Visual outcome of extracapsular cataract extraction and intraocular lens replacement in leprosy patients

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الحصيلة الإبصارية لاستئصال الساد خارج المحفظة والاستعاضة بعدسة داخل المقلة في مرضى الجذام

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الخلاصة: أجريت الدراسة في مدينة مشهد، في إيران، في الفترة بين عامي 1998 و2000، لاستقصاء الحصيلة الإبصارية لإجراء جراحة عينية لاستئصال الساد خارج المحفظة مع الاستعاضة بعدسة داخل المقلة لدى 18 من مرضى الجذام أجريت لهم جراحة على عشرين عينا. إن أكثر المضاعفات شيوعاً للجذام هو فقد الرموش والحواجب (90٪) ثم نقص الشفافية القرنية (55٪). وقد تراوحت حدة الإبصار قبل العملية الجراحية من إدراك الضوء إلى 10/1 ثم تحسنت بعد الجراحة لتصل إلى ما بين 10/5 و10/8 لدى 55٪ من المرضى. إن العدوى التالية للجراحة والتي أدت إلى التهاب باطن المقلة قد حدثت في مريض واحد فقط وعولجت دوائياً، وبقيت الحدة البصرية للمريض الذي أصيب بها على شكل رؤية وعد الأصابع على بعد 10 سنتيمترات. وقد تم تشخيص التصاق القزحية الناجم عن التهاب العنبية المزمن في الجذام لدى 70٪ من الحالات، وانسداد القزحية في 25٪ منها، والترسبات الكيراتينية في 25٪ منها، والضمور المعتدل في القزحية في 10٪ منها.

ABSTRACT The study was carried out in Meshed, Islamic Republic of Iran, from 1998 to 2000 to explore the visual outcome of eye surgery with extracapsular cataract extraction and intraocular lens replacement on 18 leprosy patients (20 eyes). The most common complications of leprosy were madarosis (90%) and partial or total corneal opacity (90%). Visual acuity before surgery ranged from 'light perception' to 1/10, and this improved after surgery to 5/10–8/10 for 55% of patients. Postoperative infection leading to endophthalmitis occurred in only 1 patient and was treated with drugs; this patient's visual acuity remained at 10 cm finger count. Posterior synechia due to chronic uveitis in leprosy was diagnosed in 70% of eyes, obstructed iris in 25%, keratic precipitates in 25% and moderate iris atrophia in 10%.

Résultat optique de l'extraction extracapsulaire du cristallin et du remplacement par une lentille intraoculaire chez des patients lépreux

RESUME Cette étude a été réalisée à Meshed (République islamique d'Iran) de 1998 à 2000 pour explorer le résultat optique de la chirurgie oculaire par extraction extracapsulaire du cristallin et remplacement par une lentille intraoculaire chez 18 patients lépreux (20 yeux). Les complications les plus courantes de la lèpre étaient la madarose (90 %) et une opacité cornéenne partielle ou totale (90 %). L'acuité visuelle avant l'intervention chirurgicale allait d'une « perception faible » à 1/10, et il y a eu une amélioration après l'intervention allant jusqu'à 5/10-8/10 pour 55 % des patients. Une infection postopératoire entraînant une endophtalmie est survenue chez un seul patient et a été traitée par médicaments ; l'acuité visuelle aux doigts de ce patient est restée à 10 cm. Une synéchie postérieure due à une uvéite chronique dans la lèpre a été diagnostiquée pour 70 % des yeux, une obstruction de l'iris pour 25 %, des précipités kératiques pour 25 % et une atrophie modérée de l'iris pour 10 %.

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Introduction

Leprosy is a stigmatizing disease affecting mainly the skin, peripheral nerves, and eyes and nose and is a notorious cause of blindness and nasal, hand and foot deformities. In 1986, 5.4 million leprosy patients were registered worldwide, a figure that had fallen to 3.1 million by 1992 [*1*].

The overall prevalence of leprosy in the Eastern Mediterranean Region in 1995 was 0.4 per 10 000. Although the prevalence in the Islamic Republic of Iran is less than 1 per 10 000, there are localized areas where it exceeds 1 per 10 000. Regional strategies are emphasized for the elimination and control of leprosy, early case detection, treatment with multidrug therapy and disability prevention. WHO supports national control programmes, providing technical assistance to the Islamic Republic of Iran in the promotion of surgery for leprosy impairment [*2*].

