Trachoma still undeleted

Sir,—Your interesting editorial1 about problems still outstanding in the study of trachoma was drawn to my attention recently and revived personal memories of this disease. Having spent a substantial part of my working life in various tropical countries I have seen and treated a large number of cases in various stages of the disease.

In August 1939 as the very junior regimental medical officer of an Indian battalion under embarkation orders for the Middle East, in the course of a pre-embarkation medical inspection I found that some 80% of the Sikh company had trachoma, these men were all from the Punjab in north west India. The disease was relatively inactive but the question of fitness for active service arose. On the eve of war, the whole battalion was deferred due to the unfitness of virtually one whole company. This was a matter for a more senior opinion than mine and the station ophthalmic specialist was sent to cover. He confirmed the diagnosis and passed them all "fit." The battalion went to North Africa but I was diverted to Burma so I was unable to follow their fortunes. Subsequent experience of trachoma among Indian troops convinced me that the hygiene could be right and they fitted in. Trachoma was fairly common in the Indian Army especially among soldiers recruited from the dry, dusty, northern parts of the country.

In the high state of hygiene in which they lived, even on active service, few developed serious complications. It seemed therefore that there must be other factors causing the development of those complications which often cause blindness, namely entropion and gross corneal pathology.

Next met the disease in its endemic form as ophthalmic specialist in the Gold Coast, as it was then called, from 1948–52. From a combined analysis of cases seen personally, in the eye clinic of the Gold Coast Hospital in Accra and on tour in the Northern Territories, I was able to show that the incidence and severity of the complications of trachoma were far greater amongst the inhabitants of the dry dusty Northern Territories than those in the coastal area.2 At that time facilities for pathological and bacteriological investigation were limited so findings were based on clinical observation.

From 1961 to 1966 I was working in the Jane Furse Anglican Mission Hospital, a large rural hospital in Sekukhuneland, a very dry dusty area of the Northern Transvaal. Once again I was struck by the high incidence of trachoma, commonly complicated by entropion and ultimate blindness. Thanks to the interest and help of Dr A Davies, the Medical Superintendent and Pathologist at the hospital, it was possible to demonstrate in some of the more severe cases, an accumulation of silica in the scattered conjunctiva and superior tarsi removed at operation. Those Africans who had spent long periods working in the gold mines away from Sekukhuneland rarely went blind from the later complications of trachoma. These men had lived in barracks where hygiene standards were high.

During my last overseas appointment I spent two years as a government ophthalmic special-


Penetrating keratoplasty for keratoconus

Sir,—I would like to congratulate Sharif and Casey on an excellent description of the long-term success of penetrating keratoplasties for keratoconus.3 However, their study design may have underestimated the probability of graft failure. Figure 4 shows the Kaplan-Meier survival curve of their 100 grafts during the course of the study. They found most failures occurred in the first 500 days (1.37 years). In their materials and methods section, they state "only keratoconus patients with a minimum of 4 years' follow up were included in the study. It would therefore appear that the only failures included were those that kept coming back with a failed cornea for some reason, or those that had been regrafted and followed for the minimum of 4 years. Patients having failed corneas without retransplant and being lost to follow up before 4 years would have been excluded in their study design. It has been my experience that some patients with failed corneal grafts do not have a regraft and are not interested in follow up. Though I suspect their success rate will still be quite high, it would be interesting to know how many total kerato- plasties for keratoconus were performed during the study period, and how many of those that did not have penetration failure follow up had failed corneal grafts or episodes of rejection. As their data point out, a large portion of individuals undergoing corneal transplant surgery for keratoconus are young males. As a group, young males are more prone to be involved in activities that could lead to traumatic rupture of the graft wound with loss of the graft or even the eye. They are also more prone to complications other because of relocating or by being inattentive to the care of their eye. The overall number of these individ-

uals having adverse events may be small but could still significantly change the survival data.

Their study appears to be an important one which provides excellent information on many of the long-term complications and outcomes of eyes having penetrating keratoplasties for keratoconus. However, in order to have an accurate survival analysis all consecutive cases performed during their study period would need to be included.

FRANCIS W PRICE
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1 Sharif KW, Casey TA. Penetrating keratoplasty for keratoconus: complications and long-term succ.

