may enter many organs and become symptomatic by exciting an allergic response. The commonest clinical manifestations are cutaneous and ocular. Recurrent ('Calabar') swellings may surround the adult worm as it slowly migrates beneath the skin. The adult form may be seen as a 3–7 cm lesion moving slowly through the subconjunctival space. Microfilariae may sometimes be seen free in the anterior chamber. *Loa loa* parasites migrate when alive and cause inflammation when they die. Conjunctivitis, keratitis, anterior uveitis and chorioretinitis have all been described in loiasis.[11]

We have described a case of asymptomatic conjunctival lymphangioma that had been present for an indeterminate period of time. We are sure that it was not a case of infestation with the *Loa loa* worm, but it is interesting that the appearance was so similar.

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Ejaz Ansari
Leonard Teye-Botchway
Department of Ophthalmology
Coventry and Warwickshire Hospital
Coventry, UK

Robert Taylor
Damian O'Neill
Birmingham and Midland Eye Hospital
Birmingham, UK

Mr Ejaz Ansari, FRCOphth ✉
Singleton Hospital
Sketty
Swansea SA2 8AQ, UK
Tel: +44 (0)1792 205666
Fax: +44 (0)1222 798427

Sir,

Diagnosis of Theodore's superior limbic keratoconjunctivitis

Superior limbic Rose Bengal staining is part of the criteria for a diagnosis of Theodore's superior limbic keratoconjunctivitis, which was first described in 1963.[1] Other criteria are infiltration and vascularity of the superior bulbar conjunctiva together with infiltration of the superior palpebral conjunctiva. Later there may be the development of a filamentary keratitis in a wet environment.

Little attention has been paid in the literature to the symptoms of this disease. A special interest of one of us in the disease, over many years, has revealed that the great majority of patients complain of actual pain. There may be feelings of discomfort on awakening in the morning, but the sensation soon passes. Pain then develops and increases as the day progresses. It usually reaches its maximum intensity in the late afternoon, in an office worker. Stress greatly increases the severity of the pain so that a waiter who serves at a busy lunch may have to go and lie down before it is finished. The pain can disrupt lives and lead to thoughts of suicide. It can be said, however, that the pain never interferes with sleep – once the patient's head is on the pillow there is never any problem falling asleep.

The symptoms often bear no relation to the severity of the signs. Minor degrees of superior limbic staining can be accompanied by major symptoms and massive superior limbic disease, where the superior bulbar conjunctiva overhangs the cornea, can be asymptomatic.

Bengal Rose staining of the external eye is not a pleasant procedure. Patients experience a stinging sensation when the drug is inserted, which may last a long time. It is not unknown for a patient to return after the consultation and ask for it to be washed out. Accordingly, the dye is not routinely used in ophthalmic examination. Without its use and without the proper eliciting of symptoms the diagnosis of superior limbic keratoconjunctivitis is usually not entertained. Instead, a diagnosis of dry eyes, lid margin disease or chronic conjunctivitis of the upper palpebral conjunctiva may be made and inappropriate medication may be prescribed. These diseases may be uncomfortable, but are seldom painful.

We were interested to know the incidence of Rose Bengal superior limbic staining in a miscellaneous group of eye patients. Accordingly, we chose to stain 95 consecutive patients attending the morning Eye Casualty at St George's Hospital. Bearing in mind that the degree of Rose Bengal staining is dose-dependent,[2] we laid down a strict methodology for the instillation of the dye. It was done as follows. With the upper lid retracted by the thumb of one hand and the patient looking down, a drop of Rose Bengal was instilled in the area above the superior limbus, taking care not to touch the eye with the applicator. This was a Minim of Rose Bengal (Chauvin).

After an interval of 30 s a second drop of Rose Bengal was instilled. We have found that a second drop gives a much higher yield of staining.

We found that of the 95 patients serially examined:

Thirteen had slight staining confined to the superior limbus. Three of these complained of ocular discomfort and 1 of these 3 could be seen to be suffering from a corneal abrasion. A further 6 of the 13 complained of ocular pain, 2 with herpes simplex keratitis, 2 with loose sutures and 1 with a corneal abrasion.

Four had mild staining confined to the superior limbus. Two of these complained of ocular discomfort and 1 of pain, but the latter had a corneal abrasion.

Seven had moderate staining confined to the superior limbus. Two of these had ocular discomfort and a further 1, who had corneal filaments, also complained of ocular discomfort.

Thus, 24 (25%) had staining confined to the superior limbus.

Twenty-nine (30%) had Bengal Rose staining of other areas of the bulbar conjunctiva, but this number included patients who stained at the superior limbus. Forty-three (45%) had no staining of the conjunctiva or cornea with Rose Bengal.

These results imply that superior limbic staining does not, by itself, indicate the disease entity known as Theodore's superior limbic keratoconjunctivitis. In making this diagnosis the typical symptoms should be carefully elicited as they are quite characteristic.

The pain of the superior limbic keratoconjunctivitis is probably muscular in origin, involving the orbicularis muscle. This would explain the disparity between the signs and the symptoms and the good response in many cases to injection of the orbicularis muscles with botulinum toxin.[3] It would also explain why morphine sulphate 0.5% drops, which relieve corneal and conjunctival pain,[4] have in our experience consistently failed to do so in this disease. A mechanical cause (i.e. an anomaly of blinking) for superior limbic keratoconjunctivitis has been postulated by both Wright[5] and Ostler.[6] This could initiate the bulbar disease.

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James W.B. Bainbridge
Department of Ophthalmology
Charing Cross Hospital
London W6 8RF, UK

Ian A. Mackie
Department of Ophthalmology
St George's Hospital
London SW17 0QT, UK

Mr Ian Mackie, FRCS, FRCOphth ✉
99 Harley Street
London W1N 1DF, UK