The rate of ocular involvement in leprosy ranges from 6%–90% in different studies. In a study in Nepal, the incidence of blindness (eyesight less than 2/200 or 6/60) was 3%–8% in patients with duration of illness up to 10 years, and 30% in patients with more than 20 years of illness [*3*]. In a study in Nigeria, the rate of blindness in leprosy patients was 8.7%, i.e. 10-fold more than the general population in the area, and one of the most common causes of blindness in that study was cataract [*4*]. The rate of eye problems and blindness vary with the type of leprosy; inflammatory eye is a common finding that can cause problems for eye surgery. Leprosy, especially the lepromatous type, causes impairment of the immune system, which increases the success of extracapsular cataract extraction and intraocular lens replacement surgery. In one study, blindness in patients who had aphakic surgery and pseudophakic surgery was 71% and 14% respectively [*5*].

Considering the high level of physical and psychological impairment associated with leprosy, all efforts should made to develop the full potential of leprosy patients. Rehabilitation of eyesight, even at finger count level is a valuable help to the patients. As there is little information about the nature or incidence of ocular pathology in leprosy patients and about the effectiveness of ocular surgery, the present study was conducted to explore the visual outcome of eye surgery with extracapsular cataract extraction and intraocular lens replacement. The study was carried out on leprosy patients in Imam Reza Hospital in Meshed, Islamic Republic of Iran, from 1998 to 2000.

Methods

In this study, 18 cured leprosy patients with cataracts (20 eyes) underwent extracapsular cataract extraction and ocular lens replacement surgery. For each patient, a primary ophthalmologic examination was conducted in the ophthalmology clinic of Imam Reza Hospital in Meshed.

After confirming leprosy and cataract, the patient was referred to the ophthalmology ward and a clinical assessment was performed by ophthalmologists or ophthalmology residents. Before the operation, intraocular pressure was measured. Surgery was performed on the eye with better vision, except for 1 patient who had no light perception in the other eye.

After surgery, all patients received betamethasone and chloramphenicol eye drops. All patients were followed on the 1st, 3rd and 7th days postoperation and at the end of the 3rd and 6th months and 1st year, and were examined by surgeons or ophthalmology residents. Postoperative vi-

sual acuity was defined by the eyesight at the end of the 1st year postoperation.

Results

The study sample was 12 males and 6 females, aged 54–70 years; operations were made on 20 eyes. The preoperative complications of the eyelid and cornea due to leprosy are presented in Table 1. Madarosis (loss of eyelashes) was the most common eyelid complication in 90% of eyes, followed by loss of eyebrows (65%), lagophthalmos (50%) and corneal hypoaesthesia (35%). Corneal problems were corneal infiltration (45%) and corneal neovascularization (45%), and partial or total corneal opacity (90%).

In all cases, intraocular pressure was normal before and after operation; no cases of increased intraocular pressure were detected. Mild postoperative ocular inflammation was seen in all cases, but the intraocular lens was well tolerated. In 14 cases (70%), in spite of iridotomy, slight iridoavulsion occurred at the time of the lens nucleus extraction, which is not a serious problem in intraocular lens replacement. Because of multiple ocular problems in 5 patients, tarsorrhaphy and corneal implantation was also performed in their operations.

In all cases, visual acuity before surgery ranged from 'light perception' to 1/10, and this improved in all cases after surgery, with 55% of eyes regaining a visual acuity from 5/10 to 8/10 (Table 2).

