relief, but only for a few minutes.

The patient gave no relevant past ocular history. However, she had been diagnosed with rheumatoid arthritis 12 years previously, for which she was taking hydroxychloroquine. She was otherwise well.

Examination

On examination, the patient's visual acuity was 6/6 in each eye. Gross inspection showed mild conjunctival injection that was maximal in the interpalpebral (exposed) zone (Figure 1). Slit lamp examination following application of fluorescein dye revealed punctate staining of the inferior cornea (Figure 2). Her tear film break-up time, which is measured by timing the appearance of dry spots in the film after a blink (Figure 3), was 2 seconds (normal ≥10 seconds). The marginal tear strips (Figure 4) were approximately 0.3 mm in height (normal ≥1 mm). Schirmer's test was performed

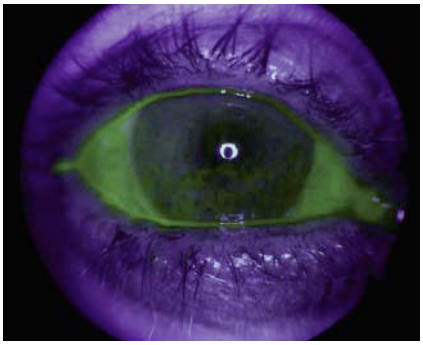

Figure 2. Punctate staining of the inferior cornea.

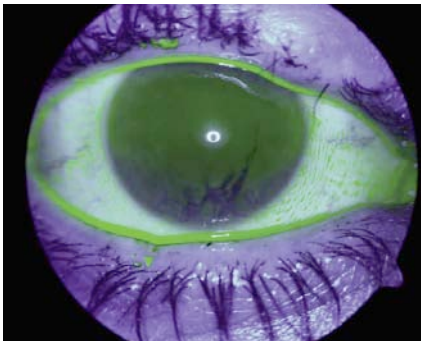

Figure 3. Appearance of dry spots in the tear film break-up test.

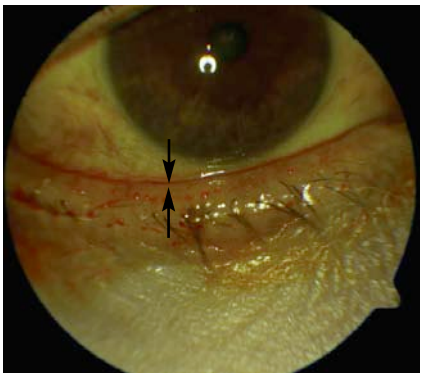

Figure 4. The marginal tear strip, seen as a fluorescein-stained band just above the lower lid margin.

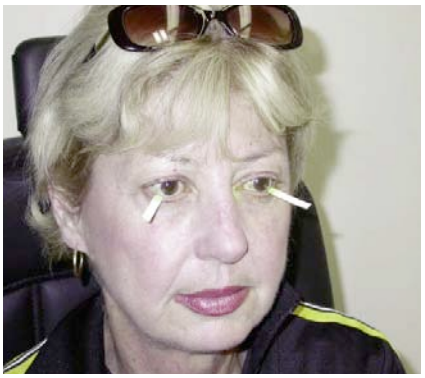

Figure 5. Schirmer's test.

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after instillation of topical anaesthetic (Figure 5); this showed 3 mm of wetting on each side (normal ≥10 mm).

Diagnosis

The patient's history and examination findings were typical of dry eye. She responded very well to a combination of nonpreserved tear supplements and silicone punctal plugs.

Discussion

The ocular conditions associated with rheumatoid arthritis include dry eye, scleritis, episcleritis and keratitis.

Dry eye

Dry eye is by far the most common ocular association of rheumatoid arthritis, occurring in approximately one in four patients.[1] It is a form of secondary Sjögren's syndrome, in which dry eye and xerostomia are associated with a systemic autoimmune disease. Autoimmune mediated destruction of lacrimal gland tissue leads to reduced tear secretion, and the reduced flow causes an inadequate film that evaporates in the exposed zone, leading to interpalpebral injection and inferior corneal staining. Situations that increase ocular evaporation, such as windy weather and activities that reduce the blink rate (for example, reading), typically exacerbate the condition. The intermittent blurring of vision results from dry spots in the tear film, which impair optical function.

The main treatment options for dry eye are tear supplementation and measures to reduce tear drainage. Either preserved or nonpreserved tear supplements can be used – the former are less expensive and offer the convenience of a larger, longer lasting bottle, but in order to reduce toxicity the latter are normally used if drops are required more than four times a day. Other modalities, such as topical cyclosporin A, are useful in some patients.[2] Reduction of tear drainage may be achieved with removable punctal plugs or permanent punctal cautery.

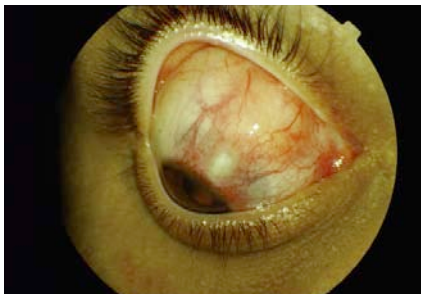


Figure 6. Necrotising scleritis, with a pale avascular patch within an area of scleritis.