Diabetic radiation morbidity

Sir,—Features of ocular radiation vasculopathy were first described in 1933 and have been well characterised.4,5 Diabetes and other diseases that affect small vessels (hypertension, collagen vascular diseases, and chemotherapy), possibly increase the risk of radiation induced vasculopathy. However no study has proved this.4,5 We reviewed retrospectively 469 uveal melanoma patients all treated with either 601 brachytherapy or helium ion irradiation and found both visual outcomes and complications in diabetic and non-diabetic patients.

All patients were examined in the Ocular
Oncology Unit, University of California, San Francisco. Retrospective chart review identified 20 diabetics (43%). All had both fundus photography and fluorescein angiography. Three patients were insulin dependent, 11 were on oral hypoglycaemics, and six used diet management only of their diabetes. Prior to treatment three patients had proliferative retinopathy, four background, and 13 had no diabetic retinal disease on either ophth-
moscopy or fluorescein angiography. Two patients with proliferative retinopathy were treated with panretinal photocoagulation, one before and one after treatment. Any patient, diabetic and non-diabetic, developing significant proliferative retinopathy and/or rubesence following injury was treated with panreti-
ral photocoagulation. Tumour characteristics (Table 1) were similar in both diabetic and non-
diabetic subjects; tumours in diabetics were located slightly more distant from fovea and
nerve.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Diabetic</th>
<th>Non-diabetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatest base diameter</td>
<td>11.3 (3.2)</td>
<td>10.8 (3.9)</td>
</tr>
<tr>
<td>Shortest base diameter</td>
<td>9.7 (2.6)</td>
<td>9.0 (3.1)</td>
</tr>
<tr>
<td>Height</td>
<td>5.9 (2.1)</td>
<td>6.3 (2.6)</td>
</tr>
<tr>
<td>Distance to optic nerve</td>
<td>4.9 (2.6)</td>
<td>4.9 (2.6)</td>
</tr>
<tr>
<td>Distance to fovea</td>
<td>5.7 (4.9)</td>
<td>4.6 (4.0)</td>
</tr>
<tr>
<td>Neovascular glaucoma</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td>Optic neurapathy</td>
<td>5%</td>
<td>12%</td>
</tr>
<tr>
<td>Radiation maculopathy</td>
<td>20%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Standard deviations are in parentheses.

The incidence of complications (Table 1) was higher in diabetics for neovascular glaucoma and radiation maculopathy, but lower for radiation optic neuropathy. No sig-
ificant differences were found for these three variables on the Cox regression model analysis (p>0.05). Covariates in the analysis were: tumour size and distance from the fovea and nerve, radiation type and dose, age, diabetes status, and presence or absence of hyperten-
sion. For those patients who lost vision, the mean time to visual acuity loss (two or more Snellen lines) was the same for diabetics and non-diabetics, 8.1 months. No significant dif-
ference was found for ultimate visual outcome. No significant correlation was found between pretreatment severity of diabetic retinal disease, complications, and visual outcome. Astigmatic reports in the literature suggest that the diabetic eye is more likely to develop radiation morbidity.1,2 Our review suggests that the difference in response is probably more subtle than previously thought. Because the number of diabetics in our study is small and incidence of complications low, the probability of detecting correctly a difference in response of the diabetic eye at the p<0.05 level is about one in five. Therefore our analysis may have missed identifying increased morbidity in diabetics. A definitive statement on diabetic radiation morbidity awaits additional data.

Hyperopic shift and the use of masking agents in excimer laser superficial keratotomy

Sir,—I read with interest the articles on excimer laser treatment of superficial corneal disorders by Gartry et al.1 and Sher et al.,2 both of which attracted an editorial. I would like to comment on two aspects on this type of treatment both of which are, I believe, related to the use of masking agents (surface modulator fluids).

Firstly in addition to the four potential mechanisms postulated to be responsible for the observed hyperopic shift in some patients' three further mechanisms are probably in play: (1) with multi-zone ablation using a 4 mm ablation diameter it is almost impossible not to expose the axial cornea to more pulses of ablation than the more peripheral parts of the cornea (Fig 1a). It follows that a relative depression or flattening of the axial cornea would be created — a myopic correction is therefore cut (Fig 1b). A similar mechanism applies to the 'smoothing' technique used in the early cases of site 1 in the American report. It is conceivable that both regular and irregular 

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