Trachoma – the future for a disease of the past

The name 'trachoma' used to be almost synonymous with all eye disease and blindness. In a way somewhat reminiscent of Helen of Troy, trachoma was the disease that 'launched a thousand hospitals', and even more careers over the last two centuries. It was the reason that the famous ophthalmic hospitals were established around the world during the last century. These hospitals include Moorfields in London, the Massachusetts Eye and Ear Infirmary in Boston, and even the Royal Victorian Eye and Ear Hospital in Melbourne. With the revolution in personal hygiene and the improvement in living conditions, trachoma disappeared during this century from developed areas around the world. Hot, running water, indoor flushing toilets, and clean sheets did what follicle crushing and copper sulphate cautery could not do – they eliminated trachoma. By the second world war, 'trachoma days' at Moorfields had finished and the last trachoma hospitals in American Appalachia closed in the 1950s. As far as ophthalmology in the developed world was concerned the book had been closed on trachoma.

When the World Health Organisation (WHO) was founded, one of the programmes it initiated dealt with trachoma. However, by the mid 1970s, this programme had been replaced by a more broadly based programme for the prevention of blindness.

For those working in developing areas, however, trachoma continued to pose a major problem.¹ The worst disease is usually found in hot, dry, dirty, and dusty rural areas where water is scarce and hygiene is poor. In the 1950s tetracycline, one of the first antibiotics to become widely available, was found to be effective against *Chlamydia*. It replaced the less satisfactory sulpha drugs and large scale treatment programmes using tetracycline ointment were initiated by WHO and UNICEF. After it became possible to culture the causative *Chlamydia trachomatis*, much effort was spent during the 1960s and early 1970s to develop the trachoma vaccine. Work still continues on a vaccine against trachoma but so far without success.

More recent work on trachoma has been based on the lessons to be learned from the disappearance of trachoma from the developed world. An epidemiological search was started for the key determinants or components of personal hygiene that permitted trachoma to persist and spread. A child's dirty face was found to be a major risk factor for trachoma in a number of studies in different areas.²⁻⁴ Several community based health education programmes armed with the simple health message of 'keep the children's faces clean' have been initiated. Preliminary results suggest that this may reduce both the incidence and severity of disease.

However, even if it were possible to eliminate all active trachoma overnight, the disease would remain a major cause of blindness for many years to come.

At present there are some 300 to 500 million who have or who have had trachoma. For many of these people there is nothing further to fear. However, for those with more advanced tarsal scarring there is a very real risk of progressive entropion trichiasis, corneal opacification, and blindness.

Those at highest risk are those with advanced tarsal scarring. They are typically people living in underserved rural areas and most often they are women. In fact, women are about four times as likely as men to develop trichiasis and to go blind from trachoma.⁵ This is probably due to women's prolonged exposure to infection as they raise young children. Most transmission of trachoma occurs between young children and it can be regarded as 'the disease of the creche'.

Based on the number of young children who have already had trachoma Schachter and Dawson have predicted that in

Egypt, for example, the number of people with trichiasis will actually treble in the next 30 years.⁶ Clearly, something has to be done about this as blindness from trichiasis can be prevented by appropriate lid surgery.

A recent review of trichiasis surgery summarised almost 80 reports of different types of surgical techniques for management of trichiasis.⁷ These techniques could be grouped into about a dozen different approaches. Unfortunately, most of these reports were anecdotal, uncontrolled, and, at best, had variable or incomplete follow up. There was a clear need to see what type of procedure worked best. Reacher and colleagues conducted several controlled surgical trials in Oman.^{7,8} They showed superior results with a simple bilamellar tarsal rotation procedure based on the operations first described by Wies and Ballen. Two years after surgery trichiasis had been eliminated in 80% of their patients. In addition, they showed that the relief of trichiasis leads to a significant improvement in vision.⁸ The return in vision was equivalent to the amount of vision likely to be lost over a 10 year period if the trichiasis had been left untreated.

This brings us to the important paper of Bog and co-workers published in this issue of the journal. This paper shows three things. Firstly, it reaffirms the efficacy of the tarsal rotation procedure in curing trachomatous trichiasis. Secondly, it shows the importance of taking this surgical capacity out of the eye departments of the major hospitals, usually located in the national or regional capitals, and going to the communities where the people and the problems are to be found. The poor, elderly, rural blind are usually unable to force their way through the system to the central hospitals to get the treatment they desperately require. Thirdly, and most significantly, the authors show that this surgery can be done successfully by a properly trained ophthalmic nurse.

As Foster has pointed out previously Africa has only one ophthalmologist per million people.⁹ This compares with about one ophthalmologist per 20 000 in North America or Western Europe. In many parts of Africa, especially in East Africa, most ophthalmic care is delivered by appropriately trained ophthalmic nurses or ophthalmic medical assistants. These dedicated and skilled personnel not only provide primary eye care but commonly perform extraocular surgery and, in some areas, cataract surgery.¹⁰ Foster points out that many additional paramedical staff are urgently needed to perform cataract surgery in Africa. Similarly, the only way to handle the existing backlog of trichiasis and to treat those who will inevitably develop severe scarring from their trichiasis, is to train cadres of paramedical staff to carry out lid surgery. Bog *et al* have demonstrated the feasibility of this approach.

What is now needed is a simple, coordinated approach to the problem of trichiasis in developing areas. A standard kit of instruments, drugs, supplies, and dressings is required with a simple step-by-step guide for performing tarsal rotation surgery. This could be modelled on the successful introduction of the simplified trachoma grading system developed by WHO some years ago.¹¹

Training programmes are needed to educate the community on both the availability and desirability of surgery, and to educate ophthalmic nurses and medical assistants to recognise trichiasis and treat it. The development of such a programme was recently initiated with support from the New York based Edna McConnell Clark Foundation. To be successful, this programme will need to be fully integrated into the primary eye care and prevention of blindness messages of WHO.

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