Light in a country of darkness — Afghanistan

Nim-Chung Chan, FRCS, FCOphthHK
Department of Ophthalmology, Tung Wah Eastern Hospital, Hong Kong, China.

Correspondence and reprint requests:
Nim-Chung Chan, Department of Ophthalmology, Tung Wah Eastern Hospital, Hong Kong, China.

Key words:Afghanistan, International Assistance Mission, NOOR eye project, Eye camps

Introduction

The past few years have been a tremendous experience, as I have been investigating the eye services in a number of countries to locate a place where I could contribute to their development. A Christian voluntary agency in Afghanistan named International Assistance Mission (IAM) invited me to visit their eye project in 1991, where there was a great demand for eye care and training. I left my job in Hong Kong in 1993 to become the Medical Director of the only national eye project in the country until my return to Hong Kong in 1999.

The country

Afghanistan is a very special country (**Figure 1**), although many people do not know much about it. It has an ancient history, with the original people being a group called the Aryans, who also had early settlements in areas of modern Germany. From 1500 to 600 BC, Afghanistan was the home of nomadic and pastoral people, and was known as the 'Crossroads of Asia'. From 600 to 330 BC, Afghanistan

Figure 1. Qargha lake in Kabul, Afghanistan.

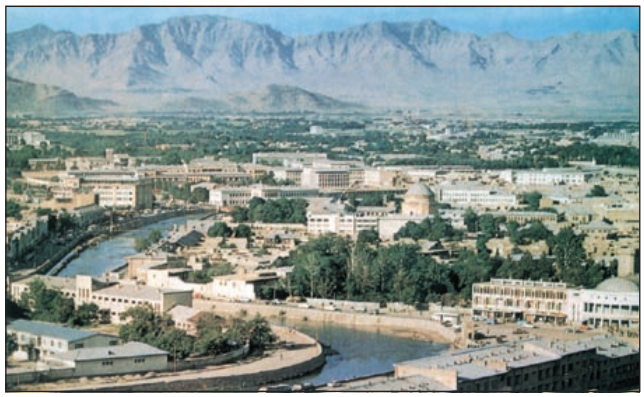

Figure 2. Beautiful Kabul 30 years ago.

was the easternmost province of the Achaemenid (Persian) Empire of Darius I. Islam was introduced into Afghanistan in 870 AD when the Arab armies marched through the country. Genghis Khan and his army also rode across Afghanistan in 1220-1332 AD causing much destruction.

It is sad to see the present situation in Afghanistan, especially when comparing it with the beautiful pictures taken 20 to 30 years ago (**Figure 2**). It is difficult to even classify Afghanistan as a developing country when many things are moving backwards and the country has been at war for the past 20 years (**Figure 3**). First, there was a coup against the King in 1973 then, in 1978, the Russians invaded, leading to a war for the next 10 years. Now, there is a civil war among different factions of 'freedom-fighters'. With the arrival of the Islamic extremist Taliban in 1996, and their control of most parts of the country, the situation seems to have become worse.

The Taliban claim to be the purest Islamic group in the world. However, the United Nations firmly rejects their claim to be the legitimate ruling government as they have seriously violated basic human rights. Women are not

Figure 3. Kabul destroyed by the war.

allowed to go to work. They have to wear a burqua, covering themselves from head to toe, and have been beaten for simply having their heels exposed. Women are denied basic medical care, and for a period of 8 months, our eye hospital was not allowed to treat female patients. I was also not allowed to teach female doctors. This situation persisted until the mother of the Minister of Public Health needed an intraocular lens (IOL) implantation, at which point we succeeded in re-opening the female section in the hospital.

Medical needs

As in most of the poorer countries, basic preventive medicine in Afghanistan is grossly lacking. Added to this is the senseless war, which has killed 1.6 million people in the past 20 years. There are 2 million permanently disabled people, many of whom were injured by land mines. The infant mortality rate is 152 per 1000 live births,[1] the second highest in the world, compared with 4 per 1000 in Hong Kong, the second lowest in the world. The average life expectancy is 45 years in Afghanistan,[1] the lowest in Asia, compared with 79 years in Hong Kong, the second highest in the world.

