

## LETTERS TO THE EDITOR

**Cross polarised spectacles in photosensitive epilepsy**

EDITOR,—Photosensitive epilepsy was first reported by Gowers in 1885 who described a girl who had attacks when going into bright sunshine, and a man who had a visual aura of bright blue lights and subsequent fitting evoked by looking at a bright light.<sup>1</sup> The first report of epileptic seizures caused by watching television was made by Livingstone in 1952, and since then numerous cases have been documented.<sup>1</sup>

Almost 10% of newly diagnosed cases of epilepsy in 7-19 year olds demonstrate photosensitivity on electroencephalogram (EEG) and have seizures triggered by watching television or by computer games.<sup>2</sup> Photosensitive epilepsy can usually be controlled by sodium valproate<sup>3</sup>; however, an important part of management of this condition is the avoidance of stimuli that provoke the fit.

**CASE REPORT**

A 9 year old boy was referred to a paediatric neurologist because of episodes of absence seizures on watching television. This at times progressed to generalised tonic-clonic seizures. He was clinically normal otherwise apart from slight clumsiness, slow speech, and poor handwriting.

His mother and paternal grandmother suffered with grand mal epilepsy, but neither were photosensitive.

An EEG showed interseizure epileptiform activity that increased on photic stimulation.

He was started on sodium valproate that was gradually increased to a dose of 1000 mg twice a day (39.9 mg/kg/day). This initially reduced his seizure frequency but in his teenage years, he suffered more frequent attacks of tonic-clonic seizures. Compliance, both with medication and with avoidance of environmental stimuli, had by this age become an issue. Conventional polarised glasses over his own myopic correction improved his condition but he continued to have attacks four or five times a month with everyday stimuli such as flickering light and television.

At age 16 years he was prescribed spectacles polarised at 90 degrees for the right eye and 180 degrees for the left eye. He was delighted with these glasses as these allowed him to visit amusement arcades and watch television without having an attack. This effect was substantiated on EEG tracings. The response to the photic stimulus when wearing cross polarised glasses was abolished (Fig 1). We explored the effect of polarisation of light at different axes using spectacles with variable polarisation (Fig 2). We found that cross polarisation at right angles to the horizontal and vertical was most effective and polarisation of the two eyes at the same axis least effective.

There was a considerable increase in EEG activity on photic stimulation with no glasses on.

A blood sample taken randomly and at the time of EEG tracing showed no trace of anti-epileptic drugs. This suggests that our patient was using the cross polarised spectacles

