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(Accepted 29 May 1992)

Ocular complications observed in leprosy patients in Romania

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BMJ 1992;**305**:240-2

The political changes that have occurred in Romania since the revolution of December 1989 have thrown to light many health care problems within the country, and the plight of the orphans, the children with AIDS, and the elderly and the mentally subnormal populations have received widespread coverage by the world press.

In the early part of 1990 reports of the existence of a leprosarium in the eastern part of the country emerged, amid considerable publicity and uninformed opinion. Leprosy patients who are ethnically European are likely to have a high prevalence of multibacillary disease and are therefore at risk from ocular complications.[1]

To assess the needs of these patients three visits to the leprosarium were arranged in 1990-1, through the help of the Romanian Ministry of Health.

Tichilesti Leprosarium

Tichilesti is a small isolated settlement lying on the Romanian border with Russia, close to the mouth of the Danube and about 40 km from Tulcea, the nearest large town. The leprosarium was established at the beginning of this century, when there were about 200 patients. The number has now diminished to 53, most of whom have been there for many years, the last new admission being in 1986. Tichilesti is thus one of several settlements of purely European patients with leprosy; others include centres in southern Russia, Spain, Portugal, Greece, and Turkey, although most of these contain an appreciable proportion of non-Europeans.

The conditions in the leprosarium are austere, although not unduly so, and sanitation is poor, but the patients seem generally content with their surroundings (fig 1). The health care is administered by a resident doctor, two nurses, and an administrator. Minor medical problems are dealt with on site, but patients requiring specialist attention or surgery are transferred to the main hospital in Tulcea or even to Bucharest.

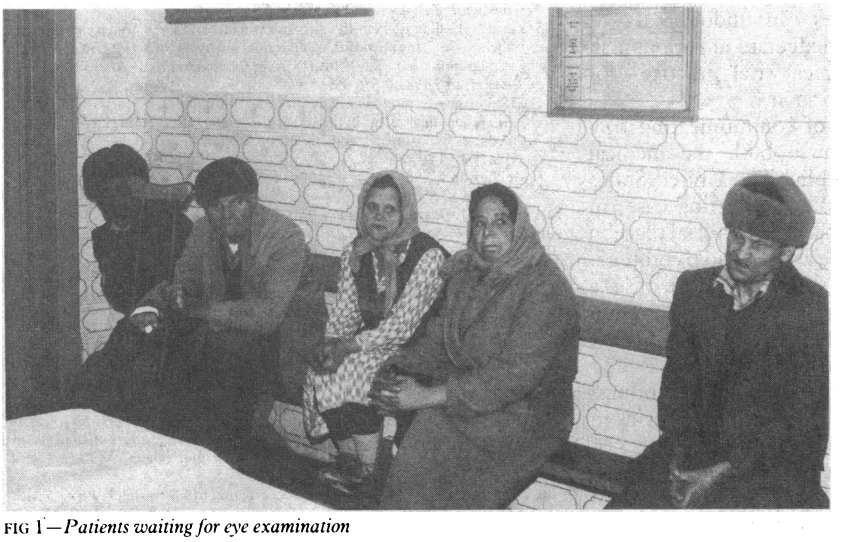

FIG 1—*Patients waiting for eye examination*

Patients and methods

Out of a possible 53 patients 46 (87%) were examined; one man was thought not to have leprosy and was excluded from the study. All of the remaining 45 were of European extraction; 22 were women and 23 men. One patient was aged 39, 12 were aged between 40 and 59, and the remainder (32) were over 60. Most patients were believed to have had leprosy since young adulthood, and although one patient had had leprosy diagnosed fewer than 10 years previously, 84% had had the disease for over 30 years.

Medical records were difficult to assess and smear testing had been infrequent, but clinical examination suggested that 91% of patients had multibacillary disease, the remaining patients were thought to have paucibacillary disease. Two patients had positive smear test results, and although the regularity of administration of treatments was uncertain, almost all patients were taking or had taken sulphones, either as dapsone or glucosulphone, some had been given rifampicin, and several were also using chaulmoogra oil.