All kinds of eye diseases are seen in Afghanistan. The prevalence of blindness is about 0.6 to 1%.[2] Cataract is always the number one cause of blindness. After cataract, there is a lot of vitamin A deficiency in children, often precipitated by measles, and causing keratomalacia and permanent blindness. Trachoma, trauma, including land mine injuries (**Figure 4**), and late-stage tumors are all commonly seen. The Afghans also encourage marriage between first cousins as in earlier Chinese societies, resulting in many hereditary eye problems such as cataract, glaucoma, strabismus, microphthalmos, retinal dystrophies of infantile onset causing blindness, and retinoblastomas. Similar findings have been reported by Dr Neil Rogers who worked in the neighboring country of Uzbekistan.[3]

30 years ago, Kabul University and Medical School employed many expatriate professionals from Germany, the USA, and France. Now, after years of war, most of the trained physicians have left the country. The Taliban have now

Figure 4. A child blinded by a mine explosion. Both the child and his father have had limbs amputated due to landmine injuries.

stopped all girls from attending school and university. During the past 2 to 3 years, even the remaining professionals have started to leave. The Medical School is now producing many graduates every year, but they are poorly trained, and many of them pay to pass the examinations.

The NOOR eye project

NOOR stands for National Organization of Ophthalmic Rehabilitation. The sound 'noor' means 'light' in Persian. The aim of the project is to bring back sight and light to the needy, both physically and spiritually. In 1965, when there was no ophthalmic care in the country, Dr Howard Harper, an ophthalmologist from New Zealand, conducted an eye camp in Lashkarga. The venture was so successful that the King invited him to undertake the eye care for the whole country. In 1973, funded by the German Christian Blind Mission (CBM), NOOR Eye Institute opened a US$1.3 million 90-bed hospital in the capital, Kabul. It was designed to withstand the strongest earthquakes. Unfortunately, in 1992-3 during periods of intense fighting, the NOOR Eye Institute suffered severe damage and most of the equipment was looted. Medical books were stolen and sold in the market as fuel. Recently, we found and bought back an applanation tonometer for US$10 and a 20 diopter fundus lens for US$1! Now, we are running 3 smaller hospitals in Kabul (**Figure 5**), one in Herat, and one private hospital in Mazar.

NOOR is now run by a Christian voluntary agency named International Assistance Mission. Most of the funding for NOOR is from CBM, the single largest funding agency in the world supporting ophthalmic and prevention of blindness projects worldwide. However, the funding remains insufficient as Afghanistan is too poor to contribute. All the country's money is used to fund the war, and the international communities are expected to provide medical care for the people.

A large private eye institute is not feasible under the control of the government, as a big hospital is not efficient and much

manpower and resources are wasted or abused. The best model is probably to train the surgeons and help them establish their own private clinics throughout the country. We can set up one 8-bed clinic for only US$25,000, including all the renovation, power and water supplies, and ophthalmic equipment. However, it takes a long time for a good idea to become established.

Medical supplies

One of the biggest costs of running a hospital is medical supplies. However, these can be provided relatively cheaply as NOOR has its own eye-drop production units. Raw materials are imported in large quantities, including the small plastic bottles. Eye drops are regularly manufactured, including common antibiotics, prednisolone, zinc sulphate, atropine, homatropine, phenylephrine, pilocarpine, idoxuridine, methylcellulose, antazoline, and fluorescein strips. The average cost of one bottle is approximately 8 US cents. NOOR also makes vials of 2% lignocaine with adrenaline for injection. During the past few years, we have increased the number of eye-drop production centers to 3, which produced 226,000 bottles last year. Other special eye-drops and eye ointments are purchased from India, Iran or Pakistan. Although they cannot be analyzed in laboratories, they seem to be quite effective clinically.

IOLs are manufactured at the Aravind Hospital in Madras, India. The quality is approved by CBM in Germany and they now supply many countries in the world. The hospital is self-supporting, partly because of this income generation, and they can even provide free eye treatment for the poor. IOLs cost US$7.50 a piece. We use 2% methylcellulose (US$1.50 for a vial of 3 ml sufficient for five patients) or air instead of sodium hyaluronate. When we are able to charge a patient US$40 for an IOL operation, we can support the entire clinic including salaries and running costs and the clinic can be self-sustainable.

India manufactures a lot of eye equipment, reproducing many models of different items. As an example, an operating microscope costs US$4000 and a complete set of surgical instruments for extracapsular cataract extraction (ECCE) with IOL costs US$200.

Optical workshop

Eye-glasses are indispensable in eye care. In Afghanistan, most people are too poor to buy imported glasses, so NOOR has established its own optical workshop. Spherical and cylindrical lenses are purchased from India, and the grinding and edging is done locally. Patients can also choose between cheap plastic frames and metal frames. In Europe, many people donate their used frames (which are as good as new) to charity organizations and they can be used in poor countries. Last year, NOOR sold or donated a total of 7,900 pairs of glasses in Afghanistan.