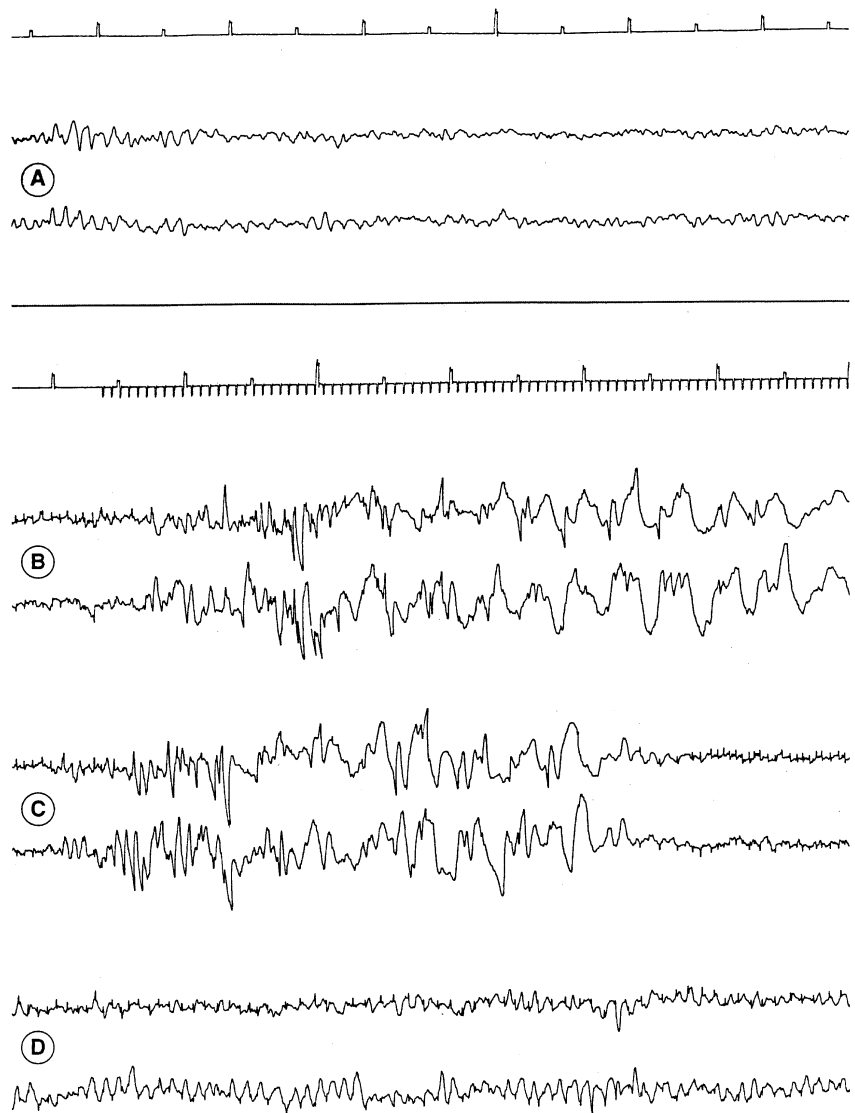


Figure 1 EEG tracings showing recordings from the occipital leads. (A) Baseline with no photic stimulation showing no photosensitive activity. (B) Photic stimulation with no glasses, showing marked photosensitive activity. (C) Photic stimulation with conventional polarised glasses, showing improvement in photosensitive activity. (D) Photic stimulation with cross polarised spectacles, showing marked reduction in photosensitive activity.

instead of his medication to avoid photosensitive epilepsy.

**COMMENT**

Closing one eye is known to be an effective way of avoiding photosensitive epilepsy.<sup>4</sup> Flickering environmental stimuli from reflected sources are an important cause of photosensitive epilepsy.<sup>1</sup> Since reflection from a plane surface is associated with polarisation, we reasoned that polaroid filters that obstructed horizontally polarised light from one eye and vertically polarised light from the other might be helpful in photosensitive epilepsy. This is because the patient would be rendered effectively monocular for reflected stimuli.

We were initially surprised by the effectiveness of cross polarised spectacles in eliminating

photosensitivity in our patient on direct stimulation from a flickering light source and not just from reflected surfaces. However, it would



Figure 2 Spectacles with variable polarisation used to explore the effect of polarisation at different axes.

appear that with a poorly defined flickering image, identical polarisation of the stimulus for each eye may be necessary for the brain to summate the two flashes perceived by each eye into a single enhanced photic stimulus.

Our patient's polarising lenses reduced the visual acuity from 6/5 to 6/6. Like most readily available polarising lenses intended for sunglasses, these lenses incorporated some additional tint; it should be possible to provide lenses that are lighter and more cosmetically acceptable. The greater effectiveness in our patient of lenses polarised at right angles to each other, rather than in the same plane, confirmed that the benefit of the glasses was not simply due to a darkening effect.

Further investigation of the effects of other methods of disturbing binocular perception may throw light on the mechanism by which occlusion of one eye reduces photosensitivity. The effectiveness of cross polarised spectacles in other patients with photosensitive epilepsy needs to be investigated.

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### Mechanical ptosis and lagophthalmos in cutaneous leishmaniasis

EDITOR,—Leishmaniasis is caused by infection of the protozoan *Leishmania* and is clinically classified as Old and New World cutaneous leishmaniasis (CL), mucocutaneous leishmaniasis, or visceral leishmaniasis. In the Old World, CL exists in the Middle East, Mediterranean regions, southern Asia, and northern and central parts of Africa.<sup>1</sup> CL has been continuing endemically for ages in Sanliurfa, a city in south eastern Turkey.<sup>2</sup>

CL usually affects unclothed parts of the body, such as the face, legs and arms, that can easily be bitten by a female sandfly vector.<sup>3</sup> Also, CL may rarely appear in the eyelid. CL generally begins as a red-brown papule or nodule at the site of inoculation.<sup>4</sup> The initial nodular erythematous lesion usually breaks down to form an ulcer. About 90% of such lesions heal spontaneously in months, usually leaving a scar.<sup>5</sup>

A case of cutaneous leishmaniasis of ocular involvement resulting in mechanical ptosis and lagophthalmos is reported.

