The sense of sight is so precious that people fear blindness more than the loss of memory, hearing or speech, according to studies. Blindness ranks alongside cancer, Alzheimer’s disease and HIV/AIDS as among the “worst things that could happen” to someone, and many say their ability to see is more important than how long they live.\(^1\)

Consider, then, how it would feel to lose one’s sight and to know that a vision-restoring treatment existed, but was unavailable to you. Imagine the prospect of never seeing again and the impact on you, your family and friends, even your community.

Sadly, it’s a grim reality for millions of people across the globe who are living with curable corneal blindness. The observance of World Sight Day on October 13\(^{th}\) focuses global attention on blindness and vision impairment as major international health issues.\(^2\)

What is Corneal Blindness?

The cornea is the dome-shaped, outermost layer of the eye that covers the iris and pupil, much like a watch crystal covers the face of a watch. One could characterize it as the clear front window of the eye.\(^3\)

The cornea has two functions. It acts as a barrier against dirt, germs and other particles that can harm the eye and filters out damaging ultraviolet (UV) light from the sun. The cornea also plays an essential role in vision by helping to focus light onto the lens of the eye. The lens in turn refocuses the light on the retina, which starts the translation of light into vision.\(^4\),\(^5\)

When the cornea becomes clouded, misshapen or scarred as a result of injury, infection or disease, visual impairment or functional blindness can result.\(^4\) Diseases of the cornea are a major cause of blindness worldwide, second only to cataracts. An estimated 45 million people worldwide have lost sight in both eyes due to corneal disease, while another six to eight million are sightless in one eye.\(^4\)

Corneal blindness occurs in both developing and developed countries, though causes differ. Common causes of corneal blindness in the developing world include infectious conditions
such as trachoma and corneal ulcer. Corneal ulcer is an open sore on the cornea.⁴

In developed countries, however, corneal blindness often results from inherited diseases such as corneal dystrophies, which cause the cornea to lose normal clarity due to a buildup of materials that cloud it. Keratoconus, a progressive thinning of the cornea, is the most common corneal dystrophy in the United States, where it affects one in 2,000 Americans.⁴, ⁵

A condition known as pseudophakic bullous keratopathy – a painful swelling of the cornea following cataract surgery – is another common cause of corneal blindness in developed countries. Meanwhile, the herpes virus is the leading cause of corneal ulcer.⁴
Corneal Transplantation

The good news is that corneal blindness has been curable since 1905, when the first successful corneal transplant took place. Corneal transplantation replaces damaged tissue on the eye’s surface with healthy donor tissue provided by an eye bank.4

The first eye bank opened in 1944 in New York City. Since then, eye banks have been retrieving, storing, evaluating, processing and distributing corneal tissue for transplant. More than a century later, corneal transplantation is performed routinely and surgical techniques continuously improve.4

The U.S. leads the world in corneal transplants, with more than 42,000 procedures performed annually. Since 1961, corneal transplants have restored the sight of more than one million Americans. This makes corneas the most commonly transplanted tissue today. 4, 5, 6

SightLife: Partnering with The Alcon Foundation to Restore Sight

There is no waiting list for corneal transplants in the U.S., which has a ready supply of donor corneas and surgeons to transplant them. However, that’s not the case in the developing world, home to more than 90 percent of the 10 million people living with curable corneal blindness.7

In these countries, barriers to sight restoration include insufficient corneal tissue and inadequate healthcare infrastructure to support corneal transplantation. As a result, fewer than 30,000 corneal transplants are performed annually in developing or emerging countries.7

“It’s a very different environment in many parts of the world compared to the U.S.”, said Suman “Sumi” Bhat-Kincaid, Manager of Corporate & Foundation Partnerships for SightLife. “Millions of people in the world, especially the developing world, are corneal blind and don’t need to be.”

SightLife is working to change that. The organization was founded in 1969 by the Lions of the Pacific Northwest, a service organization that is synonymous with the preservation of sight. Today, SightLife is the only non-profit global health organization and eye bank solely focused on eliminating corneal blindness in the U.S. and around the world. The Seattle-based organization partners with surgeons and health organizations in more than 30 countries. Together with global eye bank partners, SightLife provided nearly 21,000 corneas for transplant in 2014 alone.4
Since 2009, SightLife has been working in India, where an estimated one million people are corneal blind in both eyes and awaiting corneal transplants. Corneas are in short supply because India does not have a central organ donation registry. With no donor card or driver's license designating an individual as an organ donor, “you tell your family that you want to be a donor and hope someone remembers,” Sumi related.

In addition to a shortage of corneal tissue, India’s eye banks don’t operate as efficiently as they could. In addition to recovering, preparing and transplanting corneas, surgeons are often responsible for administrative work. And while this country of 1.2 billion people boasts many surgeons, “not enough of them are trained in corneal transplants,” according to Sumi.

With support from the Alcon Foundation, SightLife is conducting outreach and educational activities to increase corneal donation, mentoring eye banks to increase their capacity by improving management practices and standards; and training surgeons on the latest corneal transplantation techniques. This includes persuading cataract surgeons to “expand their scope” by adding corneal transplants to their surgical repertoire, according to Sumi.

“The Alcon Foundation recognizes not only the importance of sight restoration in India and around the world, but that of restoring quality of life,” Sumi said. “We can reduce corneal blindness and give people their lives back.”

Two Women’s Stories

She shared the story of Chandbee, who became corneal blind as a result of an infection and could no longer work. Unable to feed their three children, she and her husband sent them to a hostel. Her family was joyfully reunited after Chandbee received a corneal transplant during a SightLife surgeon training program supported by Alcon.

“People don’t have a good understanding of the impact of corneal blindness on patients, their families and everyone else, and how many lives you can dramatically transform when one person in a family regains sight,” said Caroline Hoover, SightLife’s Vice President of Surgical Services. “It has a ripple effect and helps so many more people than you think.”

She went on to explain that the accommodations that enable handicapped individuals to live more independent lives in the U.S. aren’t available in many countries. As in the case of Chandbee, corneal blindness profoundly impacts families and communities, as well as patients.
“In places like India where corneal blindness is prevalent, it’s not just about you, but about everyone, because you’re a burden to your entire family,” Caroline explained. “In some cases, kids don’t get to go to school because a parent or grandparent has corneal blindness. They become seeing-eye children and don’t get the lives they could have.”

For every Chandbee, there are others hoping for their own happy ending. Sixteen-year-old Jasoda, corneal blind in one eye and awaiting a corneal transplant, lives with her family in rural northeast India. The area is chronically short of corneas to meet demand.

One day Jasoda’s family received a call from the nearest eye bank, located hundreds of miles away: A cornea was available and the first patient to arrive there would receive the transplant. Jasoda and her family raced to the hospital, but they weren’t the first to arrive. The cornea went to another patient. Jasoda continues to wait.

Asked what she envisioned for her future, she quietly replied that she tried not to think about it. As long as she remains blind, it’s unlikely that she will marry and have a family of her own, the traditional path for women like Jasoda in rural India. SightLife is now working to establish an eye bank in the region where Jasoda lives.

“We have a solution that works. Now the problem is making the solution available,” Caroline said with conviction. “We know what needs to be done. Now we just have to go out and do it.”

Disclaimer:

References


   https://www.sightlife.org/Media/Default/Assets/AboutUs/ForMedia/SightLife_Eye_Banking_Backgrounder.pdf

   https://nei.nih.gov/health/cornealdisease

   http://www.allaboutvision.com/conditions/cornea-transplant.htm


Source URL: https://www.alcon.com/stories/millions-patients-developing-countries-await-corneal-transplants-restore-their-sight

Links