Eye camps

Almost all the eye care facilities are confined to 4 cities in the country, namely Kabul, Mazar, Herat, and Jalalabad. There are a huge number of blind people living in the rural and mountainous areas, where eye care is inaccessible, or the inhabitants do not have enough money to travel to a nearby city. NOOR runs an average of six to seven eye camps each year. In each eye camp, about 20 staff, including four eye surgeons, travel in one or two off-track vehicles to a remote town or village, where they stay for 10 to 12 days and examine about 3000 to 4000 outpatients. 200 to 300 operations are performed, mainly simple cataract extraction (**Figure 6**). Eye-glasses are always in great demand. Now that a lot of the younger surgeons have learned ECCE and IOL implantation, it is expected that this will slowly replace intracapsular cataract extraction (ICCE), even in the eye camp setting. A few small A-scan units from the USA have been donated and an Indian-made keratometer costs only US$350. However, there is a risk of lack of follow-up for these patients when the eye camp team has gone.

Once, we went to an isolated mountain area called Nuristan in Northeast Afghanistan. Our small exploration team drove to the end of the track, then walked for a day and a half to a small village at an altitude of 9000 feet. We saw

Figure 5. One of the present NOOR Eye Hospitals, packed with sandbags for protection.

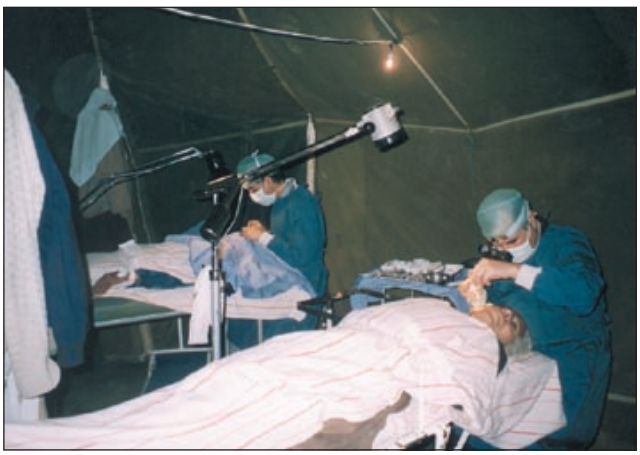

Figure 6. Performing cataract operations in a tent at an eye camp.

Figure 7. Examining patients in a tent at an eye camp.

many patients (**Figure 7**) and did a dozen operations but we could not bring enough supplies for more. Many patients had to walk or ride on horseback for a few days across mountains to reach the eye camp. It was hard to explain to the late comers that we could not operate and we promised to return. NOOR still returns to these areas regularly to run more eye camps.

In the long run, eye camps are not the solution for eye care for the whole country. Eventually, we hope to train more ophthalmologists and to set up permanent local community eye clinics, but until then, the eye camp is still the most cost effective measure and is greatly needed.

Ophthalmic technician training program

Due to the collapse of the education system, it is hard to find good medical graduates for training in ophthalmology. Moreover, most specialists prefer to stay in the cities and refuse to go to the rural areas, even though there is a large backlog of blind patients waiting for operations, as the living conditions are so poor. One measure is to send out eye camp teams to operate, but this is only a short-term solution. An alternative is to train some ophthalmic technicians and help them to set up a private business in remote areas.

Grade 9 high school graduates are trained for 3 years. The syllabus includes anatomy, physiology, pharmacology, optics and refraction, preventive eye care, and clinical ophthalmology. The emphasis is for them to be able to prescribe glasses, diagnose and treat simple eye diseases, teach preventive eye care, and refer patients with serious eye diseases for further treatment.

We selected the first 12 students in 1996, of whom nine finished the course and passed the examination. However, it still took some time to negotiate with the government to recognize this new profession and to allow them to work. Some have stayed in Kabul and work as assistants to ophthalmologists, where they may treat simple cases when the clinic is busy. Some also assist in the operating rooms. The others would like to leave the capital and set up clinics in remote towns where eye care is non-existent. These clinics would place orders for glasses with the optical workshop in Kabul and they would also be supplied with vitamin A tablets for distribution.

Power supply

Many areas of Afghanistan are not provided with electricity. Even in the capital I experienced a period of $2^1/_2$ years without a power supply. Therefore, we have to establish a reliable source of power in the city hospitals, as well as in the eye camps. In Afghanistan more than 80% of days are sunny. Solar energy is logically the most reliable and economical source of power. Large solar panels giving out 50W 12V DC current are connected in parallel. Large 12V lead acid or deep-cycle batteries are connected together and charged by solar power. To run the electrical equipment, inverters convert 12V DC current into 220V AC, with an output as high as 600 to 2000 W. This is sufficient for use in an ophthalmic operating room or out-patient clinic. When there is no sunshine, the batteries can be charged by diesel or petrol generators, or by the city electricity when available.