#### CASE REPORT

A 13 year old Turkish boy complained of an erythematous and swollen lesion of his right upper lid that had enlarged slowly for 1 year. He complained about being unable to close his right eyelid during sleep for the past 8 months.



Figure 2 Six months after the specific treatment, closing eyelid position appearance of the right upper eyelid.

On examination in the eye clinic at the school of medicine, Harran University, a crusted lesion adherent to firm subcutaneous tissue, parallel to the right upper eyelid margin, was identified in the centre of an indurated and erythematous area. A decrease of 2.5 mm in the palpebral aperture, 6 mm in the levator function and 3 mm lagophthalmos were determined (Fig 1). Visual acuity was normal and there were no retinal lesions on funduscopy. Systemically he was in good health. After the patient was referred to a dermatologist, oriental sore was suspected. Amastigotes were identified in a Giemsa stained smear obtained from edge of the lesion. Needle aspirated was cultured on NNN medium and promastigots grew. In the light of the clinical and laboratory findings CL was diagnosed. After the diagnosis, chemotherapy with intramuscular injections of meglumine antimoniate (Glucantime 60 mg/kg/day) were given to the patient consecutively for 20 days. He had no adverse reactions to treatment.

Six weeks after starting treatment, induration and oedema were completely resolved, leaving minimal scar tissue in the centre of the lesion. The levator function improved 5 mm, and ptosis has almost completely resolved. However, lagophthalmos remained at the same level as before treatment (Fig 2). Repeated microbiological tests were negative. After 6 months lagophthalmos reduced about 1 mm.

#### COMMENT

As sandflies bite uncovered areas of skin, the face is the most commonly affected area of the body.<sup>3</sup> Ocular manifestations are usually restricted to the eyelids and occur only in 2-5% of patients with facial lesions.<sup>6</sup> According to Morgan, the rarity of eyelid lesions is due to eyelid movements preventing the fly vector from biting the skin in this area.<sup>7</sup> Also O'Neill *et al* have supported this hypothesis by



Figure 1 Before treatment, closing eyelid position appearance of the right upper eyelid.

attributing the eyelid CL in a patient with neurogenic ptosis to the inability of eyelid movement for innervational reasons.<sup>6</sup>

Even though cases with conjunctivitis and eyelid involvement caused by the species of *Leishmania* have been reported in the literature, CL causing mechanical ptosis and lagophthalmos of the eyelid has not been reported.<sup>8-9</sup> Mechanical ptosis preventing the levator movement develops as a result of the massive volume on the upper eyelid, inflammation, or scar formation.<sup>10</sup> In our case, inflammation caused by the ulcerated CL lesion adjacent to the subcutaneous tissue, resulted in mild mechanical ptosis in the upper eyelid on the right eye and moderate decrease in the levator function. Surprisingly, subcutaneous induration, inflammation, and perilesional oedema also caused lagophthalmos of 3 mm by preventing the contraction of the lid. The presence of lagophthalmos even 6 months after treatment was thought to be caused by the scar tissue left by the lesion on the eyelid. The lagophthalmos might have improved if this patient had been treated earlier.

CL is a self limiting condition and there is a tendency to allow uncomplicated lesions to heal spontaneously without specific treatment. None the less, the majority of lesions involute with disfiguring scar tissues. As in our case, ptosis could lead to cosmetic and emotional problems. Lagophthalmos, developing as a result of scar formation in the eyelid, has the potential not only to cause cosmetic problems but also to threaten vision. Early diagnosis and treatment are necessary since the case of cutaneous leishmaniasis with eyelid involvement may cause ocular complications.

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