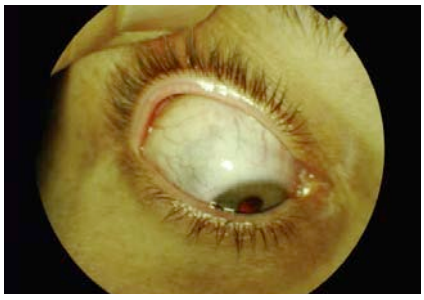
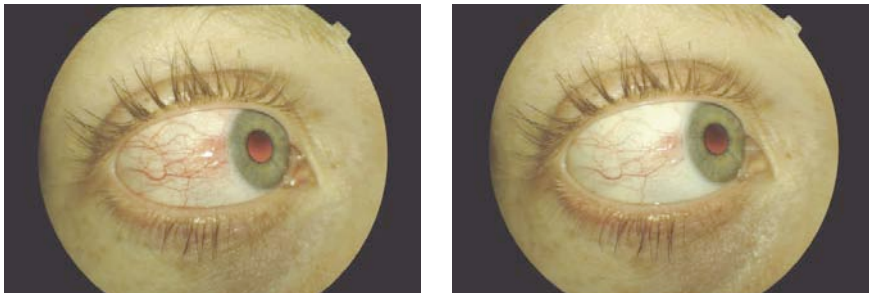


Figure 7. Grey patches of scleral thinning following necrotising scleritis.



Figures 8a and b. Episcleritis, before (a, left) and five minutes after (b, right) instillation of topical 2.5% phenylephrine.

Scleritis

Scleritis (inflammation of the sclera) may be necrotising or non-necrotising. The more severe form is necrotising scleritis, which is a serious threat to vision.

Scleritis usually presents with significant pain, tenderness, and a red eye. Posterior scleritis may also result in significant visual loss. Examination shows beefy red scleral injection and scleral swelling. In necrotising scleritis, pale avascular patches appear among the redness (Figure 6) – these necrotic patches subsequently thin to reveal the dark underlying uvea (Figure 7). In posterior scleritis there may also be proptosis and lid oedema; fundus examination may show exudative retinal detachment and disc swelling.

Necrotising scleritis without inflammation (scleromalacia perforans) is very rare but may occur in patients who have longstanding rheumatoid arthritis. It is asymptomatic and presents with development of dark patches of visible uvea.

Treatment for scleritis is systemic anti-inflammatory therapy, usually prednisone or prednisolone 1 mg/kg daily. For many patients, additional immunosuppressives are necessary.

Episcleritis

Episcleritis (inflammation of the surface of the sclera) usually presents with a mildly irritated red eye.[3] Examination shows sectoral redness which, unlike scleritis, blanches with topical 2.5% phenylephrine (Figures 8a and b). Detailed examination will reveal the absence of scleral thickening.

Generally, observation is all that is required. A topical NSAID or weak topical corticosteroid may be helpful for more symptomatic cases.

Keratitis

Keratitis (inflammation of the cornea) that is associated with rheumatoid arthritis is

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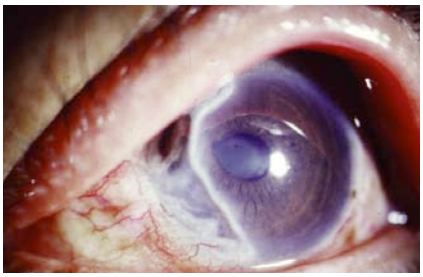

Figure 9. Peripheral ulcerative keratitis.

somewhat similar to scleritis in that it may occur with or without clinical inflammation. The keratitis is usually peripheral and may take the form of a stromal infiltrate, ulcer, or nonulcerated thinning. Acute peripheral melting is associated with limbal injection in an irritated or sore eye (Figure 9). Less often, peripheral thinning in the absence of inflammation results in the appearance of a 'contact lens cornea' (the thinning makes the central normal cornea look thicker, like a contact lens); such eyes are normally comfortable.

The most important part of treatment for acute peripheral melting is improved control of the rheumatoid arthritis. This usually involves a course of oral prednisone and increased immunosuppressive therapy.[4] A perforated cornea may also require emergency application of cyanoacrylate glue or corneal grafting to restore structural integrity to the globe.

Final comments

Patients with rheumatoid arthritis who have an irritated eye (or eyes) may have an ocular problem that is not associated with the systemic disease, such as blepharitis or conjunctivitis, and this needs to be excluded. Iritis is commonly thought to be associated with rheumatoid arthritis, but this is not the case.

Dry eye is frequently associated with rheumatoid arthritis, being troublesome and greatly impairing quality of life, but is rarely a serious threat to vision. Similarly, episcleritis may cause temporary ocular discomfort, but does not threaten vision. On the other hand, scleritis and keratitis are much less frequent but serious conditions that threaten vision – they are also indicators of inadequate control of the systemic disease and of progression to potentially lethal systemic vasculitis.[5] Hence, a patient with rheumatoid arthritis who has an irritated eye needs to be appropriately assessed to exclude serious associated conditions. MT

References

1. Uhlig T, Kvien TK, Jensen JL, Axell T. Sicca symptoms, saliva and tear production, and disease variables in 636 patients with rheumatoid arthritis. Ann Rheum Dis 1999; 58: 415-422.
2. Pflugfelder SC. Antiinflammatory therapy for dry eye. Am J Ophthalmol 2004; 137: 337-342.
3. Reddy SC, Rao UR. Ocular complications of adult rheumatoid arthritis. Rheumatol Int 1996; 16: 49-52.
4. Messmer EM, Foster CS. Destructive corneal and scleral disease associated with rheumatoid arthritis. Medical and surgical management. Cornea 1995; 14: 408-417.
5. Foster CS, Forstot SL, Wilson LA. Mortality rate in rheumatoid arthritis patients developing necrotising scleritis or peripheral ulcerative keratitis. Effects of systemic immunosuppression. Ophthalmology 1984; 91: 1253-1263.

DECLARATION OF INTEREST: None.

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