Ophthalmic examination—Eye examinations were carried out according to guidelines set for collecting data on ocular complications of leprosy,[2] and the

results were recorded on a standardised proforma. There are many manifestations of ocular involvement, but blindness in leprosy is usually the result of four major complications: impaired lid closure leading to exposure keratopathy; reduced or absent corneal sensation, leading to corneal ulceration and scarring; acute or chronic iridocyclitis; and secondary cataract. The basic examination equipment included a portable test-type, an illuminated magnifying (x6) loupe, a pen torch, and an ophthalmoscope.

Results

Sixteen (36%) of the 45 patients examined had no evidence of any ocular damage, although in several their vision could be improved by providing spectacles. Significant eye disease, either causing or threatening blindness, affected 26 (58%) patients and many patients had more than one complication. Visual disability was assessed, and lid closure and the state of the cornea, iris, and lens were examined to determine the prevalence of significant complications threatening sight (table I).

TABLE I—*Ocular findings in 45 patients with leprosy and blindness or significant complications threatening sight in 88 eyes*

	No (%)
Visual disability (n = 45)	
Grade 0	16 (36)
Grade 1	17 (38)
Grade 2	12 (27)
Blindness or significant complications (n = 88)	
Blind eyes (vision >3/60)	25 (28)
Lid closure	22 (25)
Corneal involvement	29 (33)
Iris involvement	16 (24)*
Cataract	13 (19)*
Phthisis	15 (17)
Patients with blindness or significant complications	26 (58)

*Of 68 eyes which could be assessed.

Visual disability—Courtright and Johnson[8] recommend that visual disability in patients with leprosy should be classified into three grades: grade 0—no eye problems due to leprosy: no evidence of visual loss; grade 1—eye problems due to leprosy present, but vision not severely affected as a result (vision 6/60 or better); grade 2—severe visual impairment (vision worse than 6/60). According to these criteria, the visual disability of 16 (36%) patients was classified as grade 0; that of 17 (38%) as grade 1; and that of 12 (27%) as grade 2, in five of whom the bilateral acuity was reduced to perception of bare light. Two eyes had been enucleated, and of the 88 eyes examined, 25 (28%) had vision less than 3/60 and were therefore blind by the definition of the World Health Organisation. Table II shows the causes of the blindness.

Lid closure was assessed by observing whether the cornea remained partly uncovered when an attempt was made to close the lids as in sleep (diminished closure) or on forced closure (absent closure). Diminished closure was observed in several patients but was absent bilaterally in seven and unilaterally in five. In addition, three eyes had previously had a lateral tarsorrhaphy. Significant problems with lid closure were therefore seen in 22 of the 88 eyes examined.

Corneal changes—Absent corneal sensation puts the eye into a high risk category, and corneal opacities were regarded as significant if they reduced vision to below 6/36. Corneal sensation, tested by a cotton wool wisp applied to the centre of the cornea, was absent in 24 (27%) of the possible 88 eyes and diminished in a further nine. Significant corneal opacities were found in 21 (24%) eyes, of which 15 had phthisis (fig 2). Altogether, a total of 29 (33%) eyes had corneal changes likely to threaten sight.

TABLE II—*Causes of blindness (vision less than 3/60) in 25 eyes of patients with leprosy*

	No of eyes
Phthisis	15
Corneal opacity	6
Cataract	2
Chronic iridocyclitis	1
Injury	1