The postoperative complications were low. Posterior synechia was diagnosed in 14 eyes (70%), a very mild case in 1 eye. Obstructed iris was seen in 5 eyes (25%) and a mild case in 1. Keratic precipitates occurred in 5 eyes (25%) and very mildly in 1 eye. Iris atrophia was seen mildly in 14 eyes (70%) and moderately in 2 eyes (10%). Postoperative infection occurred in

Table 1 **Complications of the eyelid and cornea in 20 eyes from leprosy patients with cataract**

Complication	Mild		Moderate		Severe		Total	
	No.	%	No.	%	No.	%	No.	%
Eyelid								
Madarosis	16	80	1	5	1	5	18	90
Loss of eyebrows	10	50	2	10	1	5	13	65
Lagophthalmos	5	25	4	20	1	5	10	50
Corneal hypoaesthesia	4	20	3	15	0	–	7	35
Ectropion	3	15	2	10	0	–	5	25
Trichiasis	3	15	2	10	0	–	5	25
Cornea								
Inflammatory pannus	13	65	1	5	1	5	15	75
Partial corneal opacity	7	35	2	10	2	10	11	55
Total corneal opacity	4	20	3	15	0	–	7	35
Corneal infiltration	6	30	1	5	2	10	9	45
Corneal neovascularization	2	10	7	35	0	–	9	45

Table 2 **Visual acuity in 20 eyes from leprosy patients with cataract 1 year after extracapsular cataract extraction and ocular lens replacement surgery**

Visual acuity	No. of patients	%
5/10–8/10	11	55
1/10–4/10	5	25
CF = 5	2	15
Not determined	2	10

CF = counting fingers at 5 m.

1 patient, which led to endophthalmitis and was treated with drugs; this patient's visual acuity remained at 10 cm finger count.

Discussion

The prevalence of cataract in leprosy patients will increase as life expectancy continues to increase. Leprosy control programmes need to develop activities aimed at reducing the burden of cataract. Extracapsular cataract extraction and intraocular lens replacement is a suitable treatment for cataract in cured leprosy patients. The postoperative complications, followed up for 1 year, were very low in this study.

In our sample, the most common preoperative complication of leprosy was madarosis, which was similar to a study performed in the USA [6]. Loss of eyebrows, inflammatory pannus and partial corneal opacity were the next most common complications; conjunctival fibrosis was the second most common complication in leprosy patients in the American study [6].

Symptoms of neuromuscular involvement of leprosy, such as lagophthalmos and corneal hypoaesthesia, were more common in our study than other studies. In the USA, the rate of lagophthalmos was 11% and the rate of corneal hypoaesthesia was 16%; in our sample the rates of these complications were 50% and 35% respectively. This can be explained by the different rates of tuberculoid and lepromatous types of leprosy that occurred in these regions, which result in different complications. In a study in south India of 63 leprosy patients admitted for treatment of corneal ulcers, 34 had lagophthalmos, 28 had madarosis, 9 had ectropion, 6 had blocked nasolacrimal ducts, 3 had trichiasis and 39 had decreased corneal sensation [7]. Indigenous treatment and late presentation were notable in many cases and visual outcomes were not good.

In the present study, all patients had low visual acuity before surgery (between light perception and 1/10). One year after surgery 80% of them had highly improved visual acuity, which indicates the effectiveness of extracapsular cataract extraction and intraocular lens replacement in leprosy patients. In a study in Korea among patients with aphakic surgery, 71% were still blind in the operated eye, while among patients who had pseudophakic surgery, 14% remained blind [5]. In our study, postoperative posterior synechia was seen in 75% of patients due to chronic uveitis, which is one of the major causes of blindness in leprosy.

Considering the good visual outcomes in operated patients and the low rates of intraocular inflammation and reaction, we conclude that the results of intraocular lens replacement surgery for cured leprosy patients with cataract are satisfactory and can be recommended.

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Leprosy elimination

Leprosy continues to have public health importance in some countries of the Region at sub-national levels, although the number of newly registered leprosy cases has decreased significantly during the past several years. Drugs for treatment of leprosy are available free in all endemic countries, and diagnosis and treatment are integrated in the majority of countries, either within the primary health care system, or with other communicable diseases programmes. The main challenges for the endemic countries relate to reducing the backlog of untreated cases through passive and active case detection, achieving full compliance of cases with multidrug therapy (MDT), changing the negative image of leprosy and eliminating stigma through increased community awareness, preventing disabilities among cases, and achieving sustainability in diagnosis and treatment of cases in countries that have already eliminated leprosy.

Source: The work of WHO in the Eastern Mediterranean Region: annual report of the Regional Director, 1 January 31 December 2003