Review

When I first visited Kabul in 1991, there were 40 doctors at the NOOR Eye Institute. When I started work there in 1993, only 25 were left because the civil war had already started in the city. There had been no expatriate ophthalmologist to teach for many years. The local senior doctors did little training and would lock up the indirect ophthalmoscope for their own use. I started to teach the doctors to use the operating microscope and taught them to do ECCEs instead of ICCEs. There were a lot of lectures and tests and, while some had good English, most were slow. Gradually, they learned to do IOL implantation, anterior vitrectomy with lensectomy, strabismus surgery, ptosis, and some other oculoplastics. Only a few could handle simple retinal detachment repair (**Figure 8**). Although laser machines could not be installed because of the poor electricity supply and lack of technical support, we saw very few patients with diabetic retinopathy as the people were too poor to get enough to eat.

Figure 8. Teaching an Afghan ophthalmologist to perform retinal detachment repair surgery.

Apart from the civil war, there are other hindrances to ophthalmic development in Afghanistan. Following the communist practice, the government pays every member of staff the same amount of salary (US$3-4 per month). There is little incentive for them to work hard. All doctors have to work in a government hospital in the mornings, and then they work in their private clinics in the afternoons to make a living. Within the government, there is little concern to meet the medical needs of the country.

Some ophthalmologists feel threatened when other surgeons are learning new techniques and they are left behind to do more basic work. They are afraid of losing their business and try hard to hinder development of new clinics. Some of the better surgeons left the country after the Taliban came to power, which was a big loss.

When people ask me whether I think it was worth spending those years there, my answer is affirmative. The skills that I have passed on have already helped many patients who could not have been treated before. The doctors have also learned to teach each other and to learn together instead of keeping their knowledge to themselves. I hope this spirit will continue in the NOOR Eye Project.

Panoramic view

With the advancements in global communication and ease of travel, one should not remain inward looking. At most of the large international ophthalmic conferences, there are sections on programs for prevention of blindness worldwide and outreach programs for the under-served. Chinese professionals own vast resources of knowledge and wealth, but we are far behind in participating in relief and development work for needy people of different races. It can only be beneficial for ophthalmologists to work together and learn from each other, and fight for better eye care throughout the world in more effective ways.

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HKJO Quiz

A child with unilateral visual impairment

Shun-Kit Chan, FCOphthHK, FRCS, Chi-Cheong Wong, FCOphthHK, FRCS
Department of Ophthalmology, Tung Wah Eastern Hospital, Hong Kong, China.

Question

A 7-year-old boy presenting with convergent squint was found to have impaired vision in the left eye (**Table 1**). He had no family history of eye disease and his past health was normal. The birth history was unremarkable except that he was delivered by forceps.

Table 1. Ocular examination revealed decreased vision in the left eye.

	Visual acuity	Trial lens	Best corrected visual acuity
OD	6/18	-150	6/6
OS	0.5/60	-550 -700 x 180	1/60

Abbreviations: OD = right eye; OS = left eye

His eyes were straight and no squint was demonstrated. Fundal examination was normal. Examination of the left cornea showed interesting features and the slit lamp photo is shown in **Figure 1**.

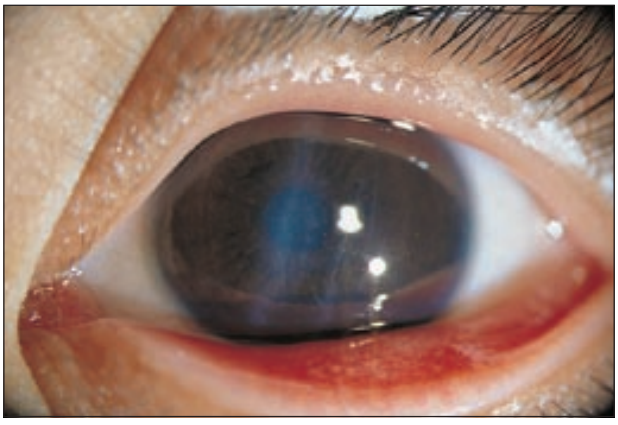

Figure 1. Slit lamp photograph of the cornea of a child with impaired vision in the left eye.

What is the diagnosis?

(Answer and discussion on page 40)