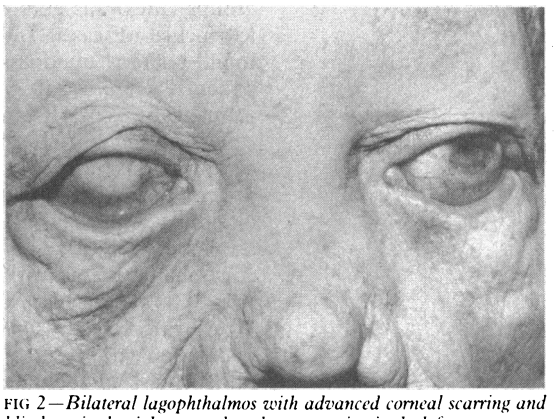

FIG 2—*Bilateral lagophthalmos with advanced corneal scarring and blindness in the right eye and moderate scarring in the left*

Iris changes—Chronic iridocyclitis is a common cause of visual impairment in patients with longstanding multibacillary disease. It may be difficult to diagnose, but several associated pupillary changes indicate involvement of the iris, including extreme miosis and atrophy of the iris (fig 3), synechiae, and eccentric or multiple pupils. In 20 eyes it was impossible to examine the iris and lens because of advanced corneal opacities or phthisis. In the remaining 68 significant evidence of damage to the iris from chronic iridocyclitis was detected in 16 (24%).

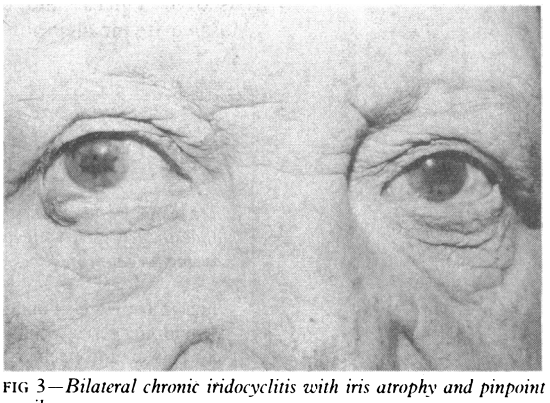

FIG 3—*Bilateral chronic iridocyclitis with iris atrophy and pinpoint pupils*

Cataract was regarded as significant in those patients whose corrected vision was less than 6/36, in whom lens opacities were visible or the red reflex was absent or diminished. This was the case in six eyes, and an additional seven eyes were aphakic. Cataract therefore was or had been a significant visual problem in 13 (19%) of the 68 eyes that could be examined.

Discussion

The unique geographical position and ethnic composition of Tichilesti makes the ocular complications in this small group of patients with longstanding leprosy difficult to compare with studies in similar institutions elsewhere. Patients with chronic multibacillary disease, who often congregate in this type of settlement, are known to have a high prevalence of eye changes, but rates of blindness reported from leprosaria vary considerably (Thailand 17%,[4] Brazil 22%,[5] Japan 36%,[6] and Kashmir 50%[7] compared with the 27% seen in this study in Romania). The most recent report on blindness in Caucasian patients was from the United States National Leprosarium in 1940, where in over 11% of patients vision was of perception of light or less in both eyes. The population in this study was mixed, half were classed as "white Americans"; although the prevalence of blindness among them was not recorded specifically, a comment was made that other ethnic

groups (Mexicans and Philippinos) had significantly less ocular disease.[8] Interestingly, Borthen in 1902 found bilateral blindness in 21·6% of his Norwegian patients,[9] a figure sadly comparable to that observed in Romania by us nearly ninety years later.

The findings in our study show that blindness or complications threatening sight occurred in 58% of the patients examined. Again, contemporary comparisons of similar ethnically matched patients in institutions are impossible, although a study in 1950 of 55 white Australian patients with leprosy segregated on Peel Island showed that 64% had significant ocular lesions.[10] Worldwide standardised studies of cross sections of the population with leprosy, which have attempted the difficult task of avoiding epidemiological bias in this disease (T J ffytche, proceedings of the twenty seventh international congress of ophthalmology, Singapore, 1990), have shown an overall prevalence of grade 2 visual disability (visual acuity >6/60) of 7·0%, compared with 27% in this unusual sample. The percentage of patients with significant eye involvement was 21% in contrast to 58% in Romania.

Almost all the late blinding complications of leprosy observed in Tichilesti and comparable institutions are avoidable, although they are often neglected. What is required is the intelligent supervision of the eyes by health care workers with a basic knowledge of the effect of the disease on the ocular tissues. This sort of service is potentially available in the area, and the matter can be solved locally by ophthalmic services based in Tulcea, and they are already responding. Massive financial input from western Europe is not required but rather continuous encouragement and support from colleagues and help with basic instruments and treatments, and already several German charities are involved in delivering this type of aid. The continued interest shown by visiting foreign doctors and ophthalmologists should prevent the settlement from lapsing back into the obscurity of the previous twenty years, and may at least guarantee the comfort and ophthalmic care of the dwindling numbers of Romanian patients with leprosy who choose to live out their lives in Tichilesti.

We thank the Romanian health authorities for facilitating this visit, and Dr Mihai Romila, director of the Sanitara Judeteana, Tulcea, for his help.

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(Accepted 10 April 1992)

ANY QUESTIONS

Are there any dangers to the developing fetus of injecting local anaesthetics, such as lignocaine (with or without adrenaline), during pregnancy?

The most likely danger of local anaesthesia to the developing fetus would be an overdose causing maternal convulsion and respiratory and cardiovascular depression with fetal hypoxia. Avoiding intravenous injection and restricting doses to less than the recommended maximum (200 mg for lignocaine) reduce the risk even in sites of rapid absorption—for example, intercostal and epidural sites.[1] Paracervical blocks can lead to direct injection of the uterine artery and high fetal concentrations, resulting in apnoea, hypotonus, bradycardia, and fits. Before delivery the fetus depends on maternal metabolism and excretion to eliminate drugs, and weak bases such as local anaesthetics can accumulate if the fetus becomes acidotic. After delivery the fetus can metabolise and excrete local anaesthetics. The elimination half lives, however, are prolonged.[2]

The addition of adrenaline increases the maximum recommended dose of lignocaine by 250% and reduces absorption by 20-50%. Adrenaline also potentially reduces uteroplacental blood flow secondary to vasoconstriction and can lead to placental hypoperfusion and fetal hypoxia. There seems to be little effect at concentrations of one in 200 000 in healthy parturients with no aortocaval compression.[3]

There is no evidence for teratogenic effects of local anaesthetics or adrenaline in early pregnancy. Such evidence, however, is difficult to acquire, and the recommendations, as with all drugs in pregnancy, are to avoid drugs whenever possible and to use the smallest effective dose.—T H MADEJ, *consultant anaesthetist, York*

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What is the recommended course of action for suspected acute appendicitis when far from conventional surgical facilities—for example, mountaineering in remote areas or sailing on a long passage?

In remote areas away from good surgical facilities it is best to manage the condition conservatively. Because early acute appendicitis is so satisfactorily treated by early operation this is considered to be the optimum treatment. But appendicitis is often unrecognised for some days, and when it then presents as a mass it is usually managed conservatively. It is surprising how well fit young adults can cope with even a perforated appendix.

When first Ochsner and then Sherren described conservative management for an appendix mass nearly a century ago they did not have the powerful antibiotics that we have today.[1,2] You would expect that in remote areas or at sea the doctor would be treating fit, uncompromised patients and would have had the good sense to bring a good supply of antibiotics effective against aerobic and anaerobic organisms. It would be much more dangerous to attempt surgical intervention in a bivouac or on a galley table than to prescribe rest, antibiotics, and fluids only.

More than 30 years ago a young Swiss doctor was publicly criticised for managing conservatively a patient on the slopes of Everest. He was right then and would be unable to be criticised today when the risks of conservative management are even less. Furthermore, the suspicion of appendicitis could have been ill founded. It would be difficult to forgive a heroic bush laparotomy for a lily white appendix.—J ALEXANDER-WILLIAMS, *professor of gastrointestinal surgery*

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